

RCA

**industrial
tubes**

1975 product guide

Scope

This Guide to RCA Industrial Tube Products contains two major sections: **Characteristics** and **Replacement**. In the **Characteristics** section, RCA types are grouped by specific products and arranged by type designation; only major characteristics are tabulated. In the **Replacement** section, types to be replaced are arranged in a special numerical index; the RCA type is specified as a direct replacement or a similar type.

Limited information is given in this catalog; most product groups have an expanded catalog with selection charts and more tabulated characteristics in order to narrow your selection. Additional publications are listed for each product. The final choice of type designation should be based on complete ratings and characteristics specified in the individual data sheet for the type.

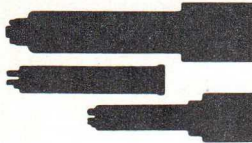
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NUMITRON Digital Display Devices — low-voltage incandescent digital display devices with high-brightness alpha numeric displays for a wide variety of digital-readout systems.

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Instrument Cathode-Ray Tubes (CRT)/Flying Spot Scanner CRT/Photorecording CRT/Voltage Penetration CRT/Direct View Kinescopes/Long Persistence CRT/Silicon-Target and Other Electrical-Storage Tubes/Display Storage Tubes/Projection Kinescopes

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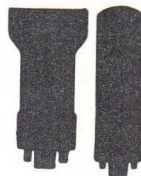
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Power Tubes for CW Operation (Broadcast — AM, FM, VHF-TV, and Communications — HF, SSB, HF-VHF-UHF Vehicular, VHF Aircraft, UHF Military, and UHF Mobile)/Power Tubes for Pulse Operation (pulse communication, search radar, and accelerators)/Power Tubes for Control (rectifiers, thyratrons, ignitrons)

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RF Power Amplifier, Oscillator, or Frequency Multipliers-Class C; AF Power Amplifiers or Modulators-Class A, AB₁, AB₂, or B; "Special Red" Types; Types for UHF Applications; Rectifiers & Diodes; Types for Stabilization of DC Voltage Supplies; Other Types



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Trigger Types (Gas-filled); Types for On-Off Control Applications; and Other Special Applications

Characteristics | Index by Type

Commercial Types

Types are indexed in numerical-alphabetical order. All types starting with a number are listed first; the number (or numerical field) consists of all digits up to a letter, hyphen, slash, or the end (i.e., OA2, 4-65A, 710/6011, 1612). Types with the same initial numerical field are then arranged alphabetically (i.e., 6AC7W, 6AK6, 6J4, 65J7Y). Types starting with letter(s) follow and are arranged alphabetically. Types with the same alphabetical field are then arranged numerically.

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OA2	15	4-1000A—See 8166/4-1000A		8QP4	8	931A	8
OA2WA	15	4CX250B	10	9C25	11	931B	8
OA3	15	4CX250F—See 7204/4CX250F		10SP4	8	931VA	8
OA3A	15	4CX250FG—See 8621/4CX250FG		12A6	14	934	9
OA4G	15	4CX300A—See 8167/4CX300A		12AT7—See 6679/12AT7		935	9
OB2	15	4CX1000A—See 8168/4CX1000A		12AT7WA	15	955	14
OB2WA	15	4CX3000A—See 8169/4CX3000A		12AT7WB	15	959	14
OC2	15	4CX5000A—See 8170/4C5000A		12AU7A—See 6680/12AU7A		991	15
OC3	15	4CX10000D—See 8171/4CX10000D		12AU7WA—See 6189/12AU7WA		1612	16
OC3A	15	4CX15000A—See 8281/4CX15000A		12AX7A—See 6681/12AX7A		1613	14
OD3	15	4D21—See 4X125A/4D21		12AY7—See 2082/12AY7		1614	14
OD3A	15	4E27A/5-125B	10	12SW7	16	1616	12
1C21	15	4X150A	10	12SY7	15	1619	14
1EP1	7	4X500A	10	14GT8—See 7724/14GT8		1620	16
1EP11	7	5-1258—See 4E27A/5-125B		26A6	13	1621	14
1L4	14	5ABP1	7	26A7GT	13	1622	14
1P21	8	5ABP7	7	26C6	13	1624	10
1P22	8	5ADP1	7	26D6	13	1625	10
1P28	8	5ADP31	7	83	14	1629	16
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1P28A/V1	8	5BP1A	7	407A	15	1946	9
1P29	9	5C21—See C6J/5C21		408A	15	1947	9
1P37	9	5CP1A	7	417A—See 5842/417A		1949	9
1P39	9	5D22—See 4-250A/5D22		575A	12	2020	8
1P40	9	5FP7A	8	5798	12	2022	9
1P41	9	5R4GYB	14,16	604/7014	12	2050	15
1P42	9	5UP1	7	615/7018	12	2050A	15
2AP1A	7	5UP7	7	627	12	2055	8
2BP1	7	5UP31	7	632B	12	2060	8
2C39WA/C	11	5ZP16	8	672A	12	2061	8
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2C43	11	6AC7W	16	676	12	2064B	9
2D21	15	6AB4—See 6664/6AB4		677	12	2065	9
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2E26	10	6AG7Y	16	714/7021	12	2081/6AW8A	15
2K26	11	6AH6WA	16	760/6858	12	2082/12AY7	15
2X2A	12	6AK6	14	807	10	4028A	13
3A4	14	6AL5—See 6663/6AL5		810	11	4037A	13
3A5	14	6AN5	14	811A	11	4042	13
3AP1A	7	6AQ5A—See 6669/6AQ5A		812A	11	4043	13
3AQP1	7	6AS6	15,16	813	10	4055	13
3B4WA	14	6AS6W—See 5725/6AS6W		816	12	4058	13
3B28	12	6AS7G	15	828	10	4062A	13
3BP1A	7	6AS7GA	15	829B	11	4065	13
3C23	12	6AU6WB	15	832A	11	4407	8
3CX100A5—See 7289/3CX100A5		6AW8A—See 2081/6AW8A		833A	11	4412	8
3CX2500F3—See 8251/3CX2500F3		6BA6—See 6660/6BA6		836	12	4440	8
3CX3000A7	11	6BH6—See 6661/6BH6		845	11	4441	9
3CX3000F1—See 8239/3CX3000F1		6BJ6—See 6662/6BJ6		857B	12	4441A	9
3CX5000H3	11	6CB6A—See 6676/6CB6A		866A	12	4454	8
3CX10000A7	11	6CL6—See 6677/6CL6		868	9	4460	9
3CX10000H3	11	6CY5—See 7717/6CY5		869B	12	4461	9
3CX20000A7	11	6D4	15	872A	12	4463	8
3C45—See 6130/3C45		6DJ8/ECC88	14	884	15	4464	9
3D22A	12	6F4	14	891R	11	4465	9
3E29	11	6J4	14	892	11	4471	8
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Developmental Types

Developmental types are suitable for engineering evaluation. The number and identifying data are subject to change. Before specifying any of these types in production equipment, please contact RCA. No obligation is assumed by RCA as to future manufacture of developmental types unless otherwise arranged.

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Characteristics | Imaging Devices

Camera Tubes | Image Orthicons

Image Orthicons are designed primarily for outdoor and studio, black-and-white or color, live broadcast TV pickup. They are also employed extensively in many military, industrial, and scientific research television systems. A broad choice of tube design features are available: field or non-field mesh design; glass, thin-film semiconductive, or special long-life targets; precision construction; and antighost image section design; microdamp construction; tube size; and matched sets for color pickup.

For more information, refer to the product line catalog: RCA Image Orthicons, CAM-800C

Typical Applications

- Broadcast Television Live Pickup
- Military and Industrial TV Systems
- Studio Videotape Service

Image Orthicons for Live Black-and-White Television

3" Diameter Types†

Type	Typical Sens. at Knee lm/ft ² (fc)	Amplitude Response at 400 TV Lines Per Cent	Typical Signal-to-Noise Ratio	Maximum Dimensions	
				Overall Length In.	Diameter In.
5820A/L	1 x 10 ⁻²	55	34 dB	15.45	3.06
8673	1.5 x 10 ⁻²	60	35 dB	15.45	3.06
8674	1 x 10 ⁻²	55	33 dB	15.45	3.06

4-1/2" Diameter Types††

7295C	3 x 10 ⁻²	75	38 dB	19.685	4.594
7389C	5 x 10 ⁻²	75	39.5 dB	19.685	4.594

Image Orthicons for Live Color Television

3" Diameter Types†

Type	Typical Sens. at Knee lm/ft ² (fc)	Amplitude Response at 400 TV Lines Per Cent	Typical Signal-to-Noise Ratio	Maximum Dimensions	
				Overall Length In.	Diameter In.
8673	1.5 x 10 ⁻²	60	35 dB	15.45	3.06
8674	1 x 10 ⁻²	55	33 dB	15.45	3.06

3" Diameter Types (Matched Trios for Color)†

8673/S	1.5 x 10 ⁻²	60	35 dB	15.45	3.06
8674/S	1 x 10 ⁻²	55	33 dB	15.45	3.06

4-1/2" Diameter Types

(For Luminance Channel of RCA Color Cameras TK-42 and TK-43)

4536†††	4 x 10 ⁻²	60	40.5 dB	19.685	4.594
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Image Orthicons for X-ray Linkage Systems

3" Diameter Types

4401/V3	1 x 10 ⁻²	50	34 dB	15.45	3.06
5820A/L	1 x 10 ⁻²	55	34 dB	15.45	3.06

†For target volts = 2.0.

††For target volts = 2.3.

†††For target volts = 3.0.

Camera Tubes | Silicon-Intensifier

Target (SIT) Tubes

SIT Tubes are designed for use in very low light level TV systems. The silicon targets of these tubes have excellent discharge capabilities, i.e., minimal "comet-tail" effects. They operate near the photoelectron noise limit.

16-Millimeter Fiber Optic Faceplate Types—

Potted Image Section *

Type	Typ. Amplitude Response at 400 TV Lines Per Cent	Typical Sensitivity μA/lm fc	Typ. Operating Faceplate Illumination	Maximum Dimensions	
				Overall Length In.	Diameter In.
4804 Family	30	270,000	≤ 10 ⁻³	7.73	2.09

25-Millimeter Fiber Optic Faceplate Types—Potted Image Section*

4826 Family	34	290,000	3 x 10 ⁻⁴	9.07	3.0
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*Non-potted versions also available.

Camera Tubes | Image Isocons

Image Isocons are modern high-definition camera tubes with sensitivity and optical properties similar to those of the Image Orthicon. They differ from the image orthicons by being much quieter, have higher and more uniform resolution, a greatly extended dynamic range, and are easier to set-up in use. For more information, refer to the product line catalog: RCA Camera Tube Product Guide CAM-703B.

Type	Knee-Point Faceplate Illumination Sensitivity lm/ft ² (fc)	Amplitude Response at 400 TVL Per Cent	Spectral Response	Maximum Dimensions	
				Overall Length In.	Diameter In.
4827A	0.001	75	S-20	16.81	3.06
4828A	0.01	80	Bialkali	16.81	3.06

Camera Tubes | Isocon Focus and Deflection Assembly

AJ2172

For use with 4827A and 4828A, see AJ2172 bulletin for details.

Camera Tubes | Vidicons

Vidicons are designed primarily for TV film studio pickup service and closed-circuit TV applications. Among the choice of tube design features available are deflection and focus methods, ruggedized or non-ruggedized tubes, conventional or low power "dark heaters", photoconductive surface, and tube size.

For more information, refer to the product line catalog: RCA Camera Tube Product Guide, CAM-703B

Typical Applications

- Broadcast Studio Color and Black-and-White Film Pickup
- Educational, Industrial, and Military Closed-Circuit TV
- Space Exploration
- Oceanographic Surveys
- Data Transmission
- Remote Monitor Systems

Vidicons for Broadcast Studio Cameras

Type	Typical Faceplate Illum. Footcandles	Typical Signal-Output Current μA	Limiting Resolution TV Lines	Maximum Dimensions	
				Overall Length In.	Diameter In.

Black and White Pickup

Sulfide Types

7735B	1	0.25	900	6.50	1.135
8507A	1	0.20	1100	6.375	1.135
8541A	1	0.20	1100	6.375	1.135

Lead Oxide Types (Vistacons)

4591/L	1	0.80	700	8.66	1.385
4592/L	1	0.80	700	8.66	1.385

Silicon Types (S-T vidicons)

4532B	0.1	0.565	700	6.375	1.135
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Color Pickup

Sulfide Types

4493	4.5*	0.06	500	6.35	1.135
4494	4.5*	0.06	500	6.35	1.135
4495	4*	0.02	500	6.35	1.135
4543	1	0.20	1100	6.375	1.135
7735B	1	0.25	900	6.50	1.135
8507A	1	0.20	1100	6.375	1.135
8541A	1	0.20	1100	6.375	1.135

Lead Oxide Types (Vistacons)

4591/B	1**	0.08	700	8.66	1.385
4591/G	1**	0.32	700	8.66	1.385
4591/L	1	0.80	700	8.66	1.385
4591/R	1**	0.196	700	8.66	1.385
4592/B	1**	0.08	700	8.66	1.385
4592/G	1**	0.32	700	8.66	1.385
4592/L	1	0.80	700	8.66	1.385
4592/R	1**	0.196	700	8.66	1.385
4593/R	-	-	700	8.66	1.385
4594/R	-	-	700	8.66	1.385

Silicon Types (S-T vidicons)

4532B	0.1	0.565	700	6.375	1.135
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Film Pickup

Sulfide Types

Type	Typical Faceplate Illum. Footcandles	Typical Signal-Output Current μA	Limiting Resolution TV Lines	Maximum Dimensions	
				Overall Length In.	Diameter In.
4543	1	0.20	1100	6.375	1.135
4809	1	0.20	900	6.375	1.135
4809/B	1	0.20	900	6.375	1.135
7038	15	0.35	600	6.50	1.135
7038/V	15	0.35	750	6.50	1.135
7038/V4	15	0.35	750	6.50	1.135
7735B	1	0.25	900	6.50	1.135
8134	1	0.20	800	6.35	1.135
8134/4811	1	0.20	800	6.35	1.135
8134/4811/B	1	0.20	800	6.35	1.135
8480	10	0.50	1400	10.375	1.60
8480/4810	10	0.50	1400	10.375	1.60
8507A	1	0.20	1100	6.375	1.135
8521	1	0.20	1500	8.00	1.60
8541A	1	0.20	1100	6.375	1.135
8572A	10	0.30	1100	6.375	1.135
8572A/V	10	0.35	1100	6.375	1.135
8572A/V4	10	0.35	1100	6.375	1.135

Vidicons for Broadcast Studio Cameras
Film Pickup
Lead Oxide Types (Vistacons)

Type	Typical Faceplate Illum. Footcandles	Typical Signal-Output Current μ A	Limiting Resolution TV Lines	Maximum Dimensions	
				Overall Length In.	Diameter In.
4591/B	1**	0.08	700	8.66	1.385
4591/G	1**	0.32	700	8.66	1.385
4591/L	1	0.80	700	8.66	1.385
4591/R	1**	0.196	700	8.66	1.385
4592/B	1**	0.08	700	8.66	1.385
4592/G	1**	0.32	700	8.66	1.385
4592/L	1	0.80	700	8.66	1.385
4592/R	1**	0.196	700	8.66	1.385
4593/R	-	-	700	8.66	1.385
4594/R	-	-	700	8.66	1.385
4816	1	0.80	700	8.43	1.385
4817	1	0.80	700	8.43	1.385

for CCTV Cameras
Education, Training, Industry, Surveillance
Sulfide Types

Type	Typical Sensitivity Footcandles (After Filtering#)	Typical Signal-Output Current μ A	Limiting Resolution TV Lines	Maximum Dimensions	
				Overall Length In.	Diameter In.
4493	4.5*	0.06	500	6.35	1.135
4494	4.5*	0.06	500	6.35	1.135
4495	4*	0.02	500	6.35	1.135
4503A	1	0.20	1100	5.25	1.135
4514	1	0.20	750	5.81	1.135
4543	1	0.20	1100	6.375	1.135
4809	1	0.20	900	6.375	1.135
4809/B	1	0.20	900	6.375	1.135
4846	1	0.20	900	6.375	1.135
4848	-	-	600	4.173	0.78
7038	15	0.35	600	6.50	1.135
7038/V	15	0.35	900	6.50	1.135
7262A	1	0.20	900	5.18	1.135
7263A	1	0.20	900	5.18	1.135
7735	1	0.15	700	6.50	1.135
7735A	1	0.18	700	6.50	1.135
7735B	1	0.25	900	6.50	1.135
8134	1	0.20	800	6.35	1.135
8134/4811	1	0.20	800	6.35	1.135
8134/4811/B	1	0.20	800	6.35	1.135
8480	10	0.50	1400	10.375	1.60
8480/4810	10	0.50	1400	10.375	1.60
8507	1	0.20	900	6.375	1.135
8507A	1	0.20	1100	6.375	1.135
8521	1	0.20	1500	8.00	1.60
8541	1	0.20	900	6.375	1.135
8541A	1	0.20	1100	6.375	1.135
8572A	10	0.30	1100	6.375	1.135
8572A/V	15	0.35	1100	6.375	1.135
8844	1	0.12	700	4.05	0.78

Lead Oxide Types (Vistacons)

4591/B	1**	0.08	700	8.66	1.385
4591/G	1**	0.32	700	8.66	1.385
4591/L	1	0.8	700	8.66	1.385
4591/R	1**	0.196	700	8.66	1.385
4592/B	1**	0.08	700	8.66	1.385
4592/G	1**	0.32	700	8.66	1.385
4592/L	1	0.8	700	8.66	1.385
4592/R	1**	0.196	700	8.66	1.385
4816	1	0.8	700	8.43	1.385
4817	1	0.8	700	8.43	1.385

Silicon Types (S-T vidicons)

4532	0.1	0.565	700	6.375	1.135
4532A	0.1	0.565	700	6.375	1.135
4532B	0.1	0.565	700	6.375	1.135
4833	0.1	0.29	450	4.225	0.78
4833A	0.1	0.29	450	4.225	0.78

for Special Applications

Slow Scan Types

4542	0.1	0.20	1000	6.375	1.135
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Ruggedized Types

4503A	1	0.20	1100	5.25	1.135
4514	1	0.20	750	5.81	1.135
7263A	1	0.20	900	5.18	1.135

Fiber-Optic Faceplate Types

4569	1	0.20	1100	6.375	1.135
4589	1	0.16	1100	6.375	1.135

X-Ray Linkage Types

8134	1	0.20	800	6.35	1.135
8541A/X	1	0.20	1100	6.375	1.135
4816	1	0.80	700	8.43	1.385
4817	1	0.80	700	8.43	1.385

*2856 K tungsten illumination on (1) Wratten 25 (red) for 4493, (2) Wratten 58 (green) for 4494, and (3) Wratten 47 (blue) for 4495

**These characteristics are measured using the following optical filters, or equivalent: for types 4591/r (red) - Schott, OG570 (formerly OG2), 3 mm thick. For types 4591/G and 4592/G (green) - Schott, VG9, 1 mm thick. For types 4591/B and 4592/B (blue) - Schott, BG-12, 3 mm thick.

Characteristics | Display Tubes

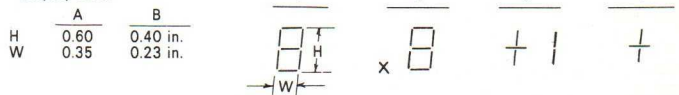
Digital Devices

NUMITRON digital display devices of the incandescent type provide sharp, high-brightness, high-contrast ratio (30:1), clutter free displays viewed against a dark background. They are fully compatible with available low-cost integrated circuit decoder/drivers, have a mean life expectancy of 100,000 hours, and are ideally suited for most types of numeric-readout systems. A wide variety of color displays may be obtained by the use of suitable filters. Other advantages include a wide viewing angle, freedom from induced or radiated interference, and standard low-cost socket availability.

For more information refer to the product line catalog: RCA NUMITRON Digital Display Devices, NUM-421A.

Type	Visual		Segment		Dimensions		
	Display Code*	Viewing Angle	Luminescence fL	DC Volts	DC mA	Seated Length In.	Dia. In.
DR2000	1A	140	7000	4.5	24	1.625	0.800
DR2010	2A						
DR2020	3A						
DR2030	4A						
DR2100	1B	120	7000	4.5	24	1.450	0.485
DR2110	2B						
DR2120	3B						
DR2130	4B						
DR2200	1B	120	4000	2.5	14	1.450	0.485
DR2210	2B						
DR2220	3B						
DR2230	4B						

* Display Code



CRT and Storage Types

The tubes below are designed for use in commercial, educational, industrial and military systems.

Notes:

Phosphor colors: B = Blue, G = Green, Y = Yellow, O = Orange, R = Red, Pi = Pink, Pu = Purple, V = Violet, W = White

Persistence:

VL = Very Long, L = Long, M = Medium, MS = Medium Short, S = Short, VS = Very Short.

#Flatface

**Spherical face

Instrument Cathode Ray Tubes (CRT's)

These tubes employ electrostatic focus and deflection in industrial applications to provide visual presentations of electrical phenomena.

Type	Nom. Dia. In.	Nom. Length In.	Phosphor			Oper. kV
			Type	Color	Persis.	
1EP1#	1.25	4.06	P1	YG	M	1.0
1EP11#	1.25	4.06	P11	B	MS	1.0
2AP1A##	2	7.62	P1	YG	M	1.0
2BP1#	2	7.38	P1	YG	M	1.0
3AP1A##	3	11.88	P1	YG	M	1.0
3AQP1##	3	9.12	P1	YG	M	1.0
3BP1A##	3	9.25	P1	YG	M	1.5
3FP7A##	3	10.25	P7	PuB	L	4.0/2.0
3KP1#	3	11.75	P1	YG	M	1.0
3RP1#	3	9.38	P1	YG	M	1.0
3RP1A#	3	9.38	P1	YG	M	1.0
3RP7A#	3	9.31	P7	PuB	L	1.0
3WP1#	3	11.62	P1	YG	M	1.0
3WP11#	3	11.62	P11	B	MS	1.0
5ABP1#	5.25	17.12	P1	YG	M	4.0/2.0
5ABP7#	5.25	16.75	P7	PuB	L	4.0/2.0
5ADP1#	5.25	17.12	P1	YG	M	4.0/2.0
5ADP31#	5.25	17.12	P31	G	MS	4.0/2.0
5BP1A##	5.25	17.12	P1	YG	M	2.0
5CP1A##	5.25	17.12	P1	YG	M	3.0/1.5
5UP1#	5.25	15.12	P1	YG	M	1.0
5UP7#	5.25	15.12	P7	PuB	L	1.0
5UP31##	5.25	15.12	P31	G	MS	1.0
7VP1#	7	14.88	P1	YG	M	3.0
7VP31##	7	14.88	P31	G	MS	3.0
902A##	2	7.62	P1	YG	M	0.4
4490##	7	14.88	P31	G	MS	6.0/3.0
4491##	8.38	16.75	P31	G	MS	6.0/3.0
4510#	5.25	12.13	P7	PuB	L	3.0/1.5
4572#	5.25	15.12	P1	YG	M	2.0

Photorecording CRT's

These types represent the result of intensive work on fine grain phosphor deposition and emission system design. They are used for photographic applications such as Computer Output Microfilm (COM).

Type	Nom. Dia. In.	Nom. Length In.	Phosphor			Oper. kV	Focus	Defl. Angle	Defl. Angle
			Type	Color	Persis.				
4506	7	22	G534	PuB	S	20	M	M	42
4869	5.25	15.31	G533	PuB	S	20	E	M	42
4870	5.35	16.94	G533	PuB	S	15	M	M	42

Characteristics | Display Tubes (cont'd)

CRT and Storage Types

Flying Spot Scanner CRT's

These tubes are used in conjunction with photomultipliers in a variety of video signal generators. They are used for TV signal sources, document readers, mail sorters and particle counters among others.

Type	Nom. Dia. In.	Nom. Length In.	Phosphor				Oper. kV	Focus	Defl.	Defl. Angle
			Type	Color	Persis.					
5AUP24	5	12-1/2	P24	G	S	27	E	M	40	
5ZP16	5	9-3/4	P16	Near UV	VS	27	M	M	40	
4407	5	11-1/4	P37	B	VS	5	M	M	53	
4873	5	11.19	G591	W	S	25	E	M	50	
4874		4873 with cable								

Direct View Kinescopes

These types are designed for use in television monitors where space is at a premium.

Type	Nom. Dia. In.	Nom. Length In.	Phosphor				Oper. kV	Focus	Defl.	Defl. Angle
			Type	Color	Persis.					
7TP4	7	13-1/4	P4	W	MS	12	E	M	50	
8HP4	8 Rect.	10	P4	W	MS	11	E	M	90	
8NP4	8 Rect.	10	P4	W	MS	16	E	M	90	
8QP4	8 Rect.	10	P4	W	MS	16	E	M	90	
10SP4	10	16-3/4	P4	W	MS	14	E	M	50	
17DWP4	17 Rect.	10-3/4	P4	W	MS	16	E	M	70	
21EYP4	21 Rect.	23	P4	W	MS	18	E	M	72	
4557	12 Rect.	16-3/4	P4	W	MS	12	E	M	70	

Radar Display CRT's

These types are well suited for the display of radar information in both ground-based installations and other applications requiring long-persistence phosphors.

Type	Nom. Dia. In.	Nom. Length In.	Phosphor				Oper. kV	Focus	Defl.	Defl. Angle
			Type	Color	Persis.					
4531	5	9-3/4	P7	W/YG	MS/L	8.5	E	M	-	
5FP7A	5	11-1/4	P7	W/YG	MS/L	7.0	M	M	53	
7MP7	7	12-3/4	P7	W/YG	MS/L	7.0	M	M	50	

Electrical Storage Tubes

These tubes are designed for use as information-rate converters in computer terminals and narrow-band video communications.

Type	Major Dia. In.	Nom. Length In.	Focus	Defl.	Defl. Angle	Write Time ms	Read Time min.	Erase Time ms	Oper. kV	Notes
6499	3-1/2	12	E	E	-	-	-	-	1.5	Radechon Graphechon
7539	3-1/2	26	E	M	30	-	30s	200ms	10	

Projection Kinescopes

These tubes are designed for use in TV projectors in closed circuit systems. They employ high voltage electrostatic focus and magnetic deflection.

Type	Nom. Dia. In.	Nom. Length In.	Defl. Angle	Color	Oper. kV	Power Level	Lumens	Foot Lamberts
5AZP4	5	12-1/4	50	W	40	12	137	1650
7NP4	7	19-1/2	35	W	75	160	845	6500
7WP4	7	19-1/2	35	W	75	160	845	6500
4486	7	19-1/2	35	W	75	160	845	6500
4565	6	16	50	B	50	25	48	400
4566	6	16	50	G	50	25	540	4500
4567	6	16	50	R	50	25	216	1800
4568	6	16	50	W	50	25	264	2200
4583	7	19-1/2	35	B	75	160	88	680
4584	7	19-1/2	35	G	75	160	1400	10800
4585	7	19-1/2	35	R	75	160	520	4000
4861	5	12-1/4	50	B	40	12	50	600
4862	5	12-1/4	50	G	40	12	275	3300
4863	5	12-1/4	50	R	40	12	158	1900

Display Storage Tubes

These tubes are designed for weather radar and spectrum analyzers. They employ electrostatic focus.

Type	Nom. Dia. In.	Defl. Method	Defl. Angle	View Time s	Erase Time ms	Oper. kV	Foot Lamberts	Notes
4412	10	E	-	80	80	9	200	Mil.
4454	5	M	34	20	-	8.5	1300	Air.
4547	5	M	34	10	2.5	8.5	1300	Air.
7183A	5	M	34	10	35	8.5	1300	Air.
7315	5	E	-	40	30	10	1900	Mil.

Air. = Airborne
Ind. = Industrial
Mil. = Military

Characteristics | Photodetectors

Photomultiplier Tubes

Photomultiplier Tubes are designed for use with extremely low levels of radiation in the ultraviolet, the visible, and the near-infrared regions of the spectrum. Both electrostatically focused and venetian-blind types are available. Photomultiplier tubes are characterized by high current amplification, extremely fast response to pulsed light, low dark current, high sensitivity, and a broad choice of spectral response, tube size, and tube construction.

For more information, refer to the product line catalog and manual: RCA Photomultiplier Tubes, Photodiodes, and Electron Multipliers, PIT-700B-86 pages. Provides tabulated data, numerous selection guides, socket information, and replacement information on photomultiplier tubes. Quantacon photomultiplier tubes are featured. RCA Photomultiplier Manual PT-61 provides theory, measurement, construction, and principles of operation.

Typical Applications:

- | | |
|---|--|
| <input type="checkbox"/> Scintillation Counting | <input type="checkbox"/> Cerenkov Radiation Measurements |
| <input type="checkbox"/> Photometry | <input type="checkbox"/> Laser Detection |
| <input type="checkbox"/> Spectrophotometry | <input type="checkbox"/> Industrial Controls |
| <input type="checkbox"/> Flying-Spot Generator | <input type="checkbox"/> Colorimetry |
| <input type="checkbox"/> Star Tracking | <input type="checkbox"/> Timing |

Side On-Types

1-1/8" Diameter Types

Type	Spectral Response	Characteristics at 22° C		Maximum Dimensions	
		Anode Dark Current nA	Luminous Sensitivity A/lm	Overall Length In.	Diameter In.
1P21	S-4 (102)	1	20	3.68	1.31
1P22	S-8 (105)	6	0.8	3.68	1.31
1P28	S-5 (104)	5	20	3.68	1.31
1P28/V1	- (103)	2	40	3.68	1.31
1P28A	S-5 (104)	5	20	3.68	1.31
1P28A/V1	- (103)	2	40	3.68	1.31
931A	S-4 (102)	5	20	3.68	1.31
931B	S-4 (102)	1.5	40	3.68	1.31
931VA	S-4 (102)	5	20	3.68	1.31
2055	-	-	-	3.68	1.31
4471	S-4 (102)	5	20	3.68	1.31
4472	S-4 (102)	5	20	3.68	1.31
4473	S-4 (102)	1	20	3.68	1.31
4552	- (136)	0.8	20	3.10	1.18
4818	- (118)	2	1000 v	3.68	1.31
4832	- (128)	0.5	70	3.68	1.31
4837	- (133)	1.5	100	3.68	1.31
6328	S-4 (102)	-	-	3.12	1.31
7117	S-4 (102)	-	-	3.12	1.31

Head-On Types

3/4" Diameter Types

Type	Spectral Response	Anode Dark Current nA	Luminous Sensitivity A/lm	Overall Length In.	Diameter In.
4516	- (115)	0.2	7	3.56	0.78
4802	S-11(107)	200	200	3.8	0.78
4836	- (132)	1	30	3.80	0.78
7764	S-11(107)	2	0.3	2.75	0.78
7767	S-11(107)	4	7.5	3.56	0.78
8644	S-20(110)	3	30	3.8	0.78
8645	S-20(110)	3	30	4.55	0.95

1-1/2" Diameter Types

Type	Spectral Response	Anode Dark Current nA	Luminous Sensitivity A/lm	Overall Length In.	Diameter In.
2060	S-11 (107)	4.5	20	4.85	1.56
4440	S-11 (107)	16	20	4.12	1.56
4517	- (115)	0.2	7	4.57	1.56
4831	- (127)	10	40	4.57	1.58
6199	S-11 (107)	4.5	20	4.57	1.56
7102	S-1 (101)	1900	4	4.57	1.56
C31061	- (115)	20	60	5.00	1.56

2" Diameter Types

Type	Spectral Response	Anode Dark Current nA	Luminous Sensitivity A/lm	Overall Length In.	Diameter In.
2020	S-11 (107)	4	20	5.81	2.31
2061	S-11 (107)	-	-	5.88	2.06
2063	S-11 (107)	-	-	5.83	2.06
4463	S-20 (110)	4.8	12	5.81	2.31
4501/V3	For liquid scintillation counting				
4501/V4	For liquid scintillation counting				
4507	- (116)	0.2	50	5.71	2.10
4518	- (115)	0.24	7	5.81	2.31
4523	- (115)	0.5	13	5.81	2.31
4523/V1	- (115)	0.5	13	4.78	2.31
5819	S-11 (107)	6	20	5.81	2.31
6217	S-10 (106)	28	20	5.81	2.31
6342A	S-11 (107)	4	20	5.81	2.31
6342A/V1	- (115)	3	7	5.88	2.06
6655A	S-11 (107)	6	20	5.81	2.31
6810A	S-11 (107)	1000	2000	7.5	2.38
7265	S-20 (110)	50	1000	7.5	2.38
7326	S-20 (110)	3	20	6.78	2.38
7850	S-11 (107)	64	160	6.31	2.38
8053	S-11 (107)	4	9	5.81	2.31
8575	- (116)	1	200	5.71	2.10
8575/V1	- (116)	1	200	5.71	2.06
8575/V2	- (116)	1	200	5.71	2.10
8850	- (116)	0.6	200	5.71	2.10
8852	- (119)	10	100	5.71	2.10
8853	- (119)	10	100	5.71	2.10

Photomultiplier Tubes

Head-On Types

3" Diameter Types

Type	Spectral Response	Characteristics at 22° C		Maximum Dimensions	
		Anode Dark Current nA	at Luminous Sensitivity A/lm	Overall Length In.	Diameter In.
2064B	S-11 (107)	-	-	6.23	3.06
4464	S-20 (110)	4.8	12	6.31	3.06
4524	- (115)	1	13	6.31	3.06
4524/V4	- (115)	-	-	6.31	3.06
4524/V5	- (115)	1	13	4.98	3.06
8054	S-11 (107)	4	9	6.31	3.06

5" Diameter Types

Type	Spectral Response	Characteristics at 22° C		Maximum Dimensions	
		Anode Dark Current nA	at Luminous Sensitivity A/lm	Overall Length In.	Diameter In.
2065	S-11 (107)	-	-	7.37	5.31
4456	S-20 (110)	-	-	7.69	5.31
4465	S-20 (110)	4.8	12	7.69	5.31
4522	- (118)	60	2000	11.65	5.25
4525	- (115)	1.5	13	7.69	5.31
4525/V1	- (115)	1.5	13	6.12	5.31
8055	S-11 (107)	4	9	7.69	5.31
8854	- (118)	60	2000	11.65	5.25

Ruggedized Photomultiplier Tubes

Side-On Types

1/2" Diameter Types

Type	Spectral Response†	Characteristics at 22° C		Maximum Dimensions	
		Anode Dark Current nA	at Luminous Sensitivity A/lm	Overall Length In.	Diameter In.
8571	S-4 (102)	2	20	1.37	0.53

Head-On Types

3/4" Diameter Types

4460	S-11 (107)	6	7.5	3.38	0.78
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1-1/2" Diameter Types

4441	S-11 (107)	16	20	3.18	1.56
4441A	S-11 (107)	16	20	3.18	1.56
4461	S-11 (107)	5	10	3.18	1.56

Dormer-Window Types

4526	- (111)	2	20	3.01	1.56
4526/V1	- (111)	2	20	3.83	1.56

Image Tubes

RCA has a broad line of image-tube designs which can be readied for rapid fabrication in a wide variety of requirements. Variants of existing types can be supplied having different phosphors and photocathodes, with or without fiberoptic input and output surfaces, and with different potting configurations and lead arrangements.

Typical Applications for Image-Converter and Image-Intensifier Systems

- | | |
|---|--|
| <input type="checkbox"/> Electron and Field Ion Microscopes | <input type="checkbox"/> X-Ray Intensification |
| <input type="checkbox"/> Telescopes for Astronomy | <input type="checkbox"/> Medical Research |
| <input type="checkbox"/> Night Viewing Devices | <input type="checkbox"/> Nuclear Track Photography |
| <input type="checkbox"/> Near-Infrared Laser Detectors | <input type="checkbox"/> Electro-Optical Tracking |
| <input type="checkbox"/> Spectroscopy | <input type="checkbox"/> High-Speed Light shutters for Photography |
| <input type="checkbox"/> Image Conversion | <input type="checkbox"/> Radiology |
| <input type="checkbox"/> Surveillance | <input type="checkbox"/> Electron Microscopy |

Image-Intensifier Tubes

Fiber-Optic Types

18-mm Tubes

Type	No. of Stages	Min. Cathode Resolution lp/mm	Max. ESBI lm/cm ²	Maximum Dimensions	
				Overall Length In.	Diameter In.
4550*	3	32	2 x 10 ⁻¹¹	5.93	2.08
4551	3	32	2 x 10 ⁻¹¹	5.93	2.08
8857/V1	1	64	2 x 10 ⁻¹¹	1.926	1.47
8857/V2	1	64	2 x 10 ⁻¹⁰	1.926	1.47
8858	3	32	2 x 10 ⁻¹¹	5.93	2.08

40-mm Tubes

4549*	3	25	2 x 10 ⁻¹¹	12.028	3.747
8605/V1	1	57	2 x 10 ⁻¹¹	3.705	3.05
8606	3	25	2 x 10 ⁻¹¹	12.028	3.747

*Features Automatic Brightness Control (ABC)

Photodiodes

Vacuum Photodiodes have excellent response to pulsed light, good stability, and are characterized by photocurrent response which is linear over a wide range of incident light level. These tubes are frequently used for light comparison measurements.

- Typical Applications: Photometry Colorimetry
 Spectrophotometry Industrial Controls Facsimile

Gas Photodiodes have a response to pulsed light that covers the audio frequency range. They are 3 to 5 times more sensitive than vacuum photodiodes.

- Typical Applications: Industrial Controls Sound Reproduction

For more information refer to the product line catalog PIT-700B.

Vacuum Photodiodes

Side-On Types

Type	Spectral Response	Characteristics		Maximum Dimensions	
		Luminous Sensitivity (2856 K) μ A/lm	Max. Anode Dark Current at 22° C μ A	Overall Length In.	Diameter In.
1P39	S-4	52	0.005	3-1/16	1-9/32
917*	S-1	20	0.005	4-7/16	1-1/8
919*	S-1	20	0.005	4-7/16	1-1/8
929	S-4	52	0.0125	3-1/16	1-9/32
934	S-4	30	0.005	2-13/32	0.669
935	S-5	35	0.0005	4-1/4	1-9/32
2022	S-1	20	0.0125	2-5/8	1-9/32
6570	S-1	35	0.013	4-7/16	1-1/8

Side-On Cartridge Types

922	S-1	20	0.005	1-23/32	0.890
926*	S-3	6.5	0.005	1-23/32	0.890

Head-On Types

1P42	S-9	37	0.005	1-13/32	1/4
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Gas Photodiodes

Side-On Types

Type	Spectral Response	Characteristics		Maximum Dimensions	
		Luminous Sensitivity (2856 K) μ A/lm	Max. Gas Dark Current Factor	Overall Length In.	Diameter In.
1P29*	S-3	40	9.0	4-1/8	1-1/8
1P37	S-4	135	5.5	4-1/8	1-1/8
1P40	S-1	135	10.0	3-1/16	1-9/32
868*	S-1	90	8.0	4-1/8	1-1/8
918	S-1	150	10.5	4-1/8	1-1/8
923*	S-1	135	10.0	3-9/16	1-3/16
927	S-1	125	10.0	2-13/32	0.669
930	S-1	135	10.0	3-1/16	1-9/32
5581	S-4	135	5.5	3-1/16	1-9/32
5583	S-4	135	5.5	2-13/32	0.669
6953	S-1	200	10.0	3-3/16	1-9/32

Side-On Cartridge Types

921	S-1	135	10.0	1-23/32	0.890
5582	S-4	120	5.5	1-23/32	0.890

Side-On Twin-Unit Types

920*	S-1	100	9.0	4	1-3/16
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Head-On Types

1P41*	S-1	90	8.5	2-1/16	13/16
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*Limited to extent of inventory.

Vacuum Gauge Tubes

Designed for the measurement of gas pressures over a very broad range. Thermocouple, Pirani, and Ionization types are featured.

Type	Gauge	Pressure Range Torr	Heater		Dimensions	
			Volts	Amperes	Length In.	Diameter In.
1946	Thermocouple	0.0001 to 1.0	1	0.07	6-1/4	1-11/16
1947	Pirani	0.01 to 1.5	10	0.07 to 0.1	7-9/16	1-3/16
1949	Ionization	< 0.0001	5	3.5	11-1/2	2-1/16

Characteristics | Lasers

Solid State Infrared Emitters and Laser Diodes

Infrared emitting and injection laser diodes are small, compact p-n junction devices. The IR-emitting diodes emit non-coherent radiation when forward biased; the injection laser, coherent radiation. The emitters find use in a wide variety of applications including card and paper-tape readers, shaft encoders, intrusion alarms, and data transmission systems. The injection lasers are most useful in intrusion alarms, data transmission, ranging, and target designators.

For more information, refer to product line brochure; RCA Solid State Infrared Emitter, Isolators, and Laser Diodes, OPT-113A.

Gallium Arsenide Infrared-Emitting Diodes

Wavelength of maximum radiant intensity = 940 nm

Type	DC Operation		Forward Current	Forward Voltage Drop at Forward Current	Package
	Radiant Flux (Power Output)				
	Min.	Typ.	mW	mW	V
SG1001	1	1.6	50	1.4	OP-1
SG1002	1	1.6	50	1.4	OP-10
SG1003	1.5	2.1	50	1.4	OP-10
SG1004	2.4	3	50	1.4	OP-10
SG1006	0.7	1.1	20	1.2	OP-10
SG1009	2	3.5	100	1.5	OP-17
SG1009A	4	7	100	1.5	OP-17

Gallium Arsenide Single-Diode Lasers

Wavelength of maximum radiant intensity = 904 nm

Type	Pulse Operation				Package
	Min. Total Peak Radiant Flux (Power Output)	Forward Current	Pulse Duration	Pulse Repetition Rate	
SG2001	1	10	0.2	1000	OP-3
SG2002	2	10	0.2	1000	OP-3
SG2003	3	25	0.2	1000	OP-3
SG2004	5	25	0.2	1000	OP-3
SG2005	5	20	0.2	1000	OP-3
SG2006	7	40	0.2	1000	OP-3
SG2007	10	40	0.2	1000	OP-3
SG2009	12	75	0.2	1000	OP-3
SG2010	15	75	0.2	1000	OP-3
SG2012	20	100	0.2	1000	OP-12

Gallium Arsenide Stacked-Diode Lasers

Wavelength of peak radiant intensity = 904 nm

Type	Pulse Operation				Package
	Min. Total Peak Radiant Flux (Power Output)	Forward Current	Pulse Duration	Pulse Repetition Rate	
SG3001	25	40	0.2	500	OP-12

Gallium Arsenide Laser Arrays for Cryogenic Operation

Wavelength of peak radiant intensity at 77K (-196° C) = 855 ± 5 nm
Custom Packages

Type	Pulse Operation				Package
	Total Average Radiant Flux (Power Output)	Peak Forward Current	Pulse Duration	Pulse Repetition Rate	
SG4001	10	12	6	2	10,000
SG4002	20	24	6	2	10,000
SG4003	30	36	6	2	10,000

Characteristics | Power Devices

Vacuum Power Tubes | Gridded Types

Vacuum Power Tubes are designed for CW and RF pulse applications and for modulator and regulator service in communication and industrial systems. Types are available providing up to nearly a MW or CW power (over 10 MW of RF pulse power) at frequencies up to 3000 MHz. Variants are also available. CERMOLOX® types are intended for the most critical applications.

Types for CW Applications

CERMOLOX® Tubes

Forced-Air Cooled Types

Type	Filament (f) or Heater Volts/A	Typical Operation — Class C Telegraphy Service (CCS)		Maximum Dimensions	
		Frequency MHz	Power Output Watts	Overall Length In.	Diameter or Radius (r) In.
4628	4.5/125	30	5000	5.65	6.17
4629	5.5/17.3	For existing equipment		3.34	3.75
4631	26.5/0.54	400	80	2.27	1.64
4632	5.5/31	890	2300	4.70	4.57
4635	22/12/6	400	2500	6-1/2	6-1/8
4651	5.5/17.3	400	1500	3.34	3.75
4661	5.5/17.3	400	1160	3.86	3.73
6816	6.3/2.1	1215	40	1.930	1.265
6884	26.5/0.52	1215	40	1.930	1.265
7213	5.5/17.3	600	1350	3.34	3.75
7457	6.3/3.2	1215	40	1.930	1.265
7650	6.3/7.5	400	800	2.40	2.09
8226	6.3/3.2	400	340	2.71	1.64
8501	4.5/125	900	5500	5.65	6.17
8596	6.3/3.2	1215	40	2.036	1.327
8791/V1	6.3/7.5	30	500	2.38	2.50
8792/V1	5.3/17.3	108	1250	3.25	3.75
8793	5.7/125	108	10,000	4-7/8	4-1/2
8794	5.7/125	108	15,000	5-1/2	6-1/8
8806	5.7/115	108	10,000	5.450	6.170
8807	9.5/145	108	20,000	7.345	7.085
8890	5.7/125	108	10,000	5.01	4.57
8891	9.5/153	400	20,000	7.10	8.28
8916	9.5/153	400	27,000	7.10	8.28

Conduction-Cooled Types

4637	6.3/3.2	400	340	2-3/4	1-1/8
7801	12.6/0.5	400	27	1.19	0.736
7843	26.5/0.52	1215	40	1.930	1.119

Beam Power Tubes

Natural-Cooled Types

2E24	6.3f/0.65	125	20	3-21/32	1-5/16
2E26	6.3/0.8	125	20	3-21/32	1-5/16
4E27A/5-125B	5f/7.5	For existing equipment		6-3/16	2-3/4
807	6.3/0.9	60	40	5-3/4	2-1/16
813	10f/5	30	275	7-1/2	2-9/16
828	10f/3.25	For existing equipment		7-11/16	2-1/16
1624	2.5f/2	For existing equipment		5-3/4	2-1/16
1625	12.6/0.45	For existing equipment		5-3/4	2-1/16
4604	6.3f/0.65	175	30	3-13/16	1-21/32
4652/8042	1.6/3.2	60	25	3-13/16	1-21/32
6146A	6.3/1.25	60	52	3-13/16	1-21/32
6146B/8298A	6.3/1.125	60	63	3-13/16	1-21/32
6146W	6.3/1.25	60	52	3-13/16	1-21/32
6159B	26.5/0.3	60	63	3-13/16	1-21/32
6159W	26.5/0.3	60	52	3-13/16	1-12/32
6883	12.6/0.625	60	52	3-13/16	1-21/32
6883B/8032A/8552	12.6/0.562	60	85	3-13/16	1-21/32
8032	13.5/0.585	60	52	3-13/16	1-21/32

Forced-Air-Cooled Types

4-125A/4D21	5f/6.5	For existing equipment		5-11/16	2-7/8
4-250A/5D22	5f/14.5	For existing equipment		6-3/8	3-9/16
4CX250B	6.0/2.6	175	400	2.46	1.64
4X150A	6/2.6	500	140	2.47	1.65
4X500A	5f/12.2 to 13.7	For existing equipment		4-3/4	2-5/8
4624	6.3/3.5	890	300	2.19	2.26
4662	13.5/1.3	470	300	2.26	1.64
6155	5f/6.5	For existing equipment		5-5/64	2-7/16
6166	5f/168	For existing equipment		11.63	6.38
6166A/7007	5f/168	216	10,000	11.50	6.38

Vacuum Power Tubes | Gridded Types (cont'd)

Types for CW Applications

Beam Power Tubes

Forced-Air-Cooled Types

Type	Filament (f) or Heater Volts/A	Typical Operation — Class C Telegraphy Service (CCS)		Maximum Dimensions	
		Frequency MHz	Power Output Watts	Overall Length In.	Diameter or Radius (r) In.
6181	120 max./1.6	600	—	7-1/4	5-1/32
7094	6.3/2.85	60	255	5	2.56
7204/4CX250F	6.0/2.6	175	400	2.46	1.64
7271	13.5/1.25	For existing equipment		4.73	2.06
8121	13.5/1.3	470	235	2.20	1.48
8122	13.5/1.3	470	300	2.26	1.64
8122/V1		Matched pair of 8122's			
8165/4-65A	6/3.2 to 3.8	For existing equipment		4-3/16	2-3/8
8166/4-1000A	7.5f/20 to 22.7	For existing equipment		9-5/8	5-1/4
8167/4CX300A	6.0/3.2	For existing equipment		2.5	1.65
8168/4CX1000A	6.0/8.1 to 9.9	For existing equipment		4.8	3.37
8169/4CX3000A	9.0/41.5	For existing equipment		7.90	4.625
8170/4CX5000A	7.5/73 to 78	For existing equipment		9.125	4.938
8171/4CX10000D	7.5/78	For existing equipment		9.13	7.05
8281/4CX15000A	6.3/152 to 168	For existing equipment		9.44	7.58
8438/4-400A	5/14.5	For existing equipment		6.34	3.43
8438A/4-400AX	5/14.5	For existing equipment		6.34	3.43
8621/4CX250FG	25.6/0.56	For existing equipment		2.464	1.640

Liquid-Cooled Types

6448	1.35f/1000	900	11,000	8.02	11.38
6806	1.35f/1000	900	13,500	8.02	11.38

Conduction-Cooled Types

8072	13.5/1.3	470	85	2.26	1.44
8462	2.9f/4.6	470	85	2.26	1.44
8828	26.5/0.68	50	100	2.24	1.38r

Twin-Beam Power Tubes

Natural-Cooled Types

829B	6.3/2.25	200	70	4-5/16	2-3/8
	12.6/1.125				
832A	6.3/1.6	200	26	3-5/16	2-5/16
	12.6/0.8				
6524	6.3/1.25	100	46	3-9/16	1-11/16
6850	12.6/0.625	100	46	3-9/16	1-11/16

Forced-Air-Cooled Type

829B	6.3/2.25	200	90	4-5/16	2-3/8
	12.6/1.125				

Triode Tubes

Natural-Cooled Types

810	10f/4.5	30	375	8-3/4	2-1/4r
811A	6.3f/4	30	135	6-15/32	2-7/16
812A	6.3f/4	30	130	6-15/32	2-7/16
833A	10f/10	30	1000	8-13/16	4-19/32
845	10f/3.25	For existing equipment		7-7/8	2-5/16
5556	4.5f/1.1	For existing equipment		4-1/2	1-5/8
8000	10f/4.5	30	375	8-3/4	2-1/4r
8005	10f/3.25	60	170	6-11/16	2-7/16

Liquid-Cooled Types

892	22f/60	For existing equipment		20-7/8	6-15/32r
5770	11f/285	For existing equipment		24-1/2	9-1/2
5771	7.5f/170	For existing equipment		11-5/16	7

Forced-Air-Cooled Types

3CX3000A7	7.5/51	For existing equipment		9	4-5/32
3CX5000H3	7.5/78	For existing equipment		8.750	6.400
3CX10000A7	7.5/94-104	For existing equipment		8.750	7.050
3CX10000H3	7.5/94-104	For existing equipment		8.750	7.050
3CX20000A7	10/160	For existing equipment		10	8
9C25	6f/285	For existing equipment		17-3/8	14-1/4
833A	10f/10	20	1440	8-13/16	4-19/32
891R	22f/60	For existing equipment		22	6-15/32r
892R	22f/60	For existing equipment		22	6-15/32r
5671	11f/285	1.6	70,000	25	17
5713	3.3/11.5	For existing equipment		4-7/8	2-1/16
5762	12.6f/29	30	7000	7-1/8	4-11/16
5786	11f/12.5	For existing equipment		9-7/8	2.895
6161	6.3/3.4	900	180	3-13/32	1.76
8239/3X3000F1	7.5/49 to 54	For existing equipment		10.539	4.156
8239/3CX3000F1	7.5/48-53	For existing equipment		9	4.16
8251/3CX2500F3	7.5/48-53	For existing equipment		8.6	4.16

Lighthouse Triode Tubes

Natural-Cooled Types

2C43	6.3/0.9	For existing equipment		2.6875	1.312
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Forced-Air-Cooled Types

2C39WA/C	6.3/1	Ceramic-Metal Construction For existing equipment		2.701	1.264
2C39WA/G	6.3/1	Glass-Metal Construction For existing equipment (Refer to MIL-E-1/778E)		2.701	1.264
6897	6.3/1.03	For existing equipment		2-3/4	1-17/64
7289/3CX100A5	6.0/1.0	For existing equipment		2.701	1.264

Tetrode Tubes

Forced-Air-Cooled Types

6076	6.3f/32.5	For existing equipment		6.75	3.625
6076A	6.3/33.5	220 3000 (Ceramic-Metal Construction)		6.75	3.625

Types for RF Pulse Applications

Triode Tubes

Forced-Air-Cooled Types

Type	Filament (f) or Heater Volts/A	Typical Operation—Plate Pulsed Service		Maximum Dimensions	
		Frequency MHz	Peak Power Output kW	Overall Length In.	Diameter In.
5946	6.3/3.4	1250	14	3-13/32	1.76

CERMOLOX® Tubes

Forced-Air-Cooled Types

4621	6.3/3.2	1215	17	2.13	1.265
7214	5.5/17.3	1215	65	3.34	3.75
7649	6.3/3.2	1215	9	1.96	1.27
7651	6.3/7.5	1215	39	2.40	2.09
8184	22/12.6	500	—	7.24	5.56

Modulator Tube Applications

Beam Power Tubes

Natural-Cooled Types

Type	Plate Dissipation Watts	Peak Plate Volts	Peak Plate Amperes	Maximum Dimensions	
				Overall Length In.	Diameter In.
6293	4	2000	3	3-13/16	1-23/32

Conduction-Cooled Types

4626	1500	17,000	30	3-3/8	3
4630	7500	22kV	40	6.17	3.92
4638	1500	20,000	30	3-1/4	3
4675	1500	20,000	30	3-1/4	3

Twin-Beam Power Tubes

Natural-Cooled Types

3E29	15	5750	10	4-5/16	2-3/8
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Regulator Tube Applications

CERMOLOX® Tubes

Forced-Air-Cooled Types

Type	Plate Dissipation Watts	Peak DC Plate Volts	DC Plate mA	Maximum Dimensions	
				Overall Length In.	Diameter In.
4600A	1750	3500	1000	3.405	3.76

Vacuum Power Tubes | Klystrons and Magnetrons

Klystrons

Natural-Cooled Types

Type	Filament (f) or Heater Volts/A	Frequency MHz	Approx. Power Output Watts	Maximum Dimensions	
				Overall Length In.	Diameter or Radius In.
2K26	Typical operation as CW oscillator: Frequency-6600 MHz, Power Output-100 mW			3.5	1-55/64r

Characteristics | Power Devices (cont'd)

Power Tubes for High Power Control Ignitrons, Rectifiers, Thyratrons (cont'd)

Magnetrons

Fixed Frequency, Pulsed-Oscillator Type for Missile Guidance Systems, Weather and Other Radar and Beacons

Forced-Air Cooled Types

Type	Frequency GHz	Min. Peak Power Output kW	Duty Factor	Maximum Dimensions	
				In	In
6521	5.4 ± 0.02	75	0.001	7-1/8 x 7-7/32 x 4-1/2	
6521/R	5.4 ± 0.02	75	0.001	7-1/8 x 7-7/32 x 4-1/2	

Detailed data for type 6521 is given in technical bulletin only.

For RF Power Source in Industrial Processing Applications

Liquid-Cooled Types

Type	Filament (f) or Heater Volts/A	Typical CW Oscillator Service		Maximum Dimensions	
		Frequency MHz	Approx. Power Output Watts	Overall Length In.	Diameter In.
8684	12.5f/115	915	30,000	18.25	4.94

See technical bulletin for details and available "AJ" Series accessories.

Ignitrons (Liquid Cooled)

Resistance-Welding Control Service

Type	Resistance-Welding Control Service			Maximum Dimensions	
	Demand Power kVA	Peak Amperes	Average Amperes	Overall Length In.	Diameter or Radius (r) In.
5550	50	282	9	9-13/16	2-1/2
	150	846	4.86		
	100	564	22.4		
	300	1692	12.1		
5551A	200	1130	56	13	2-7/8 r
	600	3400	30.2		
	200	466	56		
	600	1410	30.2		
5552A	400	2260	140	14	3-5/8 r
	1200	6800	75.6		
	400	945	140		
	1200	2830	75.6		

Intermittent Rectifier Service and Frequency -
Changer Service

Type	Peak Forward Volts	Peak Amperes	Average Amperes	Maximum Dimension	
				Overall Length In.	Diameter or Radius (r) In.
5551A	500	700	40 at 6 μs	13	2-7/8r
	1200	135	22.5 at 10 μs		
	1200	600	5 at 10 μs		
	1500	108	18 at 10 μs		
	1500	480	4 at 10 μs		
5552A	500	1600	100 at 6 μs	14	3-5/8r

Welding-Capacitor Discharge Service

5550	3000	500	15	9-13/16	2-1/2
	3000	500	3		
	6000	500	8		
	6000	500	2.5		

Rectifiers

Half-Wave Vacuum Types

Type	Peak Inverse Anode Volts	Peak Anode Amperes	Average Anode Amperes	Maximum Dimensions	
				Overall Length In.	Diameter In.
2X2A	12,500	0.06	0.0075	4-17/32	1-9/16
579B	20,000	0.27	0.025	7-7/16	2-1/8
836	5000	1.0	0.25	6-9/16	2-7/16
1616	6000	0.8	0.13	6-13/16	2-1/16
5825	60,000	0.04	0.002	5-27/32	2-1/16
8020W	40,000	0.6	0.1	8	2.312

Half-Wave Gas Types

3B28	10,000	1	0.25	6.15	2-1/16
	5000	2	0.5		

Half-Wave Mercury-Vapor Types

575A	15,000	6	1.5	11-1/16	3-1/8
	10,000	7	1.75		
615/7018	2000	10	2.5	6-3/8	2-1/16
673	Refer to 575A			11-3/8	3-1/8
816	7500	0.5	0.125	4-11/16	1-9/16
857B	22,000	40	10	19-7/8	7-1/8
	10,000	40	10		
866A	10,000	1	0.25	6-9/16	2-7/16
	5000	1	0.25		
	2500	2	0.5		
869B	20,000	10	2.5	14-7/16	5-1/8
	15,000	10	2.5		
872A	10,000	5	1.25	8-1/2	2-5/16
	5000	5	1.25		
5558	5000	15	2.5	7	1-9/16
	2000	15	2.5		
5561	3000	40	6.4	11-1/4	3-13/16
	10,000	16	4.0		
6894	20,000	8.3	1.8	10-17/32	2-5/8
	15,000	8.3	1.8		
	10,000	8.3	1.8		
6895	Refer to 6894			10-13/32	2-5/8
8008	Refer to 872A			8-3/4	2-5/16

Full Wave Types

604/7014	900	10	2.5	7-1/2	2-1/16
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Thyratrons

Gas Triode Types

Type	Peak Forward Anode Volts	Peak Anode or Cathode (k) Amperes	Average Anode Amperes	Maximum Dimensions	
				Overall Length In.	Diameter In.
6130/3C45	3000	35	0.045	5-3/16	1-9/16
C1K/6014	1000	8	1	4-5/16	1-9/16
C3J/5632	900	30	2.5	6	1-5/8
C3JA/5684	1000	30	2.5	6	1-5/8
C3JL	900	30	2.5	6-3/4	2-3/16
C6J/5C21	750	77	6.4	9-1/2	2-1/16
C6JA/5685	1000	77	6.4	9-1/2	2-1/32
C16J/5665	1000	100	18	10-1/2	2-9/16

Mercury-Vapor Triode Types

3C23	1250	6	1.5	6-1/8	2-1/16
627	2500	2.5	0.64	6-5/8	2-1/16
676	750	77 k	2.5	11-3/4	3-13/16
677	10,000	16 k	4	11-11/16	3-13/16
710/6011	1500	30 k	2.5	6-1/4	1-5/8
714/7021	1250	3	1.0	6-1/8	2-1/16
760/6858	1500	77 k	6.4	9-1/2	2-9/16
5557	5000	1	0.25	6-1/8	2-1/16
	2500	2	0.5		
	1250	3	1.0		
5559	1000	15 k	2.5	7-1/4	3
5563A	15,000	10	1.8	10-17/32	2-5/8

Gas Tetrode Types

3D22A	650	8	0.8	4-5/8	2-3/8
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Mercury-Vapor Tetrode Types

105	10,000	16	4	11-1/4	2-1/2 r
632B	1500	30	2.5	8-5/16	1-3/4 r
672A	2500	40 k	3.2	8-3/8	2-5/16
5560	1000	15 k	2.5	7-15/16	2-1/4 r

Pencil Tubes

Pencil Tubes are small, lightweight microwave devices incorporating coaxial-electrode construction which results in low heater power, fast warm-up time, and good thermal stability. They are especially suitable for cavity-type circuits.

Typical Applications

- Communications Equipment
- Receivers and Transmitters
- Radiosondes and Rocketsondes
- Telemetry Equipment
- Transponders
- Radar
- Test Equipment

For more information, refer to the product line catalog: RCA Pencil Tube Classification Charts, MWD-102D - 4 pages. Provides tabulated data.

Ceramic-Metal Triodes

Type	Class of Service	Typical		Maximum Dimensions	
		Frequency GHz	Power Output Watts	Overall Length In.	Diameter In.
4028A	Pulsed Oscillator	3.3	1000 Peak	1.622	0.557
4055	Pulsed Oscillator	3.3	1300 Peak	1.81	0.557
4062A	Pulsed Oscillator	1.09	500 Peak	1.77	0.557
4065	Pulsed Oscillator	3.0	1300 Peak	1.81	0.557
7552	A ₁ Amplifier	0.55	16.5 dB gain	1.620	0.557
7553	A ₁ Amplifier	0.7	17 dB gain	1.620	0.557
7554	Amplifier	1	1.4	1.620	0.557

Glass-Metal Triodes

Type	Class of Service	Typical		Maximum Dimensions	
		Frequency GHz	Power Output Watts	Overall Length In.	Diameter In.
4037A	Oscillator	2	0.45	3.125	1.312
4042	Oscillator	1.7	0.475	2.252	0.817
4043	Amplifier	0.5	5	2.252	0.817
4058	Pulsed Oscillator	3.3	800 Peak	2.297	0.817
5675	Oscillator	1.7	0.475	2.252	0.817
5876A	Amplifier	0.5	5	2.252	0.817
5893	Pulsed Oscillator	3.3	1200 Peak	2.297	0.817

Integral-Cavity Triodes

Type	Class of Service	Frequency GHz	Power Output Watts	Overall Length In.	Diameter In.
A15220 to A15236 (even Nos.)	Pulsed Oscillators	0.9 to 3.4	800 Peak to 100 Peak	6 to 2	1
A15599A	Pulsed Oscillator	1.09	250 Peak	3.03	0.88
A15610	Pulsed Oscillator	1.09	325 Peak	3.03	0.88
A15612	Pulsed Oscillator	4.3	10 Peak	3.40	1.00
A15622	Pulsed Oscillator	3.0	100 Peak	2.15	0.88
J2041V3	Pulsed Amplifier Chain	1.03	200 Peak	5.26 x 2.8 x 1.25	

Glass-Metal Diode

Type	Class of Service	Peak Inverse Plate		Maximum Dimensions	
		Volts	Average Plate mA	Overall Length In.	Diameter In.
6173	Pulse Detector Rectifier	1000	1	2.227	0.320
		375	5.5		

Characteristics | Receiving-Type Tubes

For more information, refer to the product line catalog and manual: Industrial Receiving-Type Tubes, RIT-104G - 24 pages. Provides tabulated data, proto-type chart, application guide, socket information, and replacement information. RCA Receiving Tube Manual, RC-29. Provides theory, characteristics, applications, and installation information.

For Mobile Communications

Types Operating from Nominal-12-V Storage-Battery Systems

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
7054	13.5/275	5	11500	9-Pin Min.	2-5/8
7055	13.5/155	-	-	7-Pin Min.	1-3/4
7056	13.5/150	2	6200	7-Pin Min.	2-1/8
7057	13.5/180	2.2	6800	9-Pin Min.	2-3/16
7058	13.5/155	1	1650	9-Pin Min.	2-3/16
7059	13.5/195	2.5 T	8500 T	9-Pin Min.	2-3/16
		2.8 P	5200 P		
7060	13.5/280	2.5 T	4900 T	9-Pin Min.	2-3/16
		3 P	7000 P		
7061	13.5/210	9	4200	9-Pin Min.	2-5/8
7167	13.5/90	2	8000	7-Pin Min.	2-1/8
7258	13.5/210	2.8 T	4500 T	9-Pin Min.	2-3/16
		2.3 P	7800 P		
7551	13.5/360	10	5300	9-Pin Min.	2-5/8
7724/14GT8	13.5/150	1.1	1000	9-Pin Min.	2-3/16
7898	13.5/150	2.75	5500	9-Pin Min.	2-3/16
8077/7054	13.5/275	0.575	11500	9-Pin Min.	2-3/16
8106	13.5/250	6	9000	9-Pin Min.	2-3/16

Types Operating from Nominal-6-V Storage-Battery Systems

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
6360	6.3/820	14.0	3300	9-Pin Min.	3-1/16
	12.6/410				
6360A	6.3/820	14.0	3300	9-Pin Min.	3-1/16
	12.6/410				
6660/6BA6	6.3/300	3.3	4400	7-Pin Min.	2-1/8
6661/6BH6	6.3/150	3.3	4600	7-Pin Min.	2-1/8
6662/6BJ6	6.3/150	3.3	3600	7-Pin Min.	2-1/8
6663/6AL5	6.3/300	For added data, see page 13		7-Pin Min.	1-3/4
6664/6AB4	6.3/150	2.9	10900	7-pin Min.	2-1/8
6669/6AQ5A	6.3/450	12	4100	7-Pin Min.	2-5/8
6676/6CB6A	6.3/300	2.3	8000	7-Pin Min.	2-1/8
6677/6CL6	6.3/650	8.5	11000	9-Pin Min.	2-5/8
6678/6UBA	6.3/450	3 T	8500 T	9-pin Min.	2-3/16
		3 P	5200 P		
6679/12AT7	12.6/150	2.8*	5500 *	9-pin Min.	2-3/16
6680/12AU7A	6.3/300	3 *	2200 *	9-Pin Min.	2-3/16
6881/12AX7A	12.6/150	1.1*	1600 *	9-Pin Min.	2-3/16
	6.3/300				
7717/6CY5	6.3/200	-	8000	9-Pin Min.	2-1/8
7905	6.3/650	10	6700	9-Pin Min.	2-5/8

Types Operating from Nominal-24-V Storage-Battery Systems

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
26A6	26.5/70	3.3	4000	7-Pin Min.	2-1/8
26A7GT	26.5/600	2.2*	5700 *	Octal	3-13/16
26C6	26.5/70	2.75	1900	7-Pin Min.	2-1/8
26D6	26.5/70	1.1	-	7-Pin Min.	2-1/8
6082	26.5/600	13 *	7000 *	Octal	4-1/16

T = Triode Unit
P = Pentode Unit
* Each Unit

Characteristics | Receiving-Type Tubes (cont'd)

For Mobile Communications (cont'd)

Filamentary-Cathode Types

Operating from Dry-Cell Battery Supplies

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
1L4	1.4/50	-	1025	7-pin Min.	2-1/8
3A4	2.8/100	2	1900	7-Pin Min.	2-1/8
	1.4/200				
3A5	2.8/110	1 *	1800 *	7-Pin Min.	2-1/8
	1.4/220				
3B4WA	For data, refer to Military Specification				
1619	2.5/2000	15	4500	Octal	4-5/16
5642	1.25/200	For data, see "Pulsed Rect."			
5672	1.25/50	0.065	650	Submin.	1-1/2
5678	1.25/50	-	1150	Submin.	1-1/2

Quick-Heating-Filament Types

(For Equipment Requiring Essentially Instant "Off-to-On" Action)

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
3B4WA	For data, refer to Military Specification				
1619	2.5/2000	15	4500	Octal	4-5/16
7905	6.3/650	10	6700	9-Pin Min.	2-5/8

Beam-Deflection Type Having 2 Plates

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
7360	6.3/350	1.5	5400	9-pin Min.	2-5/8

For Fixed Station Communications

RF Power Amplifiers, Oscillators, or Frequency Multipliers - Class C

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
3A4	1.4/200	2	1900	7-Pin Min.	2-1/8
3B4WA	For data, refer to Military Specification				
1613	6.3/700	10	2500	Octal	3-1/4
1614	6.3/900	21	6050	Octal	4-5/16
1619	2.5/2000	15	4500	Octal	4-5/16
5763	6/750	12	7000	9-Pin Min.	2-5/8
6360	6.3/820	7 *	3300 *	9-Pin Min.	3-1/16
6360A	6.3/820	7 *	3300 *	9-Pin Min.	3-1/16
6417	12.6/375	12	7000	9-Pin Min.	2-5/8
7558	6.3/800	10	5300	9-Pin Min.	2-5/8
8203	6.3/160	1.5	6000	5-Pin	0.800
Nuvistor					
8627	6.3/150	2.5	13000	5-Pin	0.985
Nuvistor					
8808	6.3/340	6 ^a	18000	6-Pin	0.985
Nuvistor					

AF Power Amplifiers or Modulators - Classes A₁, AB₁, AB₂, or B

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
3A4	2.8/100	2	1900	7-Pin Min.	2-1/8
	1.4/200				
6AK6	6.3/150	2.75	2300	7-Pin Min.	2-1/8
6AN5	6.3/450	4.2	8000	7-Pin Min.	2-1/8
12A6	12.6/150	7.5	3000	Octal	3-1/4
1614	6.3/900	21	6050	Octal	4-5/16
1619	2.5/2000	15	4500	Octal	4-5/16
1621	6.3/700	8.3	2500	Octal	3-1/4
1622	6.3/900	13.8	6000	Octal	4-5/16
1635	6.3/600	3	-	Octal	3-5/16
5824	25/300	12.5	5000	Octal	3-5/16
5881	6.3/900	23	5200	Octal	3-15/32
6360	12.6/410	7 *	3300 *	9-Pin Min.	3-1/16
	6.3/820				
6360A	12.6/410	7 *	3300 *	9-Pin Min.	3-1/16
	6.3/820				
6550	6.3/1600	35	9000	Octal	4-3/4
6550/V1	Matched pair of 6550's				
7558	6.3/800	10	5300	9-Pin Min.	2-5/8

* Each Unit

"Special Red" Types

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
5691	6.3/600	1 *	1600 *	Octal	2-7/8
5692	6.3/600	1.75*	2200 *	Octal	2-7/8
5693	6.3/300	2	1650	Octal	2-5/8

Types for UHF Applications

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
6DJ8/ ECC88	6.3/365	1.8*	12500 *	9-Pin Min.	2-3/16
6F4	6.3/225	2	5800	7-Pin Acorn	1-3/8
6J4	6.3/400	2.25	12000	7-Pin Min.	2-1/8
955	6.3/150	1.6	2200	5-Pin Acorn	1-3/8
959	1.25/50	-	600	5-Pin Acorn with 2 Leads	1-7/8
5636	6.3/150	1.1	3200	Submin.	1-3/8
5718	6.3/150	3.3	6500	Submin.	1-3/8
5840W	For data, refer to Military Specification				
5896	6.3/300	For added data, see below		Submin.	-
5899	6.3/150	1.1	4500	Submin.	1-3/8
6939	12.6/300	6	10500	9-Pin Min.	2-5/8
	6.3/600				
7308	6.3/335	1.65	12500	9-Pin Min.	2-3/16
7586	6.3/135	1	11500	5-Pin Nuvistor	0.800
Nuvistor					
7587	6.3/150	2.2	10600	5-Pin Nuvistor	1.050
Nuvistor					
7895	6.3/135	1	9400	5-Pin Nuvistor	0.800
Nuvistor					
8056	6.3/135	0.45	7500	5-Pin Nuvistor	0.800
Nuvistor					
8058	6.3/135	1.5	12400	5-Pin Nuvistor	0.985
Nuvistor					
8136	6.3/300	2.2	9800	7-Pin Min.	2-1/8
8393	13.5/60	1	11500	5-Pin Nuvistor	0.800
Nuvistor					
8532	6.3/400	2.5	11000	7-Pin Min.	2-1/8
8627	6.3/150	2.5	13000	5-Pin Nuvistor	0.985
Nuvistor					
8627A	6.3/150	2.5	13000	5-Pin Nuvistor	0.985
Nuvistor					
8808	6.3/150	6 ^a	18000	6-Pin Nuvistor	0.985
Nuvistor					
9001	6.3/150	0.5	1400	7-Pin Min.	1-3/4
9002	6.3/150	1.6	2200	7-Pin Min.	1-3/4
9003	6.3/150	1.7	1800	7-Pin Min.	1-3/4
9006	6.3/150	For added data, see below		7-Pin min.	1-3/4

^a At plate cap seal temperature up to 150° C.

* Each Unit

Premium tube types are shown in italics. These types are subjected to more rigorous tests and controls than other types.

Rectifiers and Diodes

Power Rectifiers

Type	E _f /I _f V/A	Max. Rating		Base	Overall Length In.
		-e _{bm} V	I _o (av) mA		
5R4GYB	5/2	2650	147 ‡	Octal	4-1/4
6X4W	6.3/0.6	1375	75	7-Pin Min.	2-5/8
83	5/3	1550	225	Small 4-Pin	5-3/8
2076/	5/2	2650	147	Octal	4-1/4
5R4GYB					
6202	6.3/0.6	1250	50	7-Pin Min.	2-5/8

Pulsed Rectifier (High-Voltage, Low-Current Type)

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
5642	1.25/0.2	10000	0.25	Submin.	2.380

Diodes for Detector or

Low-Current-Rectifier Applications

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
5726	6.3/0.3	360	10 ‡	7-Pin Min.	1-3/4
5896	6.3/0.3	460	10 ‡	Submin.	-
6663/	6.3/0.3	275	10 ‡	7-Pin Min.	1-3/4
6AL5					
7055	13.5/0.155	350	10 ‡	7-Pin Min.	1-3/4
9006	6.3/0.15	750	5	7-Pin Min.	1-3/4

‡ Per Plate

For Fixed Station Communications (cont'd)

Types for Stabilization of DC Voltage Supplies^b Voltage-Regulator (VR) Types

Type	E _b V	I _k mA	ΔE _b Max. V	Base	Max. Overall Length In.
0A2	150	5 to 30	6	7-Pin Min.	2-5/8
0A2WA	For data, refer to Military Specification				
0A3	75	5 to 40	6.5	Octal	4-1/8
0A3A ^c	75	5 to 40	6.5	Octal	3-1/16
0B2	105	5 to 30	4	7-Pin Min.	2-5/8
0B2WA	For data, refer to Military Specification				
0C2	75	5 to 30	4.5	7-Pin Min.	2.63
0C3	105	5 to 40	4	Octal	4-1/8
0C3A ^c	105	5 to 40	4	Octal	3-1/16
0D3	150	5 to 40	5.5	Octal	4-1/8
0D3A ^c	150	5 to 40	5.5	Octal	3-1/16
991	59	0.4 to 2	8	Candelabra 2-Contact	1-9/16
6073 ^d	150	5 to 30	6	7-Pin Min.	2-5/8
6073/0A2 ^d	150	5 to 30	6	7-Pin Min.	2-5/8
6074 ^d	105	5 to 30	4	7-Pin Min.	2-5/8
6074/0B2 ^d	105	5 to 30	4	7-Pin Min.	2-5/8
6626/0A2WA ^e	150	5 to 30	5	7-Pin Min.	2-5/8

Voltage-Reference Types (For Exceptional Voltage Stability)

Type	E _b	I _k	ΔE _b	Base	Max. Overall Length In.
5651A ^f	85.5	1.5 to 3.5	3	7-Pin Min.	2-1/8
5783	86	1.5 to 3.5	3	Submin.	-

^b For voltage-regulation applications requiring a relatively constant dc output voltage across a load independent of load and line-voltage variations.

^c Types 0A3A, 0C3A, and 0D3A are similar electrically to their respective prototypes, 0A3, 0C3, and 0D3, but are 1-1/16" shorter and utilize a straight tubular bulb, and are, therefore, more compact.

^d Types 6073 and 6073/0A2, 6074 and 6074/0B2 are similar to their prototypes 0A2 and 0B2, respectively, but are intended for applications critical as to mechanical shock (up to 500 g) and vibration (up to 2.5 g).

^e Where voltage repeatability is critical.

^f During the first 300 hours of operation at I_k = 2.5 mA, the variation of dc anode voltage drop from the initial value is less than 0.1% between 300 and 1300 hours, less than 0.1% from the 300-hour value and less than 0.05% during any 100-hour period.

Series-Voltage-Regulator Types (For High-Current Applications)

Type	E _f /I _f V/A	Max. ^g Rating I _b mA	r _p ^g Ω	Base	Max. Overall Length In.
6AS7G	6.3/2.5	125	280	Octal	5-5/16
6AS7GA	6.3/2.5	125	280	Octal	4-5/8
6080	6.3/2.5	125	280	Octal	4-1/16
6080WA	6.3/2.5	125	280	Octal	4-1/16
6082	26.5/0.6	125	280	Octal	4-1/16
6336A	6.3/5	400	200	Octal	4-3/4

^g Each section.

Other Types Suitable for Fixed Station Applications

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
6AUGWB	For data, refer to Military Specification				
6J6WA	For data, refer to Military Specification				
12AT7WA	For data, refer to Military Specification				
12AT7WB	For data, refer to Military Specification				
407A	40/50 20/100	1.35	5500	9-Pin Min.	1-3/4
408A	20/50	1.7	5000	7-Pin Min.	1-3/4
5654	6.3/175	1.85	5100	7-Pin Min.	1-3/4
5670	6.3/350	1.35	5500	9-Pin Min.	1-3/4
5686	6.3/350	8.25	3100	9-Pin Min.	2-3/16
5718	6.3/150	3.3	6500	Submin.	1-3/8
5725	6.3/175	1.65	3200	7-Pin Min.	1-3/4
5749	6.3/300	3	4400	7-Pin Min.	2-1/8
5750	6.3/300	1.1	-	7-Pin Min.	2-1/8
5751	12.6/175	0.8	1200	9-Pin Min.	2-3/16
5814A	6.3/350 12.6/175	3	2200	9-Pin Min.	2-3/16
5842/417A	6.3/300	4.5	25000	9-Pin Min.	1-3/4
5847/404A	6.3/300	3.3	12500	9-Pin Min.	1-3/4

Other Types Suitable for Fixed Station Applications (cont'd)

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
6005	6.3/450	11	4100	7-Pin Min.	2-5/8
6021	6.3/300	1.1	5400	Submin.	1-3/8
6072	12.6/175	1.65	1750	9-Pin Min.	2-3/16
6072A	6.3/350 12.6/175	1.6	1750	9-Pin Min.	2-3/16
6101	6.3/450	0.85	6000	7-Pin Min.	2-1/8
6111	6.3/300	1.1	5000	Submin.	1-3/8
6136	6.3/300	3.3	5200	7-Pin Min.	2-1/8
6186	6.3/300	2.5	5000	7-Pin Min.	2-1/8
6189	12.6/150	2.75*	2200*	9-Pin Min.	2-3/16
6201	12.6/150 6.3/300	2.75*	5500*	9-Pin Min.	2-3/16
6386	6.3/350	1.5	4000	9-Pin Min.	1-3/4
6485	6.3/450	3.2	11000	7-Pin Min.	2-1/8
6686	6.3/375	4.5	11000	9-Pin Min.	2-5/8
7788	6.3/340	5	50000	9-Pin Min.	2-3/16
8233	6.3/600	10	45000	9-Pin Min.	3

* = Each Unit

Beam-Deflection Type Having 2 Plates

7360	6.3/350	1.5†	5400	9-Pin Min.	2-5/8
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† = Per Plate

For Other Industrial Applications

Trigger Types (Gas-Filled)

Thyratrons
(for Relay Control and Grid-Controlled-Rectifier Applications)

Triodes

Type	E _f /I _f V/A	Max. Rating		Base	Max. Overall Length In.
		e _{bm} V	I _{k(av)} mA		
6D4	6.3/0.25	+450	25	7-Pin Min.	2-1/8
884	6.3/0.6	±350	75	Octal	4-1/8

Tetrodes

2D21	6.3/0.6	+650 -1300	100	7-Pin Min.	2-1/8
2050	6.3/0.6	+650 -1300	100	Octal	4-1/8
2050A	6.3/0.6	+650 -1300	100	Octal	3-1/16
5663	6.3/0.15	±500	20	7-Pin Min.	1-3/4
5696	6.3/0.15	±500	25	7-Pin Min.	1-3/4
5696A	6.3/0.15	±500	28	7-Pin Min.	1-3/4
5727	6.3/0.6	+650 -1300	100	7-Pin Min.	2-1/8
6012	6.3/2.6	+650 -1300	500	Octal	3-7/8

Cold-Cathode Types (for Relay-Control Applications)

0A4G	-	±225	25	Octal	4-1/8
1C21	-	-	25	Octal	2-5/8
5823	-	±200	25	7-Pin Min.	2-1/8

Types for On-Off Control Applications

(Involving Long Periods of Operation Under Cutoff
Conditions).

Type	E _f /I _f V/mA	Max. Rating		g _m μmho	Base	Max. Overall Length In.
		I _{k(av)} mA	P _b W			
6AS6	6.3/175	18	1.7	3200	7-Pin Min.	1-1/2
2081/6AW8A	6.3/600	-	3.75	9500	9-Pin Min.	2-5/8
2082/12AY7	12.6/150	10	1.5	1750	9-Pin Min.	2-3/16
5844	6.3/300	9	0.5	3400	7-Pin Min.	2-1/8
5915	6.3/300	20	1	2000	7-Pin Min.	2-1/8
5963	12.6/150	20	2.5	3200	9-Pin Min.	2-3/16
5964	6.3/300	15	1.5	6000	7-Pin Min.	2-1/8
5965	12.6/225	16.5	2.4	6500	9-Pin Min.	2-3/16
	6.3/450					

Characteristics | Receiving-Type Tubes (cont'd)

For Other Industrial Applications (cont'd)

Types for On-Off Control Applications (Involving Long Periods of Operation Under Cutoff Conditions) (cont'd)

Type	E _f /I _f V/mA	Max. Rating		g _m μmho	Base	Max. Overall Length In.
		I _{k(av)} mA	P _b W			
6197	6.3/650	50	7.5	11000	9-Pin Min.	2-5/8
6211	12.6/150	16‡	1‡	3600 ‡	9-Pin Min.	2-3/16
6350	6.3/300 12.6/300	45‡	4‡	4600 ‡	9-Pin Min.	2-5/8
6887	6.3/600 6.3/200	-eV‡ = 360 V I _{0(av)} = 10 mA‡			7-Pin Min.	1-5/8
6922/E88CC	6.3/300	20‡	1.5‡	12500 ‡	9-Pin Min.	2-3/16
7044	12.6/450 6.3/900	50‡	4.5‡	12000 ‡	9-Pin Min.	2-5/8

‡ = Each Unit

Other Special Applications Indicator-Type Electron-Ray Tube

Type	E _f /I _f V/mA	Max. Rating P _b W	g _m μmho	Base	Max. Overall Length In.
6977	1.0/30	-	-	Submin.	1.1

Low-Microphonic-Amplifier Types

1612	6.3/300	1.5	1100	Octal	3-1/8
1620	6.3/300	0.75	1225	Octal	3-1/8

Mechano-Electronic Transducer

5734	6.3/150	0.4	275	4-Lead	1.3
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Pentagrid Converter

12SY7	12.6/150	1	-	Octal	2-5/8
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Intermediate-Loss, Micanol-Base Types (Loss Factor < 0.1 per ASTM D-150-59T)

5R4GYB	5/2000	For added data, see Power Rectifiers		Octal	4-1/4
6AG7Y	6.3/650	9	11000	Octal	3-1/4
6SJ7Y	6.3/300	2.5	1650	Octal	2-5/8

Voltage Amplifiers

6AC7W	6.3/450	3.3	9000	Octal	2-5/8
6AH6WA	6.3/450	3.3	9000	7-Pin Min.	2-1/8
6AS6	6.3/175	1.7	3200	7-Pin Min.	1-3/4
12SW7	12.6/150	2.5	1900	Octal	2-5/8
5687	12.6/450	4.2‡	5400 ‡	9-Pin Min.	2-3/16
6688A	6.3/300	3	16500	9-Pin Min.	1-3/4
8628	6.3/150	0.3	3100	5-Pin	0.800

Premium tube types are shown in italics. These types are subjected to more rigorous tests and controls than other types.

‡ = Each Unit

Recently Commercialized Types

Former Developmental or Commercial Designation	New Commercial Designation	Product Category
C7045G	4818	Photodetector
C7045J	4837	Photodetector
C7075K	931B	Photodetector
C7151U	4831	Photodetector
TA7764	SG3001	SS IR Emitter & Injection Laser Diode
TA8380	SG4001	SS IR Emitter & Injection Laser Diode
TA8381	SG4002	SS IR Emitter & Injection Laser Diode
TA8382	SG4003	SS IR Emitter & Injection Laser Diode
TA8393	SG2012	SS IR Emitter & Injection Laser Diode
C23042	4588	Camera Tube
C23250	4825	Camera Tube
C23250A	4825A	Camera Tube
C23087	4543	Camera Tube
C23112B	4589	Camera Tube
C23158	4809	Camera Tube
C23160	4593/R	Camera Tube
C23193	4520	Camera Tube
C23228A	4833	Camera Tube
C23253	4594/R	Camera Tube
C23157A	4816	Camera Tube
C23265	4846	Camera Tube
C24001	4861	Projection Kinescope
C24286	4862	Projection Kinescope
C24288	4863	Projection Kinescope
C24290	4869	Photorecording CRT

Former Developmental or Commercial Designation	New Commercial Designation	Product Category
C24317	4870	Photorecording CRT
C24322	4873	Flying-Spot Scanner CRT
C24322A	4874	Flying-Spot Scanner CRT
C30001	SG1009	SS IR Emitter & Injection Laser Diode
C31005B	4802	Photodetector
C31025C	4832	Photodetector
40598A	SG1001	SS IR Emitter & Injection Laser Diode
40736R	SG1002	SS IR Emitter & Injection Laser Diode
40843R	SG1003	SS IR Emitter & Injection Laser Diode
40844R	SG1004	SS IR Emitter & Injection Laser Diode
40856	SG2001	SS IR Emitter & Injection Laser Diode
40857	SG2002	SS IR Emitter & Injection Laser Diode
40858	SG2003	SS IR Emitter & Injection Laser Diode
40859	SG2004	SS IR Emitter & Injection Laser Diode
40860	SG2005	SS IR Emitter & Injection Laser Diode
40861	SG2006	SS IR Emitter & Injection Laser Diode
40862	SG2007	SS IR Emitter & Injection Laser Diode
40864	SG2009	SS IR Emitter & Injection Laser Diode
40865	SG2010	SS IR Emitter & Injection Laser Diode
C70042R	4836	Photodetector

Socket Information

Socket & Shields for Photomultiplier and Photodiode Tubes

RCA Type No.	Socket Code No.	Shield Code No.	RCA Type No.	Socket Code No.	Shield Code No.	RCA Type No.	Socket Code No.	Shield Code No.	RCA Type No.	Socket Code No.	Shield Code No.
1P21	1	A	931VA	1	A	4518	4	G	6342A/V1	15	G
1P22	1	A	934	9	—	4522	7	Z	6570	12	—
1P28	1	A	935	11	—	4523	4	M	6655A	4	M
1P28/V1	1	A	2022	11	—	4523/V1	15	M	6810A	6	N
1P28A	1	A	2055	1	A	4524	4	Q	6953	11	—
1P28A/V1	1	A	2060	15	E	4524/V4	4	Q	7102	3	E
1P29	12	—	2061	15	G	4524/V5	15	Q	7117	2	B
1P37	12	—	2063	15	M	4525	4	R	7265	6	N
1P39	11	—	2064B	15	X	4525/V1	15	R	7326	8	P
1P40	11	—	2065	15	R	4526	15	D	7764	5	V
1P41	9	—	4440	16	F	4526/V1	3	D	7767	15	H
1P42	—	—	4441	15	F	4552	14	X	7850	6	W
868	12	—	4441A	15	F	4802	15	H	8053	4	M
917	12	—	4460	15	H	4818	1	A	8054	4	Q
918	12	—	4461	15	F	4831	3	E	8055	4	R
919	12	—	4463	4	M	4832	1	A	8571	15	C
920	13	—	4464	4	S	4836	15	H	8575	7	K
921	10	—	4465	4	T	4837	1	A	8575/V1	7	X
922	10	—	4471	1	A	5581	11	—	8575/V2	—	K
923	13	—	4472	1	A	5582	10	—	8644	15	H
926	10	—	4473	1	A	5583	9	—	8645	15	Y
927	9	—	4501/V3	7	K	5819	4	G	8850	7	K
929	11	—	4501/V4	7	K	6199	3	E	8852	7	K
930	11	—	4507	7	K	6217	4	G	8853	7	K
931A	1	A	4516	15	H	6328	2	B	8854	7	Z
931B	1	A	4517	3	E	6342A	4	G			

Code Charts

Code No.	Magnetic Shield Manufacturer and No.	Code No.	Magnetic Shield Manufacturer and No.	Code No.	Magnetic Shield Manufacturer and No.
A	JAN — S-1562 Millen — 80801B Perfection Mica — 13P32V1	G	JAN — S-2004 Millen — 80802B Perfection Mica — 25P50	Q	Perfection Mica — 23P55X32
B	Millen — 80801G Perfection Mica — 13P28V1	H	Millen — 80801N Perfection Mica — 10P40	R	Millen — 80805M Perfection Mica — 23P68X57
C	Perfection Mica — 07P13V1	K	Perfection Mica — 22P50	S	Perfection Mica — 35P70
D	Millen — 80802M Perfection Mica — 17P33V1	M	JAN — S-2003 Millen — 80802E Perfection Mica — 25P50	T	Perfection Mica — 30P67X57
E	JAN — S-1561 Millen — 80802C Perfection Mica — 17P45	N	JAN — S-2002 Millen — 80802E Perfection Mica — 21P55V1, 22P60	V	Millen — 80801M Perfection Mica — 10P25
F	Perfection Mica — 17P30	P	Perfection Mica — 21P45V1	W	Perfection Mica — 22P60
				X	Perfection Mica — Foil or Tape
				Y	Integral with tube

Code No.	Base JEDEC No.	Socket Manufacturer and No.	Code No.	Base JEDEC No.	Socket Manufacturer and No.	Code No.	Base JEDEC No.	Socket Manufacturer and No.
1	B11-88	Amphenol — 78S11T	7	RCA 21-Pin	RCA — AJ2144, AJ2145	12	A4-26	Amphenol — 77MIP4T Cinch — 2154 Loranger — 2093
2	B11-104	Amphenol — 78S11T	8	B14-45	Cinch — 3M14 Eby — 9709-7 Loranger — 2274	13	A4-5	Loranger — 2093
3	B12-43	Amphenol — 59-402 Cinch — 3M12 Eby — 9058	9	A3-1	Amphenol — 78S3S	14	Duodecar	Cinch — 12CS-M
4	B14-38	Amphenol — 59-417 Cinch — 3M14 Eby — 9709-7 Loranger — 2274	10	Special	Alden — 446PC	15	—	Type has semiflexible leads. Most types are supplied with a base attached to leads to facilitate testing prior to installation in a system.
5	E9-37	Garlock — 69005-7957	11	B5-10	Amphenol — 77MIP8T Cinch — 9875 Eby — 9729-127 Loranger — 1935	16	B12-186	Amphenol — 59-402 Cinch — 3M12 Eby — 9058
6	B20-102	Cinch 20-PM						

Socket Information

Socket & Connector Information for Receiving Tubes

Base	Socket				
	Description		Manufacturer or Distributor and Part No.		
	Application	Mounting	Cinch Mfg. Co.	Cinch-Jones Sales Division Distributors	Industrial Electronic Hardware Corp.
5-Pin Nuvistor	General-Purpose Type	Crimp Mounting	133 65 10 001	5NS	MSN 0905-1 MSN 0905-2 MSN 0905-3
		Flange Mounting	133 65 10 003	5NS-1	—
		Printed Board ("Stand-off")	133 65 10 009	5NS-2	—
	UHF Heat-Dissipating Type	Crimp Mounting	133 65 10 041	5NS-3	—
6-Pin Nuvistor Type 8808	UHF Heat-Dissipating Type	Crimp Mounting	133 67 90 040	5NS-4	—
7-Pin Miniature	Miniature 7-Contact		Generally available from your local RCA Distributor		
9-Pin Miniature	Miniature 9-Contact				
Octal	Octal 8-Contact				
Small 4-Pin	E. F. Johnson Company				
Small 5-Pin	E. F. Johnson Company		122-225-1 (Standard) or 122-225-200 (Military)		
Candelabra 2-Contact	James Millen Mfg. Co., Inc.		33991 (Phenolic) or 33992 (low-loss mica-filled phenolic)		

Cap	Connector	
Miniature	Cinch Mfg. Co. 6005 or 422 03 22 017, 6014 or 422 03 22 024, or equivalent "1/4-inch" connector	
Nuvistor Type 8808	For Distributed-Constant Circuit	International Electronic Research Corp. Thermo-Link Retainer Part No. TXBE-032-031G
	For Lumped-Constant Circuit	Wakefield Engineering, Inc. Semiconductor Cooler Type NF207

Sockets and Shields-Manufacturer's Addresses

TRW Cinch Division, 1500G Morse Avenue, Elk Grove Village, IL 60007

Industrial Electronic Hardware Corporation, 109 Prince Street, New York, NY 10012

James Millen Manufacturing Company, Inc., 150G Exchange Street, Malden, MA 02148

E.F. Johnson Company, 1921 Tenth Avenue S.W., Waseca, MN 56093

International Electronic Research Corp., 135 West Magnolia Blvd., Burbank, CA 91502

Wakefield Engineering Inc., 139 Foundry Street, Wakefield, MA 01880

Alden Products Company, 117 N. Main Street, Brockton, MA 02403

Amphenol, 1830 South 54th Avenue, Chicago, IL 60625 — Industrial Division of Amphenol Corp.

Garlock Incorporated, 602 North 10th Street, Camden, NJ 08102

Loranger Manufacturing Corporation, 2715G Pennsylvania Ave. W., Warren, PA 16365

JAN Hardware Manufacturing Company Incorporated, 47-27 36th Street, Long Island City, NY 11101

Magnetic Shield Division, Perfection Mica Company, 740G Thomas Drive, Bensenville, IL 60106

RCA Corporation, Marketing Department, Lancaster, PA 17604

Jettron Products Incorporated, 56 Route 10, East Hanover, NJ 07936

Erie Technological Products Incorporated, 644 West 12th Street, Erie, PA 16512

Hugh H. Eby Company, 4701 Germantown Avenue, Philadelphia, PA 19144

Sockets for RCA Power Tubes

RCA Tube Family	Socket No.	Supplier ^a	Chimney No.	Supplier ^a
833A	124-0212-001	Johnson ^b	—	—
	119-843	—	—	—
	J15456	RCA	—	—
4628	CD 89-028	Jettron	8823	Jettron
	—	—	J15287	RCA
4632	CD 89-092	Jettron	8822	Jettron
	—	—	J15286	RCA
6816	124-0152-001	Johnson	—	—
	CD 89-015 ^c	Jettron	—	—
	CD 89-006	Jettron	—	—
	9819-000 ^c	Erie	—	—
7213	CD 89-095	Jettron	8821	Jettron
	J15282	RCA	J15285	RCA
7650	9806-009 ^c	Erie	—	—
	J15280 ^c	RCA	—	—
	CD 89-083 ^c	Jettron	—	—
	J15284 ^c	RCA	—	—
	CF 89-078	Jettron	—	—
7801	9801-000	Erie	—	—
8072	124-0311-100 ^d	Johnson	—	—
	9813-000 ^e	Erie	—	—
	9814-000 ^c	Erie	—	—
8122	124-0311-000 ^d	Johnson	124-0111-001	Johnson
	9813-000 ^e	Erie	—	—
	9814-000 ^c	Erie	—	—
8793	CD 89-088	Jettron	8822	Jettron
	J15281	RCA	J15286	RCA
8794	CD 89-088	Jettron	8823	Jettron
	J15281	RCA	J15287	RCA
8807	CD 89-085	Jettron	8824	Jettron
	J15283	RCA	J15288	RCA
8891	CD 89-094	Jettron	9224	Jettron
	J15293	RCA	J15244	RCA

Notes

^a Sockets and chimneys are available in limited quantities from RCA and in production quantities from the other indicated suppliers.

^b Quantities in excess of 100.

^c Includes screen by-pass capacitor.

^d By-pass capacitor 124-0113-001 is available as a separate item from E.F. Johnson Co. for use with 124-0311-100 for frequencies below 200 MHz. For higher frequencies, by-pass capacitor 124-0113-018 is required.

^e By-pass capacitor 9812-000 is available as a separate item from Erie Tech. Prod. Inc., for use with 9813-000.

Replacement Directory

How to use

The Replacement Directory on the following pages contains RCA active types, RCA types limited to extent of inventory and RCA types recently withdrawn in addition to other manufacturer's types. For active RCA types, check the Index to Types* in the Characteristics* section.

a. Locate the first numerical field in the type designation. Ignore all letters that come before the first number; read the number to the end, or up to a letter, hyphen or slash. Note the first numerical field underlined in the following examples:
OA2, GXU1, DE2/200, QV2-250B, Q400-1, 7866, and GLE2000/2.5/10.

d. Types with the same first numerical field are then ordered by the next character as follows: end of designation, slash, hyphen, and letter (s).
 (GXU1, TQ1/2, TD1-100A, C1B.)

Column 2: Direct RCA Replacement TYPE

RCA types shown in this column are direct replacements for corresponding types to be replaced.

The Replacement Directory consists of a series of three columns:

Column 1: Type Designation of Type to be replaced

Note: Types are indexed in a special numerical sequence, check the steps below before proceeding!

b. Type designations consisting entirely of letters and listed in alphabetic order at the end.

c. Types are ordered in numerical sequence of the first numerical field described in (a).

e. If more than one type in (d) is the end type designation, the types are ordered alphabetically by the letter prefixes (DQ2, DX2).

f. If more than one type in (d) is followed by a slash, hyphen, or letter, ordered alphabetically or numerically according to the field following the slash or hyphen or the alphabetical field including the letter.
 (TQ1/2, QEL1/150, CT1/2500; TD1-100A, QV1-150A, XG1-2500).

Column 3: Similar RCA Replacement Type

RCA types shown in this column are not directly interchangeable with the types to be replaced because of differences in mechanical and/or electrical characteristics. For more information as to degree of interchangeability, refer to respective tube data

Type to be Replaced			RCA Replacement			Type to be Replaced			RCA Replacement			Type to be Replaced			RCA Replacement			
Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	
OA2	OA2, OA2WA, 6073, 6073/OA2, 6626/OA2WA		1P28/V1, 1P28A, 1P28A/V1, 1P29, 1P29/FJ401	1P28/V1, 1P28A, 1P28A/V1, 1P29, 1P29		2H66, 2K26, 2V/400A, 2X2/879, 2X2A, 2XM600A, 2Y2	866A, 2K26, 866A, 2X2A, 866A, 5763		C 3JA/5684, C 3JL, 3JP7, 3KP1, 3RP1, 3RP1A, 3RP7A, 3WP1, 3WP11	C3JA/5684, C3JL, 3JP7, 3KP1, 3RP1, 3RP1A, 3RP7A, 3WP1, 3WP11								
OA2WA	OA2WA, 6626/OA2WA	OA2, 6073, 6073/OA2	1P32, 1P37, 1P39, 1P40, 1P41, 1P42	927, 1P37, 1P39, 1P40, 1P41, 1P42		QEO 3/10, QB 3/200, QB3/300, QB3/300GA, QVO 3-12, XH3-045	866A, 5763, 8165/4-65A, 6155, 4-125A/4D21, 5763	6130/3C45				3X100A5, 3X100A11			2C39WA/C, 2C39WA/G, 2C39WA/C, 2C39WA/G			
OA3	OA3, OA3A		CE1VA/B		917, 919, 866A													
OA3/VR75	OA3, OA3A	OA3	DO 2, DX 2															
OA4G	OA4G		K 2, TQ 2		866A, 5557													
OB2	OB2, OB2WA, 6074, 6074/OB2		QEQ 2/5, DE 2/200, QB 2/250, QQVO 2-6, P 2-12, QY 2-100		6939, 866A, 813, 6939, 832A, 813													
OB2WA	OB2WA	OB2, 6074, 6074/OB2	2-150D, XGQ2-6400, CE 2A/B		8020, 105, 920													
OC2	OC2		2AP1, 2AP1A	2AP1A														
OC3	OC3, OC3A		2B29, 2B29P, 2B32, 2B46	2AP1A, 2AP1A, 829B														
OC3/VR105	OC3, OC3A	OC3	2B46P, 2BP1	2AP1A, 2AP1A	6293													
OC3A	OC3A	OC3	CE 2C, 2C22		6953, 6J5													
OC3W	OC3, OC3A	OC3A	2C38, 2C39															
OD3	OD3, OD3A		2C39A, 2C39A/V1															
OD3/VR150	OD3, OD3A	OD3	2C39B, 2C39WA															
OD3A	OD3A	OD3	2C39A, 2C39A/V1															
OD3W	OD3, OD3A	OD3A	2C39B, 2C39WA															
GXU1	3B28		2C39A, 2C39A/V1															
TQ 1/2	3C23		2C39B, 2C39WA															
CT 1/2500	5559		2C39A, 2C39A/V1															
TD1-100A		2C39WA/C, 2C39WA/G	2C39B, 2C39WA															
QV1-150A	4X150A		2C39A, 2C39A/V1															
XG1-2500	5559		2C39B, 2C39WA															
CE 1A/B		918	2C39A, 2C39A/V1															
C 1B		3C23	2C39B, 2C39WA															
C 1B/A		3C23	2C39A, 2C39A/V1															
CE 1C	918		2C39B, 2C39WA															
1C21	1C21		2C39A, 2C39A/V1															
CE 1D	868		2C39B, 2C39WA															
1EP1	1EP1		2C39A, 2C39A/V1															
1EP11	1EP11		2C39B, 2C39WA															
1F2	1L4		2C39A, 2C39A/V1															
1G45P	6130/3C45		2C39B, 2C39WA															
1G84		884	2C39A, 2C39A/V1															
1H16		816	2C39B, 2C39WA															
C 1J/A		3C23	2C39A, 2C39A/V1															
C 1K	C1K/6014		2C39B, 2C39WA															
C 1K/6014	C1K/6014		2C39A, 2C39A/V1															
1K22		2X2A	2C39B, 2C39WA															
1L4	1L4		2C39A, 2C39A/V1															
1P21	1P21, 931B		2C39B, 2C39WA															
1P22	1P22		2C39A, 2C39A/V1															
1P23	868		2C39B, 2C39WA															
1P28	1P28, 4818		2C39A, 2C39A/V1															

Replacement Directory (cont'd)

Type to be Replaced			RCA Replacement			Type to be Replaced			RCA Replacement			Type to be Replaced			RCA Replacement		
Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar
4CX250F	7204/ 4CX250F		5R4GY	5R4GB, 2076/ 5R4GB	5U4GB	6SJ7Y	5693	6SJ7	G 20/5d		869B						
4CX250FG	8621/ 4CX250FG		5R4GYA	5R4GB, 2076/5R4GB	5U4GB	6SL7WGT	5961	6SL7GT	RK 20A		828						
4CX300A	8167/ 4CX300A		5R4GYB	5R4GB, 2076/ 5R4GB	5U4GB	6SN7GTY	5962	6SN7GTB	OS 20F		8673						
4CX1000A	8168/ 4CX1000A					6V6Y		6V6, 6V6GA, 6V6	OS 20K		8673						
4CX3000H	8169/ 4CX3000H		5TP4		5AZP4	6V6GTY		6V6GTA, 6V6	OS 20M		8673						
4CX5000A	8170/ 4CX5000A		5UP1	5UP1		6X4W	6X4W, 6202	6X4	VOS 20H		8673						
4CX10000D	8171/ 4CX10000D		5UP7	5UP7					VOS20K		8673						
4CX15000A	8281/ 4CX15000A		5UP31	5UP31		6Y6GT			VOS20M		8673						
CE 4D	1P40, 930		5ZP16	5ZP16													
4D21	4-125A/4D21		5ZP24		5AUP24	QQVO 7-40											
4D21/4-125A	4-125A/4D21		DQ 6	869B													
4D21A		4-125A/ 4D21	WT6	6L6	6L6GC												
4D32		4-125A/ 4D21	QEO 6-50	807													
4E27/8001		4E27A/ 5-125B	QV06-20	6146A, 6146B/ 8298A													
4E27A	4E27A/ 5-125B		QV06-20B	6883, 6883B/ 8032A/8552													
4E27A/5-125B	4E27A/ 5-125B		QVO 6-20C	6159B													
4F15R	4X150A		6AC7W	6AC7W	6AC7												
4X150A	4X150A		6AC7WA	6AC7W, 6AC7													
4X500A	4X500A		6AC7Y	6AC7W	6AC7												
4Y25	807		6AG5WA	6186, 6186/ 6AG5WA	6AG5												
QE05/40	6146A, 6146B/ 8298A		6AG7Y	6AG7Y	6AG7												
QE05/40F	6883, 6883B/ 8032A/8552		6AH6WA	6AH6WA	6AH6												
QE05/40H	6159B		6AK5W	5654	6AK5/ EF95												
QB5/2000		8166/ 4-1000A	6AK6	6AK6													
DCG 5/5000GB	872A		6AL5W	5726/ 6AL5W	6AL5												
DCG 5/5000GS	8008		6AN5	6AN5													
QQV 5-P10	3E29		6AQ5W	6005	6AQ5A												
QVO 5-25	807		6AS6	6AS6, 5729													
5-125B	4E27A/ 5-125B		6AS6W	5725	6AS6												
XG 5-500	5557		6AS7G	6AS7G, 6AS7GA, 6080, 6080WA	6AS7G												
G 5A	872A, CR274/872A		6AS7GA	6AS7GA, 6080 6080WA	6AS7G												
CE 5A/B		927	6AS7GYB	6AS7G, 6AS7GA, 6080, 6080WA													
5ABP1	5ABP1																
5ABP7	5ABP7		6AU6WA	6AU6WB, 6136	6AU6A												
5ADP1	5ADP1		6AU6WB	6AU6WB, 6136	6AU6A												
5ADP31	5ADP31		6B	5561													
5AGP1		5ABP1	6BA6W	5749	6BA6/ EF93												
5AUP24	5AUP24		6BE6W	5750	6BE6												
5AZP4	5AZP4		6C24	5786													
5B250A	807		6CY5	7717/6CY5													
5BP1	5BP1A		6D4	6D4													
5BP1A	5BP1A		6D22	4X500A													
CE 5C		927	6DJ8	6DJ8/ECC88													
5C21	C6J/5C21	760/6858	6DJ8/ECC88	6DJ8/ECC88													
5C21/C6J	C6J/5C21	760/6858	6F4	6F4													
5C24	8000		6F50R	4X500A													
5C100A	813		6G21	C6J/5C21													
5CNP16		5ZP16	6G58	760/6858													
5CP1	5CP1A		6G85	C6JA/ 5685													
5CP1A	5CP1A		C 6J	C6J/5C21													
CE 5D		927	C 6J/5C21	C6J/5C21													
5D22	4-250A/ 5D22		C6J/A	C6JA/5685													
5D24		4-250A/ 5D22	6J4	6J4, 8532													
5DEP1	5UP1		6J4WA	8532	6J4												
5DEP7	5UP7		6J4WB	8532	6J4												
5F22	4-250A/ 5D22		6J6W	6J6WA, 5964, 6101	6J6												
5F23		8438/ 4-400A 8438A/ 4-400AX	6J6WA	6J6WA, 5964, 6101	6J6												
5FP7A	5FP7A		6J6WA	6J6WA, 5964, 6101	6J6												
5FP7B		5FP7A															
GQ 5G	884																
5G11		710/6011															
5G32		C3J/5632															
5G84		C3JA/ 5684															
5H69A	869B																
5HP1A		5BP1A															
	2076/ 5R4GB																

Replacement Directory (cont'd)

Type to be Replaced			RCA Replacement			Type to be Replaced			RCA Replacement			Type to be Replaced			RCA Replacement		
Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar
V40	8020W		FG 81A		3C23	WTT-134		C16J/5665				WT210-0048		5U4G,			5U4GB
OS 40H		8674	E81CC	6201,	6679/	WTT-135			5U4G,			WT 210-0052	2AP1A				
VOS 40H		8674		12A77WA	12A77				5U4GB			WT 210-0053	3AP1A				
OS 40K		8674	CC81E	6201,	6679/	VT136			1625			WT 210-0056	5559				
VOS 40K		8674		12A77WA	12A77	WTT-136	2AP1A					WT 210-0057	5560				
OS40M	8674		83		83	WTT-137	3AP1A					WT 210-0058	676				
VOS 40M	8674		FP85		8020W	VT138	1629	6E5				WT210-0060					0Z4A/0Z4
HY 40Z		811A	FP85A		8020W	VT 139			OD3,			WT 210-0061					117N7GT
CE 41	921		ECC 88	6DJ8/ECC88					OD3A			WT 210-0062	5557				
RK 41		807	VT 88A(Br)		832A	WTT- 139		760/6858				WT 210-0067					3C23
BK 42		5551A	E 88CC	6922/E88CC		HF 140		8005				WT 210-0069	5557				
CE 42		922	DCC 90	3A5		C 143	813					WT 210-0070	5550				
KU 42	6130/3C34		ABC 91	12A6		143D		2X2A				WT 210-0071	5551A				
RK 46		828	EN91	2D21,		C 144	829B					WT 210-0072	5552A				
VT 46A		866A		5727		VT 144		813				WT 210-0074	105				
RK 47		828	E91AA	5726	6AL5	VR150	OD3,					WT210-0077	5727	2D21			
NE- 48	991		AA91E	5726	6AL5		OD3A					WT 210-0079	105				
RK 48A		813	E91N	5727	2D21	QS 150/40	OD3,					WT210-0081					6SJ7
SR 50		917	CE 91Q		1P37		OD3A					WT210-0082					6V6,
UH 50		812A	CE 91R	1P37		150AVP		6199,				WT210-0084					6V6GTA
R 50A		1P41	DF 92	1L4				4517				WT210-0085					6N7,
50AVP		6199,	EN92	5696,		150C1	OA2,					WT210-0087					6N7GT
		4517		5696A			OA2WA,					WT210-0088					6K8
OS 50H	7295C		DL 93	3A4	5560		6073,					WT210-0090					6J5,
VOS50H	7295C		FG 95				6073/OA2,					WT210-0091					6J5GT
HD51	OA2,		E95F	5654	6AK5/	150C2	6626/OA2WA					WT210-0106	C3J/5632	710/6011			6C6
	OA2WA,				EF95		OA2,					WT210-0108	6AS7G,				6A57G,
	6073,		FG- 97		5559		6073,					WT 210-0116	6A57GA,				6080,
	6073/OA2,		CE 98	5582			6626/OA2WA					WT 210-0117	6080WA				6080WA
	6626/OA2WA		DL 98	3B4WA								WT 210-0147	5552A				5552A
HD52	0B2,		HF100	8005		150C3	OD3,					WT210-0148					6AX5GT
	0B2WA,		UE 100	810			OD3A					WT210-3000	2D21,				
	6074,		VT 100	807									5727,				
	6074/OB2		WTT-100	6X4W	6X4								5727/2D21W				
R 51A		927	T100-1		8005	150CVP		7102				WT 210-0149	5551A				
HY 51B		8005	G 100A	857B		150T		8000				WT210-0156	5551A				
R 51B		5583	100R	8020W		152TH		8000				WT 210-0157	5552A				
R51BV		929	100TH		810	152L		8000				WT 210-0158	5551A				
51T		8005	100TL		8000	Q 160-1	6155					WT 210-0159	5552A				
HY51Z		812A	PM 101	7767		BW 165		5771				WT 210-0179	760/6858				
RK 52		811A	WTT-102		5Y3GT	172	No RCA Replacement					WT 210-0188	C1K/6014				
52AVP		7767	ESU103	3B28,		PL172	8166/					WT210-0234	C16J/5665				
SR 53		917		CR275/866A/		PL175A	4-1000A					WT210-3000	2D21,				
53AVP		6342A,		3B25/3B28	6H6		8438/						5727,				
		4518	WTT- 103				4-400A						5727/2D21W				
CE 54		1P41	104	5561			4-400X										
HK 54		812A	WTT- 104	575A		PL177A	8165/										
54AVP		8055,	105	105			4-65A										
		4525	VR 105	OC3,													
T 55		8005		OC3A		C 180	832A										
56AVP	8575/V1	8575	WTT- 105	892		E 182F	5847/404A										
56AVP/03		8575	R106	4837		BR 191B	5762										
56DVP		8575	WTT- 106	C3J/5632		CR 192		6166				211					8005
FG 57	5559		STV108/30	0B2,		200		8000				211B					8005
HY 57		812A		0B2WA,		HS200		7038				211D					8005
RK 57		8005		6074,		HF 201		8000				211E					8005
WL 57	5559			6074/OB2		HS201		7735				211H					8005
58AVP		4522	WTT- 108	3C23		HF 201A		8000									
R 59A		918	108C1	0B2,		VT 202	9002					R212	1P28,				
R 59B		1P37		0B2WA,		VT 203	9003						4818				
CE 59R	5581			6074,		203A		8005					869B				
R 59TAV		917		6074/OB2		203H		8005					615/7018	5558			
HF 60		8005	WTT- 111	5559		A 206	579B						214E				836
HY 60		807	111H		812A	207		892									
SK 60		868	WTT-112	632B,		R 209		6217									
T 60		8005		5560		WT210-0001	2D21,										
R 60A		920	WTT- 113	676			5727,										
PM 61	7764		WTT-114	0Z4A/0Z4			5727/2D21W										
HY 61/807	807		WTT-115		117N7GT	WT 210-0003	884										
R 61A		930	WTT- 117	5557		WT210-0004	2050	2050A									
R 61B		5581	VT 118		832A	WT210-0006	6H6										
R 61BV		1P39	WTT-118	105		WT210-0007	6L6,										
RK 63		8000			8005		6L6GC										
RK 63A		8000	HF120			WT 210-0008	866A										
CE 64Q		5583	P 120-1A			WT 210-0011	OC3,										
CE64R	5583		WTT-122	65J7			OC3A										
T 66G-GT		884	WTT123	6V6,		WT210-0012		80									
TY66G		884		6V6GTA		WT210-0013		5Z3									
HY 69		1624	F 123A			WT 210-0015	5557										
DY 70	5642		CV 124	807		WT 210-0018	OD3,										
EC 70	5718		WTT- 124	6AT6			OD3A										
ECC 70	6021		HF 125	8005		WT210-0019	83										
V 70D		8005	T 125	810		WT210-0021		6X5GT									
EC 71	5718		WTT-125	6N7		WT210-0025	No RCA Replacement										
EF 71	5899		E 125A	6155		WT 210-0027	872A										
EL 71	5902		WTT-126	50B5		WT210-0028		3Q5GT									
R 71A		930	WTT- 127	833A		WT210-0029		6C5									
EF72	5840W		F 127A	810		WT 210-0031	902A										
VR 75	OA3,		WTT-128	6K8		WT210-0037											

Replacement Directory (cont'd)

Type to be Replaced Basic Designation	RCA Replacement		Type to be Replaced Basic Designation	RCA Replacement		Type to be Replaced Basic Designation	RCA Replacement		Type to be Replaced Basic Designation	RCA Replacement	
	Direct	Similar		Direct	Similar		Direct	Similar		Direct	Similar
E250A	4-250A/		350B		807	CV 632		829B	P813		7038
		5D22	351A		6X5GT	632A		632B	814		828
250TH		833A	F353/A		872A	632B		632B	814/RK47		828
HK 250TL		833A	353A		872A	KU634		677	815		829B
254		810	354C		8000	635		5561	816		816
254B		810	HK 354D		8000	CV 635		833A	P816		5820A/L 5820A
R 255A		869B	354E		810	635/7019		5561	P 817		8673
255B		869B	HK 354F		810	CV 636		836	P820		7038
HK 256		8571	356		5771	R636		4832	P822		7389C
257		4E27A/	356A		807	CV 642		872A	P822/E		7389C
		5-125	356B		812A	651		5552A	T 822		810
257B		4E27A/	357A		833A	651/656		5552A	826		812A, 829B
		5-125	357B		833A	652		5551A			
258B		866A	F 357B		857B	652/657		5551A	P826		7735A
WT261		6H6	359A		1C21	656		5552A	828		828
WT261A		6H6	363A		892	657		5551A	829		829B
WT 262		866A	F 366A		866A	CV 659		1625	829A		829B
WT263		No RCA Replacement	367A		673	WT669		No RCA Replacement	829B		829B
266B		857B	369B		869B	672		672A	830B		8005
266C		857B	371B		8020W	672A		672A	P831		4503A
VT267		8020W	CV372		6130/	673		673	832		832A
267B		872A			3C45	676		676	832A		832A
WT 269		OC3, OC3A	R372		4818	677		677	833		833A
			375A		575A	678		5563A	833A		833A
HS270		8844	F 375A		575A	681		5550	834		812A
WT270		80	WT377		No RCA Replacement	681/686		5550	836		836 1616
WT270X		523	381			RS 685		6155	837		1625
FG 271		5551A			2C39WA/C	686		5550	838		812A
272		5557	ML381		2C39WA/G	CV 686		OC3,	P841		8507A
WT 272		5557			2C39WA/C			OC3A	P842		8541A
CR 273/8008		8008			2C39WA/G	WT 699		5550	P842X		8541A/X
CR 274/872A		872A	384D		845	710		710/6011	P843		8572A
			WT389		3Q5GT	710/6011		710/6011	P844		8572A
274A		5R4GB, 2076/5R4GB	WT390		6C5	710L		710/6011	845		845
			393A		3C23	714		714/7021	P846		8507A
274B		5R4GB, 2076/5R4GB	394A		627	714/7021		714/7021	P847		8541A, 4809B
			395A		12AU7A/	715		5557	P848		8507
					ECC82,	715/5557		5557	P849D		8507
					5823	715/5557/FG17		5557	P849		8541
CR275/866A/3B28		3B25/3B28, 866A	FJ 401		1P29	716/6855		716/6855	P 851		8674/S
CR275/866A/3B25/3B28		CR275/866A/3D25/3B28	403A		5654,	EF 730		5636	P 852		8674/S
					6AK5/EF95,	EF 731		5899	P854		4591/L
284A		845	403B		6AK5/EF95,	WL 734		917	S856		OA2, OA2WA, 6073, 6073/OA2, 6626/OA2WA
284B		845			5654	WL 735		868			
284D		845	404A		5847/404A	WL 741		923			
VT 286		832A	FJ 405		935	CV 752		OA4G			
287A		5557	407A		407A	760		760/6858			
WT 294		OD3, OD3A	408A		408A	760/6858		760/6858			
			415		5550	760L		760/6858			
295A		8005	417A		5842/417A	760P		760/6858			
300		8005	421			WL 762		1947			
Z 300T		OA4G			6AS7G,	WL 767		935	P 857		4536
WT 301		83			6AS7GA,	WL 773		935	P 858		4536
301A		83			6080,	WL 775		935			8072
CE 302		3C23	423A		5651A,	778		760/6858	P860		7038, 7735, 7735A, 7735B
303A		8005			5651WA,	778P		760/6858			
304B		834	450TH		833A	CV 788		832A			
304H		833A	451		8020W	CV797		2D21, 5727	S860		OB2, OB2WA, 6074, 6074/OB2
304T		833A	460		8000	800		812A			
CE306		C6JA/	463		8000	801		807			
		5685	468		810	ECC 801		6201	861		8438/4400A
307A		807	471		8005	801A		807			8438A/4400AX
F 307A		892	473		5762	801A/801		807			
WT308		6X5GT	CV 475		5899	802		807			
CE 309		5557	CV 477		5899	ECC802		6189	P861		4503A
310A		6C6	502A		2050A	6189		6680/12AU7A	P862		7262A, 7735, 7735A, 7735B
310B		1620	GL546		2050	6189		6680/12AU7A			7735B
CE 311		3C23			5696	6189		8121	P864		7735B
UE 311		8005	VH 550A		866A	6189		8121			7735B
UE 311CH		8000	VX 550A		3B28	6189		8121			7735B
312A		828	ZF572		2C39WA/C	803		807			7735B
313C		1C21			2C39WA/G	804		828	P864		7735B
315A		673	575A		575A	805		8005			807
UE 317C		836	578		8020	806		8000	P865		4542
319A		872A	579B		579B	807		807			866A
CE 320		710/6011	604		604/7014	807		3A4			866A
320A		710/6011	604/7014		604/7014	CV807		3A4			866A
320B		892	604L		604/7014	P 807		8674	P866		8573A
321A		673	WT606		2D21, 5727	P807/E		8673, 8674			866A
322A		8121	615		615/7018	808		812A			866A
323B		3C23	615/7018		615/7018	809		8005	P867		816
328A		6C6	618		5561	P 809		8673, 8674			8572A
331A		8005	CV 618		83	810		810			868
339A		807	618L		5561	P810		7735A	P868		4542
341AA		891R	618P		5561	811		811A			869A
342A		892	627		627	811		811A			869B
342B		8005	CV627		810	811A		811A			869B
343A		892	CV 628		811A	P811/E		7295C			872A
348A		1620	KU 628		5559	812		812A			872A
349A		6F6, 6F6GT, 6K6GT	630		2050	P812		7389C			872A
			630A		2050	812A		812A			872A
			631		5559	UE 812H		8005			872A
350A		807	CV631		828	813		813			8673
											8674

Replacement Directory (cont'd)

Type to be Replaced			Type to be Replaced			Type to be Replaced			Type to be Replaced		
Basic Designation	RCA Replacement		Basic Designation	RCA Replacement		Basic Designation	RCA Replacement		Basic Designation	RCA Replacement	
	Direct	Similar		Direct	Similar		Direct	Similar		Direct	Similar
T 875A	575A		XQ1021G	4592/G		TW 1251	8674		CV 1835		3B28
879	2X2A		XQ1021R	4592/R		PTW1255		7038,	1852		6AC7
884	884		XP1030		8054,			7735,	1854		8673
885		884			4524			7735A,	1899		2F21
P 890		8673	XQ1030		7262A			7735B	CV1905		8165/ 4-65A
891		892	XP 1031		8054,	1257	5559				7326
891R	891R				4524	VC1258		6130/ 3C45	K 1927		
892			XQ1031		7262A			4532,	1946	1946	
892R	892R		XQ1032		7262A	H1261		4532A,	1947	1947	
P 892		8674	XQ1040	8541A				4532A	1949	1949	
893AR		5671	XP 1040		4522			5823	1950		1949
P893	4493		XQ1041	8541A/X				2A3	E1955	2D21	
UE 893RA		5671	XQ1042	8541A		RL 1267	0A4G			5727	
P894	4494		XQ1043	8541A		XQ1270		8844	CV 1992	0A4G	
P895	4495		XQ1044	8541		XQ1271		8844	2019		931A
Z900T	5823		XQ1050		8541A,	XQ1310		8844	2020	2020	
EAA901	5726	6AL5			8507A	K 1295		8053	2022	2022	
EAA901S	5726	6AL5		1051	5551A	K 1303		4460	2029		6806
902	902A			1051A	5551A	K1305		6217	2032		No RCA Replacement
902A	902A			1052	5552A	XQ1311	8844		2039		6950
EF905	5654	6AK5/ EF95		1052A	5552A	TD1319		7038	2041		2041
		8005	XQ1052		8541A,	TD1320	7038		2048	7263A	
UE 905					8507A	K1322		6199	2048A		7263A
906P1	3AP1A		XQ1053		8541,	TD1325		7735	2050	2050	2050A
V 907		8673, 8674			8507	TD1337		8134	2050A	2050A	2050
			XQ1054		8541,	TD1340		8507A	2051	2050	2050A
V 909		8673, 8674			8507	TD1341		8541A, 8507A	2054	2054	
			XQ1060	8541A/X					2054V1	2054	
V911	7295C		XQ1061		8541A,	TD1342		4503A	2055	2055	
917	917				8507A	TD1343		4514	2057/6H6		6H6
918	918		XQ1062		8541A,	TD1347		4514	2060	2060	
919	919				8507A	TD1348		4503A	2061	2061	
920	920		XQ1063		8541,	TD1354		7263A	2063	2063	
TX- 920		5559			8541A,	K 1361		6199, 4441	2064	2064B	
921	921				8507A,				2064B	2064B	
922	922				8507	TD1368		7263A	2065	2065	
V922	7389C		XQ1064		8541,	CV 1374		807	2067	2067	
923	923				8507	K 1382		7767	2076/	2076/	5U4GB
924		1P41	XQ1065		8541A,	K 1390		8054	5R4GYB	5R4GYB	
926	926				8507A	K 1391		8055	2081/6AW8A	2081/	6AW8A
927	927		XQ1066		4569,	K 1404		8644			
929	929,				4589	K1428		2020	2082/12AY7		12AY7
	1P39		XQ1067		4569,	K 1447		4463, 7326	2100A	8020W	
930	930, 1P40				4589			872A	CV 2129	5763	
			CR 1101		6181	CV 1449			CV 2130	6155	
UE 930		8005	C 1108	6155		E 1485	3A4		CV 2191		5CP1A
UE 930B		8005	XP 1110		7767, 4516	K 1485		4464	CV 2240		3B4WA
931	931A, 931B				1947	K1500		8053, 6342A	CV 2241	5642	
			R 1111		4516			6217	PTW2255		8541, 8507A, 8541A, 8572A
931A	931A, 931B		XP 1111		7767, 4516	K 1519					
					7764	CV 1572	807				
931B	931B		XP 1113		4460	VD1601	4532,		CV 2383		5762
931VA	931VA		XP 1115		8644		4532A		CV 2390	3A4	
934	934		XP 1117		8134,	VD1602	4532,		QS2404	5726	6AL5
935	935		XQ1120		8134/ 4811		4532A		QS2406	6201	12AT7WA, 12AT7WB
UE 945	845				8134/ 4811	VD1603	4532, 4532A				
954		9001			8134,			1620,	QA2408	5962	6SN7GTB
955	955		XQ1121		8134/ 4811			5879	CV 2466	6939	
956		9003			4811				CV 2492	6922/E88CC	
958A		9002			5557	1612	1612	6L7	CV 2492		
959	959		CV 1144		5557	1614	1614	6L6,	CV2516		2C39WA/C 2C39WA/G
UE 966	866A		XQ1150		C23165D, C23165E			6L6GC			
UE 966A	866A					1616	1616		CV2522	6AS6, 5725	
967	5557		XQ1160	4503A		1619	1619				
UE 972	872A		XQ1161	4503A		1620	1620	6J7	2525A5	5BP1A	
UE 972A	872A		XQ1180		4542	1621	1621	6F6,	CV2573	5651A, 5751WA	
UE973		677	XQ1181		4542			6F6GT			
UE 975A		575A	XQ1200		4532, 4532A	1622	1622	6L6, 6L6GC	CV 2642	5842/417A	
991	991				0A3,				CV 2666		829B
XP 1000	6342A	8053, 4523	QS 1205		0A3A	1624	1624		CV 2680		868
					0C3,	1625	1625		PTW2700		8134
STE 1000/2.5/15	5559		QS 1206		0C3A	1629	1629	6E5	CV 2723		869B
RG1000/3000	872A				0A2,	1631		6L6, 6L6GC	CV 2742	1L4	
NL 1001		5550	QS1207		0A2WA, 6073,			934	CV2753		C3JA/ 5684
XP 1001	6342A	8053, 4523			6073/OA2, 6626/OA2WA	1654A					
XQ1001		7735B			0B2,	1701	5557		CV2795	1L4	
XP 1002		4463			0B2WA, 6074, 6074/OB2	1702		5563A	CV2873	5727	2D21
XQ1002	7735B		QS1208		0B2,	K 1716		8645	CV 2957		5557
XQ1003	7735A				0B2WA,	K 1717		8645	CV2963		4-125A/ 4D21
XQ1004	7735				6074, 6074/OB2	CV 1758					
NL 1005		5551A			0A2,	1802P1	1L4		CV2964		4-250A/ 5D22
RS 1007	6155		QS1210		0A2WA, 6626/ 0A2WA	CV1832		0A2, 0A2WA, 6073, 6073/OA2, 6626/OA2WA	CV2967		8020W
XP 1010		6199, 4517			0B2, 6074, 6074/OB2				CV2984	6080, 6080WA	6AS7G, 6AS7GA
		4514	QS1211		0B2WA					3069	866A
XQ1010					6074, 6074/OB2	CV1833		0B2, 0B2WA, 6074, 6074/OB2	CV3508	6201	12AT7WA, 12AT7WB
XQ1020	4592/L				5915						
XQ1020B	4592/B										
XQ1020G	4592/G										
XQ1020R	4592/R		XQ1240		8541A, 8541A/X				CV3512	5696, 5696A	
XP 1021		8575			8541	A1834		6AS7G, 6AS7GA, 6080, 6080WA	CV3523		6146A, 6146B/ 8298A
XQ1021	4592/L		XQ1241		8673						
XQ1021B	4592/B		TC 1250								

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Basic Designation	RCA Replacement		Basic Designation	RCA Replacement		Basic Designation	RCA Replacement		Basic Designation	RCA Replacement	
	Direct	Similar		Direct	Similar		Direct	Similar		Direct	Similar
3572	866A		4495	4495		4653		8072	5561/104	5561	
CV 3599		3E29	4501/V3	4501/V3		4655	4655		5561/FG104	5561	
CV 3789	5842/417A			4501/V4		4661	4661		5563	5563A	
CV 3798	0A3,		4501/V4	4501/V4		4662	4662		5563A	5563A	
	0A3A		4503	4503A		4665	4665		5581	5581	
3874A	813		4503A	4503A		4802	4802		5582	5582	
CV3879		8438/	4506	4506		4804	4804		5583	5583	
		4.400A	4507	4507		4804A	4804A		5588		6161
		8438A/	4510	4510		4804B	4804B		5590/401B		5654,
		4.400AX	4513		8673	4807	4807				6AK5/
3885A	3B28		4513/S		8673/S	4807A	4807A				EF95
CV 3928	5636		4514	4514		4809	4809		5591/403B		5654,
CV 3930	5718		4516	4516		4809/B	4809/B				6AK5/
CV 3946		3WP1	4517	4517		4816	4816				EF95
CV 3959		5FP7A	4518	4518		4817	4817		5592		9C25
CV3986	6021		4522	4522		4818	4818		5604		9C25
CV 3990		2E26	4523	4523		4825	4825		5606		892
TC 4000	7389C		4523/V1	4523/V1		4826	4826		5632	C3J/5632	
TW 4002	7295C		4524	4524		4827	4827		5632/C3J	C3J/5632	
TC4003	4536		4524/V4	4524/V4		4827A	4827A		5636	5636	
CV4008	NO RCA Replacement		4524/V5	4524/V5		4828A	4828A		5636A		5636
CV4009	5749	6BA6/	4525	4525		4828A	4828A		5639	5639	
		EF93	4525/V1	4524/V1		4832	4832		5642	5642	
CV4011	5725	6AS6	4526	4526		4833A	4833A		5651	5651A,	
CV4017	5751,	6681/	4526/V1	4526/V1		4836	4836			5651WA	
	5751WA	12AX7/	4531	4531		4837	4837		5651A	5651A,	
		ECC83	4532	4532		4833	4833			5651WA	
			4532A	4532A		4846	4846		5651WA	5651WA	5651A
CV4018	5727	2D21	4532B	4532B		4862	4862		5654	5654	6AK5/
CV4020	0A2WA	0A2	4536	4536		4863	4863				EF95
CV4023	6AU6WB	6AU6A	4536A	4536		4869	4869		5654/6AK5W	5654	6AK5/
CV4024	12AT7WA	12AT7WB	4536V1	4536		4870	4870				EF95
CV4025	5726	6AL5	4542	4542		4873	4873		5659		12A6
4028	4028A		4543	4543		4874	4874		5654/6AK5W		6AK5/
CV4028	0B2WA	0B2,	4547	4547		ASG 5017	5557				EF95
		6074,	4549	4549		PA 5021	866A		5663	5663	5696,
		6074/0B2	4550	4550		TH 5021B	866A				5696A
4028A	4028A		4551	4551		ASG 5023	3C23		5664		3C23
CV4031	6101	6J6	4552	4552		TH 5031B	872A		5665	C16J/5665	
4037	4037A		4555	4552		CV 5035		5ADP1	5665/C16J	C16J/5665	
4037A	4037A		4557	4557		E5036	4532		5668		892
CV4039	5763		4559A/8507A		8507A	TH 5071	857B		5669		892R
4042	4042		4565	4565		ASG5121	2D21,		5670	5670	
4043	4043		4566	4566			5727		5670WA		5670
CV4048	5651WA	5651	4567	4567		CV5122	5823		5671	5671	
A 4051	807		4568	4568		CV5186	5651WA	5651	5672	5672	
4055	4055		4569	4569		AG5210	0B2,		5675	5675	
4055/V1	4055/V1		4572	4572			0B2WA,		5678	5678	
S4056		4532A,	4583	4583			6074,		5684	C3JA/5684	3C23
		4532	4584	4584			6074/0B2		5684/C3JA	C3JA/5684	3C23
4058	4058		4585	4585		AG5211	0A2,		5685	C6JA/5685	
4062A	4062A		4589	4589			0A2WA,		5685/C6JA	C6JA/5685	
4065	4065		4591/B	4591/B			6073,		5686	5686	
4076	4076		4591/G	4591/G			6073/0A2,		5687	5687	
CV4100	0A2WA,	0A2,	4591/L	4591/L			6626/0A2WA		5691	5691	6SL7GT
	6626/	6073,	4591/R	4591/R		CV5212	6201	6679/	5692	5692	6SN7GTB
	0A2WA	0A2	4592/B	4592/B				12AT7	5693	5693	6SJ7
CV4101	0B2WA	0B2,	4592/G	4592/G		TH5221V/B	3B28		5695		816
		6074,	4592/L	4592/L			5514	811A	5696	5696	5696A
		6074/	4592/R	4592/R			5516	2E24	5696A	5696A	5696
		0B2	4593/R	4593/R			5530	5762	5713	5713	
			4594/R	4594/R			5550	5550	5718	5718,	
4401/V3	4401/V3		4595	8541		5550/GL415	5550		5718A		5718
4407	4407		4600A	4600A		5550/881	5550		5719	5719	
4412	4412		4602		6949	5550/681/	5550		5719A	NO RCA Replacement	
4415		8674	4603	6949		686			5725	6AS6	
4415/S		8674/S	4604	4604		5551	5551A		5725/6AS6W	5725	6AS6
4415V1	4415/S	8674,	4605		8587	5551/652	5551A		5726/6AL5W	5726	6AL5
		8674/S	4605V1		8587	5551/FG271	5551A		5726	5726	6AL5
4416		8674	4605V2	8587		5551A	5551A				6AL5W/6095
4416/S		8674/S	4606	5762		5551A/652	5551A		5727	5727	2D21
4421	1P28		4610	4610		5552	5552A		5727/2D21W	5727	2D21
4441	4441		4615	8596		5552/651	5552A		5734	5734	
4441A	4441A		4616	4616	6952	5552/FG235A	5552A		5736		5762
4454	4454		4617	4617		5552A	5552A		5741		8020W
4456	4456		4620	857B		5552A/651	5552A		5743		5556
4460	4460		4621	4621		5556	5556		5749	5749,	6BA6/EF93
4461	4461		4624	4624		5556/PJ8	5556				
4463	4463		4626	4626		5557	5557		5749/6BA6W	5749	6BA6/
4464	4464		4628	4628		5557/17	5557				EF93
4465	4465		4629	4629		5557/715	5557		5750	5750	68E6
4471	4471		4630	4630		5557/FG17	5557		5751	5751	6681/
4472	4472		4631	4631		5557/FG17/	5557				12AX7A
4473	4473		4632	4632		1701					5751,
4478	7735		4635	4635		5558	5558		5751WA		6681/
4486	4486		4637	4637		5558/32	5558				12AX7A
4488	7735		4638	4638		5558/FG32	5558				
4490	4490		4640	4640		5559	5559		5762	5762	
4491	4491		4641	4641		5559/57	5559		5762/7C24	5762	
4492V1	4536		4647	4647		5559/FG57	5559		5762A	5762	
4492V2	4536		4648	4648		5560	5560		5763	5763	
4493	4493		4651	4651		5560/FG95		5560	5770	5770	
4494	4494		4652/8042	4652/8042		5561	5561		5771	5771	

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Type to be Replaced			Type to be Replaced			Type to be Replaced			Type to be Replaced		
Basic Designation	RCA Replacement		Basic Designation	RCA Replacement		Basic Designation	RCA Replacement		Basic Designation	RCA Replacement	
	Direct	Similar		Direct	Similar		Direct	Similar		Direct	Similar
5786	5786		6074/0B2	6074,	0B2,	6293	6293		6679/12AT7	6679/	12AT7WA,
5794		6562/		6074/0B2	0B2WA	6326		7038		12AT7	12AT7WB
		5794A		6076	6076	6328	6328		6680	6680/	12AU7A/
5794A	6562/5794A			6076A	6076A	6333		892		12AU7A	ECC82
5812		5763	6080	6080,	6AS7G,	6336	6336A		6680/	6680/	12A67A/
5814	5814A	6189		6080WA	6AS7GA	6336A	6336A		12AU7A	12AU7A	ECC82
5814A	5814A	6189	6080WA	6080WA	6080,	6337		6336A	6681	6681/	12AX7A/
5814WA		5814A,			6AS7G,	6342A	6342A			12AX7A	ECC83
		6189			6AS7GA	6342A/V1	6342A/V1		6681/12AX7	6681/	12AX7A/
5819	5819		6082	6082		TH6345		6130/	6681/	12AX7A	ECC83
5820	5820A/L		6082A		6082			3C45	6681/	6681/	12AX7A/
5820A/E	5820A/L		6084		5879	6347		5552A	6681/	12AX7A	ECC83
5820A/L	5820A/L		6085		5962,	6350	6350		6686	6686	
5820E	5820A/L				6SN7GTB	6360	6360,		6687		5915
5823	5823		6095	6005	6AQ5A	6360A	6360A	6360	6688A	6688A	
5824	5824		6096		5654,	6362		7767	6693		6895
5825	5825				6AK5/	6363		8054	6696		5770
5840	5840,				EF95	6364		8055	6759		5762
	5840W		6097		5726,	6365		7764	6775		8438/
5840A	5840W				6AL5	6365		5670			4-400A
5840W	5840W	5840	6099		5964,	6385					8438A/
5842	5842/417A				6101	6386	6386				4-400AX
5842/417A	5842/417A		6101	6101	5964,	6394		6082	6806	6806	6448
5844		5964			6J6WA	6414		5965	6807		C6J/5C21
5847/404A	5847/404A		6101/6J6WA		5964,	6417	6417	7551	6810	6810A	
5868/AX9902		833A			6J6WA	6445		892R	6810A	6810A	
5876	5876A		6111	6111		6446		892	6810B		6810A
5876A	5876A		TH 6120		105	6447		892R	6816	6816	
5881	5881	6L6,	6130	6130/3C45		6448	6448	6806	6829		5965
		6L6GC	6130/3C45	6130/3C45		6467		6199	6850	6850	
5891		5671	6136	6136	6AU6WB	6474		8673	6858		760/6858
5893	5893		6140/423A		5651A	6474/1854		8673	6858/760		760/6858
5896	5896		6146	6146A,		6485	6485		6883		6883
5897	5718			6146B/8298A		6486		5725			6883B/
5898	NO RCA Replacement		R 6146	8008,		6486A		5725			8032/8552
5899	5899			CR273/8008		6499	6499		6883A		6883B/
5899A	5899		6146A	6146A,		6520		6AS7G,			8032A/8552
5900	5899			6146B/8298A				6AS7GA	6883B		6883B/
5901	5840W		6146B/8298A	6146B/8298A		6521	6521,		6883B/		8032A/8552
5915	5915		6146W	6146W			6521/R		6883B/8032A/		6883B/8032A
5915A		5915	6146W/7212	6146W		6521/R	6521,		8552		8552
5917		5762	6155	6155			6521/R		6884		6884
5918		5770	6155/4-125A	6155		6524	6524		6887		6887
5919		5671	6156	4-250A/5D22		6528	6528		6893		2E26
5920		5964,	6159	6159B	4-250A/	6549		8165/	6894	6894	
		6101,			5D22			4-65A	6895	6895	
		6J6WA	6159A	6159B		6550	6550	7027A	6896/1855		7539
5930		2A3	6159B	6159B		6550V1	6550V1		6897		6897
5931		5U4GB	6159W	6159W		6570	6570		6901		3C23
5932		7027A	6159W/7357	6159W		6576		5771	6907		6850
5933		807	6161	6161		6626	6626,	0A2,	6922		6922/E88CC
5933WA		807	6166	6166			6626/	6073/0A2,	6922/E88CC		6922/E88CC
5934		579B	6166A	6166A/7007			0A2WA	6073	6935		7767
5946	5946		6166A/7007	6166A/7007		6626/0A2WA	6626/	0A2,	6939	6939	
5963	5963	5814A	6173	6173			0A2WA	6073,	6949	6949	
5964	5964	6J6WA,	6180		5692,		6073/0A2	6073,	6949/V1	6949/V1	
		6101			6SN7GTB		0C3A		6950	6950	
5965	5965		6181	6181		6627		0B2,	6950/2039	6950	
5965A		5965	6186	6186,	6AG5			0B2WA,	6952	6952	4616
6005/6AQ5W	6005	6AQ5A		6186/				6074,	6953	6953	
6005/	6005	6AQ5A		6AG5WA				6074/0B2	6977	6977	
6AQ5W/6095			6186/	6186/	6AG5	6655	6655A		7000		1620,
STE6011	710/6011		6AG5WA	6AG5WA,		6655A	6655A				6J
6011/710	710/6011			6186		6660	6660/6BA6	5749,	7007		6166A/7007
6012	6012	5727	6189	6189,	5814A,			6BA6/	7008		No RCA Replacement
6014	6014			6189/	5963			EF93	7014		604/7014
6014/C1K	C1K/6014			12AU7WA		6660/6BA6	6660/6BA6	5749,	7018		615/7018
LD6014	4532A,		6189/	6189/	5814A,			6BA6/	TH 7020		5551A
	4532		12AU7WA	12AU7WA,	5963,			EF93	7021		714/7021
6021	6021			6189	12AU7A/	6661	6611/6BH6	6BH6	TH 7021		5551A
6028	408A				ECC82	6661/6BH6	6661/6BH6	6BH6	TH 7030		5552A
6028/408A	408A		6197	6197	6CL6	6662	6662/6BJ6	6BJ6			7034/4X150A
TH6031		5559	6198		7038,	6663	6663/6AL5	5726,			7035/4X150D
6032		6914			7735,			6AL5			7036
6058		5726,			7735A,			6AL5			7038
		6AL5			7735B						7038A
6060	6201		ML6198	7735A		6664	6664/6AB4	6AB4			7038H
6062	5763		6199	6199		6664/6AB4	6664/6AB4	6AB4			7038/V
6067	5814A,		6201	6201	12AT7WA,	6669	6669/	6005,			7038/V4
	12AU7A/				12AT7WB			6AQ5A			7043
	ECC82					6669/6AQ5A	6669/	6005,			No RCA Replacement
6072	6072,		6202	6202	6X4W		6669/6AQ5A	6669/			7044
	12AY7		6211	6211			6AQ5A				7046
6072A	6072A		6211A		6211	6676	6676/	6CB6A/	M 7050L		8673
	6072A		6217	6217			6CB6A	6CF6			7054
6073	6073	0A2	TH6230		3C23	6676/6CB6A	6676/	6CB6A/			7054
		0A2WA			8575		6CB6A	6CF6			7055
		6626/02WA			8575	6677	6677/6CL6	6CL6			7056
6073/0A2	6073	0A2	6263	6263A		6677/6CL6	6677/6CL6	6CL6			7057
	6073/0A2	0A2WA	6263A	6263A		6678	6678/6U8A	6U8A/			7058
	6626/0A2WA		6264A	6264A				6KD8			7059
6074	6074,	0B2,	6277/3B28A	3B28		6678/6U8A	6678/6U8A	6U8A/			7060
	6074/0B2	0B2WA			7650	6679	6679/12AT7	12AT7WA,			7061
					6199			12AT7WB			7062
											5965

Replacement Directory (cont'd)

Type to be Replaced			RCA Replacement			Type to be Replaced			RCA Replacement			Type to be Replaced			RCA Replacement		
Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar
M7075	8844		7513/L		8673	8000		8000	8166/		8166/	8166/		8166/			
7079		6111	7513/S		8673/S	P8000		4591/L	4-1000A		4-1000A	4-1000A		4-1000A			
7085		5771	7513/V1		8673/S	P8000B		4591/B	8167		8167/	8167/		8167/			
M 7091		8673	7533		7533	P8000G		4591/G			4CX300A			4CX300A			
M 7092		8673	7539		7539	P8000L		4591/L	8167/		8167/			8167/			
7094	7094		7543		6AU6WB	P8000R		4591/R	4CX300A		4CX300A			4CX300A			
7102	7102		7551		7551	TV8000		8541A	8168		8168/			4CX1000A			
7105		6080, 6080WA, 6AS7G, 6AS7GA	7552		7552	P8001		4592/L			8168/			8168/			
			7553		7553	P8001B		4592/B	8168/		8168/			4CX1000A			
			7554		7554	P8001G		4592/G	8169		8169/			4CX3000A3			
			7558		7558	P8001L		4592/L			8169/			4CX3000A3			
7117	7117		7566		6499	P8001R		4592/R			8169/			4CX3000A3			
7136		575A, 6894	AX 7585		5552A	8005		8005	8170/		8170/			8170/			
			7586		7586	8008		8008	8170/		8170/			8170/			
7167	7167		7587		7587	P8011		4532A, 4532	8171/		8171/			4CX5000A			
7183	7183A		7609		4CX250B				8171		8171/			4CX10000D			
7183A	7183A		7611		5820A/L	8014A			8170/		8170/			4CX5000A			
7203/4CX250B		4CX250B	7629A		No RCA Replacement	8016			8170/		8170/			4CX5000A			
7203/4CX250B/V1	4CX250B	8122	7643		7643			8020W	8171/		8171/			4CX10000D			
7204/4CX250F	7204/4CX250F	8122	7645		6939	8020		8020W	8177		8177			7213			
7212	6146W		7649		7649	8020W/100R		8020W	8179		8179			8166/ 4/1000A			
7213	7213		7650		7650	8020W		8020W									
7214	7214		7651		7651	8032		8032, 6883B/ 8032A/8552									
7216	C3JL		7669		5551A	8032A		6883B/ 8032A/8552	8184		8184			8184			
7225		6499	7701		7551			8032A/8552	8196		5725			6A56			
7226	7262A		7717		7717/6CY5	8042		4652/8042	8203		8203						
7226A	7263A		7717/6CY5		6CY5	8053		8053	8204		5727			2D21			
7244		5964, 6101, 6J6WA	7724		14GT8	8054		8054	M8212		5726			6A15			
			7724/14GT8		14GT8	8055		8055	M8223		0A2WA, 6627/ 0A2WA			0A2, 6073, 6073/0A2			
7244A		5964, 6101, 6J6WA	7728		6201	8056		8056									
			7729			8057		1949	M8224		0B2WA			0B2, 6074, 6074/0B2			
7245		6J4, 8532'	7730		6681/ 12AX7A	8058		8058									
7245A		6J4, 8532			6189, 5814A, 6680/ 12AU7A	8062		7102									
					6678/ 6U8A/ 6KD8	8072		8072									
7258	7258		7731		6189, 5814A, 6680/ 12AU7A	8077		8077/7054	8226		8226						
7262	7262A				6680/ 12AU7A	8077/7054		7054	8227		4621						
7262A	7262A				6680/ 12AU7A	M8079		5726	8233		8233						
7263	7263A				6678/ 6U8A/ 6KD8			6663/ 6A15	8234		8234						
7263A	7263A		7732		6U8A/ 6KD8	M8081		6101	8239		8239/			3X3000F1			
7265	7265				6CB6A/ 6CF6	8092A		No RCA Replacement	8239/		8239/			8239/			
7270		8121	7733		12BY7A	8092A/S		No RCA Replacement	3CX3000F		3CX3000F			3CX3000F			
7271	7271		7735		7735	8093		8673	8239/		8239/			8239/			
7289	7289/3CX100A5		7735A		7735A	8093A		8673	3X3000F1		3X3000F1			3CX3000F1			
	7289/3CX100A5		7735B		7735B	8093A/E		8673	M8245		6005			6A05A			
7289/3CX100A5	7289/3CX100A5		7746		7746	8093A/L		8673	8251		8251/			3CX2500F3			
7291		7038	7746		7746	8093B		8673	8269		8269						
7291A		7038	7764		7764	M 8096		5763	8281		8281/			4CX15000A			
7293		8674	7767		7767	8106		8106	8281/		8281/			4CX15000A			
7293A		8674	7788		7788	8121		8121	8281/		8281/			4CX15000A			
7293A/L		8674	7800		6166A/ 7007	8122/V1		8122/V1	8295		8166/ 4-1000A, 7213						
7293B		8674	7801		7801	8134		8134									
7293E		8674	7817		6342A	8134/V1		8134/4811									
7294		8673	7819		8055	8134/4811		8134/4811	8295A		8166/ 4-1000A, 7213						
7294/E		8673	7835		7835	8134/4811/B		8134/ 4811/B									
7295B/E	7295C	8749	7838		5671	8136		8136									
7295B/L	7295C	8749	7843		7843	M8136		6189/ 12AU7A/ ECC82	8298		6146B/8298A			6146B/8298A			
7295C	7295C	8749	7844		6816	8139		8239/ 3CX3000F1	8298A		6146B/8298A						
7305	1P22		7850		7850				8355		7735B						
7307	710/6011	676	7854		829B	8149		6146B/ 8298A, 6883B/ 8032A/ 8552	8380		7587						
7308	7308		7856		4542			8298A, 6883B/ 8032A/ 8552	8382		7586						
7315	7315		7860		7767			8386	8386		5770						
			7870		7801			8393	8393		8393						
7318		5814A, 6680/ 12AU7A	Z 7888		8673			8415	8415		8122						
			7895		7895			8434	8434		575A, 6894						
7325		7735, 7735A, 7735B	Z 7899		5820A/L			8435	8435		673, 6895						
			7900		5762												
7326	7326		7905		7905												
7697		7735	7911		7649												
7357	6159W		7912		7735												
7358		6293	7915		4503A												
7360	7360		7919		8541A/X												
7370		5687	7929		8134												
7386		710/6011	7929B		4495												
7389	7389C		7929G		4494												
7389A	7389C		7929R		4493												
8844W	8844		7933		4503A												
7389B	7389C		7947		8541A												
7389B/L	7389C	7389C	7951		7262A, 7735A												
7389C	7389C				7735A												
VH 7400	872A		7967		No RCA Replacement												
7448		7315	7975		4532A												
7457	7457		7984		6883B/ 8032A/ 8552												
7459		5762			8507A												
7465		9C25															
7509		710/6011	Z 7998														
7513		8673	Z														

Replacement Directory (cont'd)

Type to be Replaced		RCA Replacement		Type to be Replaced			RCA Replacement			Type to be Replaced		RCA Replacement	
Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar	Basic Designation	Direct	Similar		
8541	8541		8773	8773		9638B		2067	TH9815		7735B		
8501	8501		8791	8791	8791/V1	9656KB	8053		TH9815PA		8541A/X		
8507	8507		8791/V1	8791/V1	8791	9656KS	4523		TH9817		7735B		
8507A	8507A		8792	8792	8792/V1	9660B		1P28, 4818	TH9817PA		8507A		
8511		7262A	8792/V1		8792				TH9821		4514		
8521	8521		8792/V1	8792/V1		9661B	1P28,		TH9831		8480		
8532	8532	6J4	8793	8793	8794		1P28A,		AX9911		6130/ 3C45		
8532/6J4WA	8532	6J4	8794	8794	8793		1P28/V1,						
8541	8541A		8806	8806			1P28A/V1,						
8541A	8541A		8807	8807			4818		10667B		7735B		
8541A/X	8541A/X		8808	8808			4837		10667F		7038		
8556	8056		8823		8844	9665B			10667G		7735, 7735A, 7735B		
8561		8226	8828	8828		9677B		8541A					
8566		8507A, 8572A	8844	8844		9677S2	8541A						
			8844H	8844		9684B		7102	10667M		7735, 7735A, 7735B		
8571	8571		8850	8850		9698B		8644					
8572		8572A	8850	8850		9708B		8054					
8572A	8572A		8852	8852		9708KB		8054	10667S		7735, 7735A, 7735B		
8572/V	8572A/V		8853	8853		9708KR		4525					
8572/V4	8572A/V4		8854	8854		9708R		4525					
8575	8575		8857/V1	8857/V1		9708S		4524	10667SC		7735, 7735A, 7735B		
8575/V1	8575/V1		8857/V2	8857/V2		9709B		8055					
8575/V2	8575/V2		8858	8858		9709KB		8055					
8576		5762	8890	8890		9709R		4525	10667T		7735, 7735A, 7735B		
8587	8587		8891	8891		9710TB		4464					
8587/4605V2	8587		8916	8916		9726B		2067					
8596	8596		8957		4CX250B	9781A	931B		GLE 13000/1.5/6	872A			
8604		8572A, 8541A	9001	9001		9781B	4818		GLE 15000/1/4	872A			
			9002	9002		9783B	4837		GLE 20000/2.5/10		869B		
			9003	9003		9784B	931B						
8605/V1	8605/V1		9006	No RCA Replacement		TH9806		7735, 7735A, 7735B					
8606	8606		9226KB		2067				38172	872A			
8621	8621/		9514B		8575				QY 53000A	6076			
	4CX250FG		9514S		8575	TH9806PA		8541A	55850	8541A	7038		
8621/	8621/		9524C		6199	TH9807		7735, 7735A, 7735B	55850S	4591/L			
4CX250FG	4CX250FG		9530B		8055				55875B	4591/B			
8625	8507A, 8572A		9536B		6342A, 8053	TH9807PA		8541A	55875G	4591/G			
8627	8627	8627A	9564		7295C 8749	TH9808		7735, 7735A, 7735B	55875R	4591/R			
8627A	8627A								56000	8020W			
8628	8628		9565		7389C				CCa	6922/E88CC			
8644	8644		9578B		8054	TH9808FO		4589	SBS	5551A			
8645	8645		9579B		8055	TH9808PA		8541A	SCS	5552A			
8673	8673		9594B	6810A		TH9811		7262A	TGRA		575A		
8673/S	8673/S		9600		2067	TH9812		7735, 7735A, 7735B	TGRB		872A		
8674	8674		9634B		8575				TVTA		892		
8674/S	8674/S		9634QB		8575	TH9812PA		8541A	TVTb		833A		
8684	8684		9635B		8575	TH9813		8134					
8685	No RCA Replacement		9637		7764	TH9814		7263A					
8727	8727		9637KB		7764								

The Modernized Metric System (SI)

The International System of Units (SI) is a modernized version of the metric system. It was established by international agreement to provide a logical and interconnected framework for all measurements in science, industry, and commerce. SI is built upon a foundation of base units and their definitions, all other SI units are derived from these basic units. The six basic units of measurement are:

- Length Meter (m)
- Time Seconds (s)
- Mass Kilogram (kg)
- Temperature Kelvin (K)
- Electrical Current Ampere (A)
- Luminous Intensity Candela (cd)

Multiples and submultiples are expressed in a decimal system.

Prefixes Applicable to All SI Units

Multiples and Submultiples

- 1 000 000 000 000 = 10¹²
- 1 000 000 000 = 10⁹
- 1 000 000 = 10⁶
- 1000 = 10³
- 100 = 10²
- 10 = 10
- 0.1 = 10⁻¹
- 0.01 = 10⁻²
- 0.001 = 10⁻³
- 0.000 001 = 10⁻⁶
- 0.000 000 001 = 10⁻⁹
- 0.000 000 000 001 = 10⁻¹²
- 0.000 000 000 000 001 = 10⁻¹⁵
- 0.000 000 000 000 000 001 = 10⁻¹⁸

Prefixes Symbols

- tera T
- giga G
- mega M*
- kilo k*
- hecto h
- deka da
- deci d
- centi c*
- milli m*
- micro μ*
- nano n
- pico p
- femto f
- atto a

*Most commonly used

The Modernized Metric System (Cont'd)

Common Equivalents and Conversions

Approximate Common Equivalents

1 inch	= 25 millimeters
1 foot	= 0.3 meter
1 yard	= 0.9 meter
1 mile	= 1.6 kilometers
1 square inch	= 6.5 sq centimeters
1 square foot	= 0.09 square meter
1 square yard	= 0.8 square meter
1 acre	= 0.4 hectare†
1 cubic inch	= 16 cu centimeters
1 cubic foot	= 0.03 cubic meter
1 cubic yard	= 0.8 cubic meter
1 quart (lq)	= 1 liter†
1 gallon	= 0.004 cubic meter
1 ounce (avdp)	= 28 grams
1 pound (avdp)	= 0.45 kilogram
1 horsepower	= 0.75 kilowatt
1 millimeter	= 0.04 inch
1 meter	= 3.3 feet
1 meter	= 1.1 yards
1 kilometer	= 0.6 mile
1 sq centimeter	= 0.16 square inch
1 square meter	= 11 square feet
1 square meter	= 1.2 square yards
1 hectare†	= 2.5 acres
1 cu centimeter	= 0.06 cubic inch
1 cubic meter	= 35 cubic feet
1 cubic meter	= 1.3 cubic yards
1 liter†	= 1 quart (lq)
1 cubic meter	= 250 gallons
1 gram	= 0.035 ounces (avdp)
1 kilogram	= 2.2 pounds (avdp)
1 kilowatt	= 1.3 horsepower

†common term not used in SI

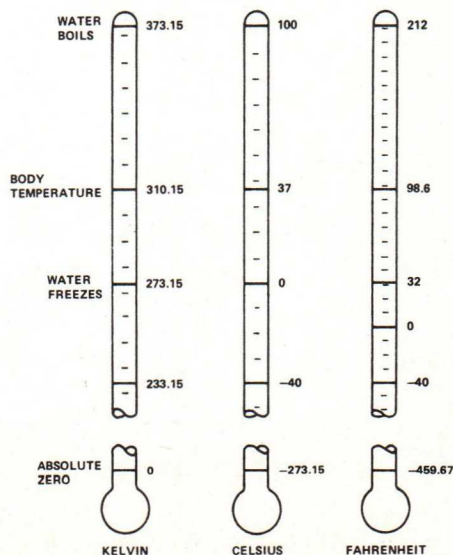
Conversions Accurate to Parts Per Million

inches x 25.4*	= millimeters
feet x 0.3048*	= meters
yards x 0.9144*	= meters
miles x 1.609 34	= kilometers
square inches x 6.4516*	= sq centimeters
square feet x 0.092 903 0	= square meters
square yards x 0.836 127	= square meters
acres x 0.404 686	= hectares
cubic inches x 16.3871	= cu centimeters
cubic feet x 0.028 316 8	= cubic meters
cubic yards x 0.764 555	= cubic meters
quarts (lq) x 0.946 353	= liters
gallons x 0.003 785 41	= cubic meters
ounces (avdp) x 28.349 5	= grams
pounds (avdp) x 0.453 592	= kilograms
horsepower x 0.745 700	= kilowatts
millimeters x 0.039 370 1	= inches
meters x 3.280 84	= feet
meters x 1.093 61	= yards
kilometers x 0.621 371	= miles
sq centimeters x 0.155 000	= square inches
square meters x 10.7639	= square feet
square meters x 1.195 99	= square yards
hectares x 2.471 05	= acres
cu centimeters x 0.061 023 7	= cubic inches
cubic meters x 35.3147	= cubic feet
cubic meters x 1.307 95	= cubic yards
liters x 1.056 69	= quarts (lq)
cubic meters x 264.172	= gallons
grams x 0.035 274 0	= ounces (avdp)
kilograms x 2.204 62	= pounds (avdp)
kilowatts x 1.341 02	= horsepower

*exact

Temperature Conversions

The thermodynamic of Kelvin scale of temperature used in SI has its origin or zero point at absolute zero and has a fixed point at the triple point of water defined as 273.16 Kelvins. The Celsius scale is derived from the Kelvin scale. The triple point is defined as 0.01° C on the Celsius scale, which is approximately 32.02° F on the Fahrenheit scale. The relationship of the Kelvin, Celsius, and Fahrenheit temperature scales is shown at right.



$$\begin{aligned} \text{Temp F} + 40 &= 1.8 (\text{Temp C} + 40) \\ \text{Temp F} &= 1.8 (\text{Temp C}) + 32 \\ \text{Temp C} &= (\text{Temp F} - 32)/1.8 \\ \text{Temp K} &= \text{Temp C} + 273.15 \end{aligned}$$

Application Notes

The following RCA publications are available for specific application assistance. Single copies may be obtained from your RCA Distributor or by writing to Building 100, RCA, New Holland Avenue, Lancaster, Pa. 17604

Imaging (Camera) Tubes

- AN-4623 - Application of RCA Silicon Diode Array Target Vidicons
- AN-4814 - Understanding the Vistacon
- AN-4906 - Upgrading an Intensifier-Vidicon Camera to SIT-Tube Operation
- AN-4907 - General Information and Applications Guide for RCA 3-Inch Image Isocons
- AN-4973 - Image Orthicons Camera Tubes: Operating Techniques and Economies
- AN-4974 - Modifying TV Cameras for Use of Silicon Target Vidicons
- AN-5012 - Vidicon Camera Tubes in Black and White and Color Television Film Camera Service

Lasers: Solid State and IR Emitters

- AN-4469 - Solid State Pulse Power Supplies for RCA GaAs and GaAlAs Injection Lasers
- AN-4890 - Printed-Circuit Board Soldering Technique for RCA Infrared Emitting Diodes

Photodetectors: Photomultipliers

- AN-4797 - Fast Photomultiplier Tube Techniques
- AN-4884 - Time Characteristics of Photomultipliers - Some General Observations

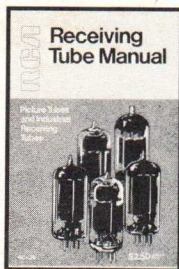
Photodetectors: Solid State

- AN-4849 - The Use of RCA Solid-State Silicon Photodetectors in Small-Signal Detection Systems

Power Tubes

- IEN-3 - More Power with RCA-6146B/8298A by modifying existing circuits using 6146, 6146A, or 8298
- 1CE-279A - Application Guide for RCA Super Power Tubes
- 1CE-300 - Application Guide for RCA Power Tubes
- AN-4020 - Screen-Grid Current, Loading, and Bleeder Considerations
- AN-4865 - Handling and Operating Considerations When Using RCA Tetrodes
- AN-4869 - Application Guide for Forced-Air Cooling of RCA Power Tubes

Product Technical Publications



Receiving Tube Manual
RC-29 \$2.50

Contains data for over 1400 home entertainment and industrial receiving tubes. . . tabulated data on color and black-and-white picture tubes. . . detailed application guide for receiving tubes. . . 35 circuits complete with parts lists and write-ups of functions and operation. . . grouping of related tube types offers simplified data reference and comparison. 752 pages.



Photomultiplier Manual
PT-61 \$2.50*

Up-to-the-minute information on photomultiplier construction, operation, and applications for designers and users of electro-optical equipment. Data on sources, spectra, noise, and RCA photomultipliers are included. Well illustrated and well written for easy reading, this manual is valuable to both student and engineer. 192 pages.



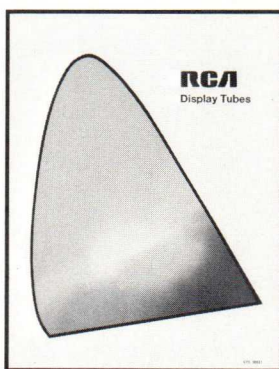
Electro-Optics Handbook
EOH-11 \$4.95*

Data from all technical areas of electro-optics are compiled and unified together with a coherent system of symbols and definitions. It features dozens of tables, charts, and graphs. Fully indexed, this handbook is a time-saving reference for engineers, designers, students, and researchers. 256 pages.



NUMITRON Display Devices
NUM-421A \$0.30*

Describes design features, characteristics, environmental tests, applications considerations, and typical circuits for these incandescent readout devices. 10 pages.



Display Tubes
STC-900D \$0.10*

Provides selection data arranged by application categories. 6 pages.



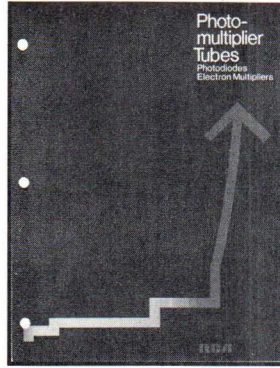
Camera Tube Product Guide
CAM-703B \$0.10*

Provides capsule data, spectral response characteristics, and basic outlines on RCA Camera Tube products. 8 pages.



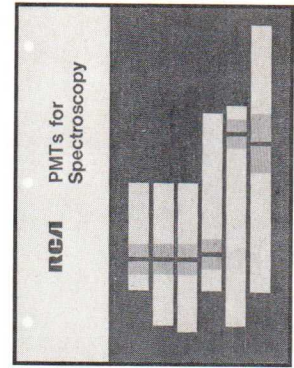
Image Orthicons
CAM-800C \$0.10*

Contains capsule data, characteristics and replacement information for 3"-diameter and 4-1/2"-diameter image orthicons. 4 pages.



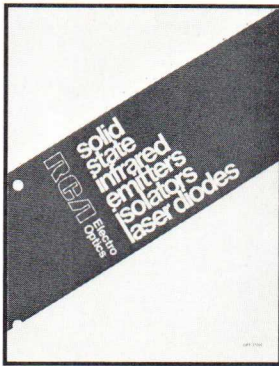
**Photomultiplier Tubes/
 Photodiodes/Electron
 Multipliers**
PIT-700B \$1.25*

This catalog contains selection charts, tabulated data, application information, spectral response characteristics, and outlines on photomultipliers, electron multipliers, and gas and vacuum photodiodes. 86 pages.



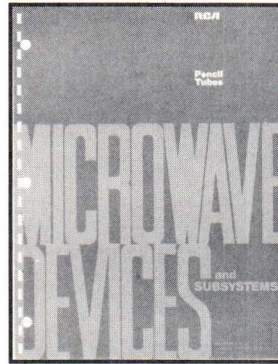
PMT's for Spectroscopy
PIT-714 \$0.10*

Describes a consolidated line of 1-1/8"-diameter, side-on photomultiplier tubes (PMT's) and integrated photodetection assemblies (IPA's) intended specifically for photometric and radiometric applications. 6 pages.



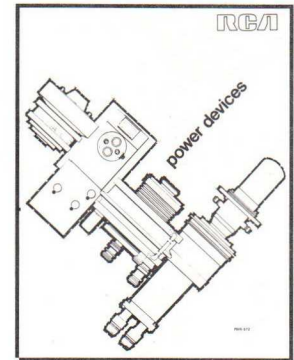
**Solid State Infrared Emitters/
 Isolators/Laser Diodes**
OPT-113A \$0.20*

Contains tabulated data and packages for Infrared-Emitting Diodes and Chip, Optically-Coupled Isolators, Single-Diode Lasers, Stacked-Diode Lasers for High Power and Compact Source Size, Room Temperature Laser Arrays, and Cryogenic Laser Arrays. 6 pages.



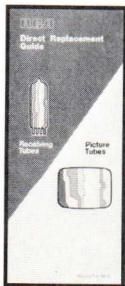
Pencil Tubes
MWD-102D \$0.10*

Contains tabulated data on pencil tubes. 4 pages.



Power Devices
PWR-572 \$0.10*

Provides selection of power tubes in a 2-page wall chart of frequency/application versus power for communications equipment, and tabulation of types for special services. 4 pages.



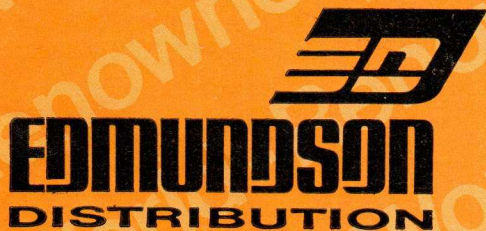
**Direct Replacement Guide/
 Receiving Tubes/Picture Tubes**
ERT-198C \$0.25*

Contains 450 RCA Receiving tubes which replace over 1140 domestic and foreign types. It also contains replacements for color picture tubes and black-and-white picture tubes. 24 pages.

Helium-Neon Gas Lasers
PWR-554C \$0.10*

**Solid State Silicon
 Photodetectors \$0.20**
OPT-112A

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EBF83	PL81	M8204
EBF89	PL81A	M8225
EC86	PL82	ME1400
EC88	PL83	ME1401
EC90	PL84	ME1402
EC91	PL95	ME1403
ECC40	PL500/PL504	ME1404
ECC81	PL505/509	MX123
ECC82	PL508	MX142
ECC83	PL802	MX151
ECC84	PY33	MX168/01
ECC85	PY81/800	MX199
ECC88	PY82	MZI/100
ECC804	PY88	QQV02-6
ECF80	PY500A	QQV03-10
ECF802	UABC80	QQV06-40A
ECH81	UBF89	QV03-12
ECH83	UCH81	QV06-20
ECH84	UCL82	QY3-125
ECL80	UCL83	RG1-240A
ECL82	UF89	RG1-250
ECL83	UL84	RG3-250
ECL86	UY85	RG3-250A
EF37A		RG3-1250
EF80		RG4-3000
EF83		RR3-250
EF85	BAY96	RR3-1250B
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EF89	(B13B)	TY4-350
EF183	B419AL	TY4-400
EF184	B419BL/01	XG2-6400
EH90	CL8960	XG5-500
EL34	CV2798	XP1117
EL36	CXY11A	XRI-3200
EL84	D10-160GH	XRI-3200A
EL86	DG7-31	XRI-6400A
EL95	DH3-91	YJ1390
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EL509	E80CC	Z505S
EM84	E80CF	Z803U
EM87	E80F	Z900T
EY51	E80L	ZM1000
EY86/87	E81L	ZM1020
EY88	E83F	ZM1082
EY500A	E88C	ZM1172
EZ80	E88CC/01	ZM1175
EZ81	E90CC	ZM1200
GY501	E90F	ZT1011
GZ34	E92CC	(XRI-1600A)
PC86	E180CC	ZZ1000
PC88	E180F	6AS6
PC97	E182CC	75C1
PC900	E188CC	83A1
PCC84	E280F	85A2
PCC85	E810F	90C1
PCC88	EA52	90CG
PCC89	ECC91	90CV
PCC189	ECC2000	92AG
PCF80	EF91	92AV
PCF82	EF92	108C1
PCF84	EF95	150B2
PCF86	EL91	150C2
PCF200	EL821	150C4
PCF201	EL822	155UG
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PCF806	EN92	
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PCL83	M8079	

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0B2	929
0C3	930
0D3	931A
1P21	931B
1P28	935
1P28A	2050
2D21	2050A
2E26	4532AMR
3B28	4532
5R4GYB	4818
5Y3GT	4833
6AH6	5581
6AL5	5582
6AN8A	5583
6AQ5A	5651A
6AS6	5654
6AS7G	5670
6AU5GT	5675
6AU6A	5691
6AW8A	5696
6BA6/EF93	5725
6BA8A	5751
6BH6	5814A
6BJ6	5879
6BK4C/EL4A	5963
6C4	6005
6CB6A/6CF6	6012
6CD6GA	6072
6CL6	6080
6CW4	6146A
6CY5	6146B/8298A
6CZ5	6197
6DK6	6199
6DQ5	6973
6D34	7025
6EA8	7189
6EW6	7199
6FH8	7360
6FQ7/6CG7	7586
6GK6	7587
6GW6/6DQ6B	7591A
6HF5	7735
6HS6	7868
6JB6A	7895
6KD6	8005
6L6GC	8056
6LQ6/6JE6C	8541
6N7GT	8844
634A	CIK/6014
6SC7	C3J/5632
6SJ7	DR2000
6SN7GTB	DR2010
6SR7	DR2020
6U8A/6KD8	DR2100
6V6GTA	DR2110
6VJ6	DR2130
6X5GT	DS3001
6X8A	SG1004
12AU6	SG1009
12AU7A	SG2001
ECC82	SG2007
12AX7A	
ECC83	
12B4A	
12BA6	
12BH7A	
12BY7A	
12BZ7	
83	
504GB	
807	
811A	
812A	
816	
872A	
922	

STC

5B/254M
6F33
12E1
13E1
20A3
29C1
CV287
DLS15
DLS16
VLS631

**ENGLISH
ELECTRIC**

0A2	
(CV1832)	
0A2WA	
0A3	
0B2	
(CV1833)	
68504	
68506	
AH211A	
AH238	
(RG3-1250)	
AX228	
BK24/5552A	
BK66	
BK42/5551A	
BKThermostats	
(ZD100551)	
BT5	
BT17	
BT19	
QS92/10	
QS108-45	
QS150/15	
QS150/45	
XL601	

**THORN-
MAZDA**

PCF808
PY801
U193
6F28
30C1
30C17
30F5
30FL2
PCE82
30L1
30L17
30P12
30P19
30PL1
30PL13
30PL14
30PL15

**THORN-
BRIMAR
(ENTERTAINMENT)**

5U4G
5V4G
5Y3GT
5Z4G
6AL5
6AM6
6AQ5
6AT6
6AU6
6BA6
6BE6
6BH6
6BJ6
6BW6
6BW7
6C4
6L6GA
6SN7GT
6V6GT
6X4
12AT7
12AU7
12AX7
12BH7
PY83

**THORN-
BRIMAR
(INDUSTRIAL)**

2D21
5R4GY
6AK5
6AK6
6BQ7A
6BR7
6BS7
6CH6
6CL6
6SL7GT
13D8
807
5726
5763
5965
6Q57
6Q58
6Q60
6Q64
6Q67
6Q80
6158/CV4068
ECC807
ECF804
VR75-30
VR105-30
VR150-30

**GEC
(MOV)**

A2293
A2521
A2599
A2900
A3042
CAG29
CMG22
CV408
CV2453
DA41
GT1C
GU12
GXU1
GXU3
GXU4
GXU50
GXU51
KT66
KT88
6J5G(L63)
RCX
TT15
TT21
TT22
U19/CV187
Z759
6AS7G/A1834
5842

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ACR13
ACR21
ACR22
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AL60
DA41
DA90
DC70
DC90
DET12
DET19

DET20
DET25
DF60
DF61
DF62
DF64
DF66
DF70
DF72
DF73
DL66
DL68
DL69
DL70
DM70
DM71
E4103/E/4
E4205/C/7
E4412/B/9
E44504/B16
E4504/E/16
E4504/M/16
EA76
EB34
EC31
EC52
EC53
EC70
EC71
EC80
EC81
ECC32
ECC35
ECC40
ECC70
ECH35
EF37A
EF39
EF40
EF41
EF42
EF50
EF54
EF55
EF70
EF71
EF72
EF73
EF74
EF730
EF731
EF732
EF734
FFP60
EHT1
EL32
EL33
EL50
EL70
EL71
EL81
EN10
EN11
EN30
EN31
EN32
EY51
EY70
EY81
EY84
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