SIEMENS

Power Traveling Wave Tube

$F = 3.6$ to 4.2 GHz

RW 48

Order No.
Q41-X3267

Preliminary Data

Design and Application

Power traveling wave tube with a high life and reliability for broadband radio relay systems with a power output of 11 W in the frequency range 3.6 to 4.2 GHz.

The metal-ceramic tube is focused by an integrated periodic permanent magnet. It is designed to operate with depressed collector.

The rf power is coupled in and out by way of coaxial connections.

Weight:	approx. 3.2 kg
Dimensions:	approx. 363 mm x 60 mm x 60 mm (14.3 " x 2.4 " x 2.4 ")
RF connections:	Siemens socket connector 1.4/4.4 (50 Ω)
Mounting position:	vertical

Heating

Heater voltage	E_f	6.3	V	1)
Heater current	I_f	0.76	A	
Preheating time	t_k	none		

indirect by ac - also rectangular voltage up to 20 kHz - or dc (+pole on cathode), parallel supply
Metal capillary dispenser cathode

Typical Operation

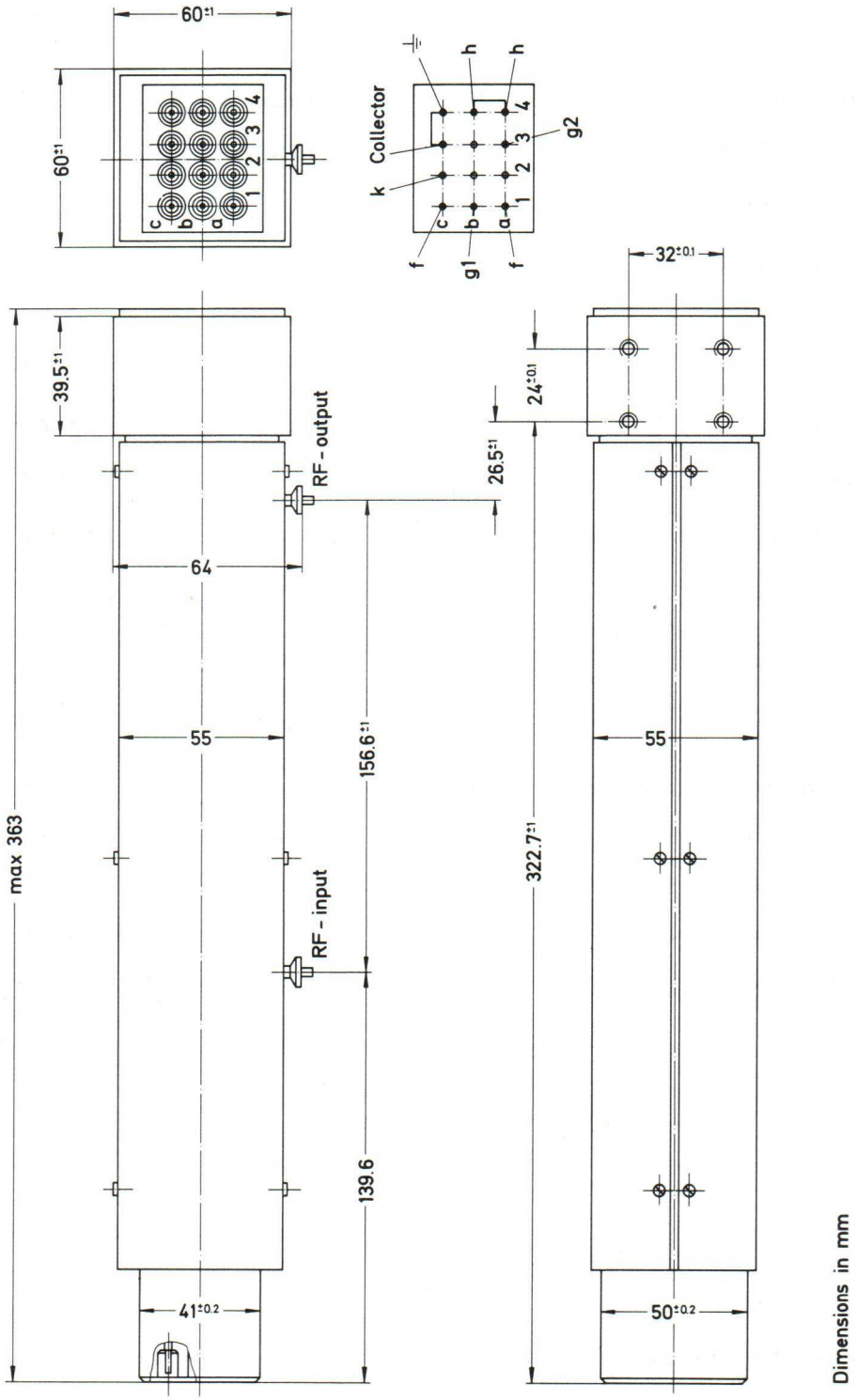
Operating frequency	F	3.6 to 4.2	GHz	
Power output	P_o	11	W	
Power input	P_d	1.4	mW	
Collector voltage	E_b	1200	Vdc	
Helix voltage	E_h	1800 to 2100	Vdc	2)
Grid 2 voltage	E_{c2}	E_h - 650 to 60	Vdc	2)3)
Grid 1 voltage	$-E_{c1}$	20	Vdc	
Helix current	I_h	≈ 1	mAdc	
Grid 2 current	I_{c2}	≦ 0.1	mAdc	
Cathode current	I_k	30 to 40	mAdc	3)
Noise figure	N_F	≈ 22	dB	
AM/PM conversion	k_p	≈ 3	°/dB	4)
VSWR		≦ 2.1		5)

1) If the maximum variation of the heater voltage exceeds the absolute limits of ± 3 %, the operating performance of the tube will be impaired and its life shortened.
2) The spreads quoted are intended for use when designing the power supply.
3) It is adjusted at a power input of 1.4 mW for a power output of 11 W.
4) AM/PM conversion is the phase shift of the rf input signal when changing the input by 1 dB.
5) At input and output of the operated tube.

Maximum Ratings (absolute values)

Collector supply voltage	E_{bb}	max	2000	Vdc
Collector voltage	E_b	max	1500	Vdc
Collector dissipation	P_p	max	60	W
Helix supply voltage	E_{hh}	max	2800	Vdc
Helix voltage	E_h	max	2500	Vdc
Helix current	I_h	max	4	mAdc 1)
Grid 2 voltage	E_{c2}	max	2500	Vdc
Grid 2 current	I_{c2}	max	$\pm$ 0.4	mAdc
Grid 1 voltage	$-E_{c1}$	min	10	Vdc
Grid 1 voltage	$-E_{c1}$	max	100	Vdc
Cathode current	I_k	max	47	mAdc
Load reflection		max	2	W
Conduction cooler temperature	T	max	115	°C
Ambient temperature	TA	min	- 20	°C
Ambient temperature	TA	max	65	°C
Storage temperature	T_{stor}	min	- 40	°C
Storage temperature	T_{stor}	max	70	°C

1) Switch-off value of the protection relay.


60±1
60±1
c
b
a
1
2
3
4
k Collector
h
h
g2
f
g1
f
32±0.1
39.5±1
24±0.1
RF - output
26.5±1
64
55
156.6±1
max 363
RF - input
139.6
322.7±1
55
41±0.2
50±0.2
Dimensions in mm