

Amperex

YD1173/8734

RF Power Triode

The YD1173/8734 is a forced air cooled triode of metal-ceramic construction with integral cooler intended for use as an industrial oscillator.

GENERAL DATA

Electrical:

Filament-Thoriated Tungsten^{Note 1}

Voltage 5.4 V
Current 65 A

Characteristics: measured at: $V_a = 10$ kV, $I_a = 1$ A

Amplification Factor μ 45
Transconductance S 22 mA/V

Direct Interelectrode Capacities:

Grid-Anode C_{ag} 17 pF
Grid-Filament C_{gf} 42 pF
Anode-Filament C_{af} .4 pF

Mechanical:

Overall Dimensions:

Length 460 mm max
Diameter 191 mm max

Mounting Position

Vertical, with anode up or down

Cooling Type:

Cooling:

To obtain optimum life, the temperature of the seals and of the envelope should, under normal operating conditions, be kept below 200°C. To maintain these temperatures additional cooling may be necessary. At frequencies higher than about 4 MHz cooling of the seals becomes mandatory.

Table 1: Air cooling characteristics

anode + grid dissipation $W_a + W_g$ kW	altitude h m	inlet temperature T_i °C	rate of flow Q_{min} d/min	pressure drop delta P Pa*	outlet temperature T_o °C
10	0	35	9.5	550	94
8	0	35	6.5	280	105
6	0	35	4.5	150	113
4	0	35	3.0	80	117
10	0	45	11.0	690	98
8	0	45	7.6	350	108
6	0	45	5.2	190	115
4	0	45	3.5	100	119
10	1500	35	11.4	630	94
8	1500	35	7.8	320	105
6	1500	35	5.5	170	113
4	1500	35	3.6	90	117
10	3000	25	12.0	620	90
8	3000	25	8.2	320	102
6	3000	25	5.7	170	111
4	3000	25	3.8	90	116

*1 Pa = 0.1 mm H₂O

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LIMITING VALUES (Absolute maximum rating system)

Frequency for Full Ratings	f	up to	50	MHz
Anode Voltage	V_a	max.	12	kV
Anode Current	I_a	max.	2	A
Anode input power	W_{ia}	max.	20	kW
Anode dissipation	W_a	max.	10	kW
Grid voltage	$-V_g$	max.	1.5	kV
Grid current, on load	I_g	max.	0.6	A
Grid current, off load	I_g	max.	0.8	A
Grid dissipation	W_g	max.	300	W
Grid circuit resistance	R_g	max.	10	k Ω
Cathode current				
mean	I_k	max.	2.5	A
peak	I_{kp}	max.	10	A
Envelope Temperature	T_{env}	max.	240	$^{\circ}C$
Peak filament starting current	I_{fp}	max.	400	A
Cold filament resistance	R_{fo}	max.	10	m Ω

RF CLASS C OSCILLATOR FOR INDUSTRIAL USE

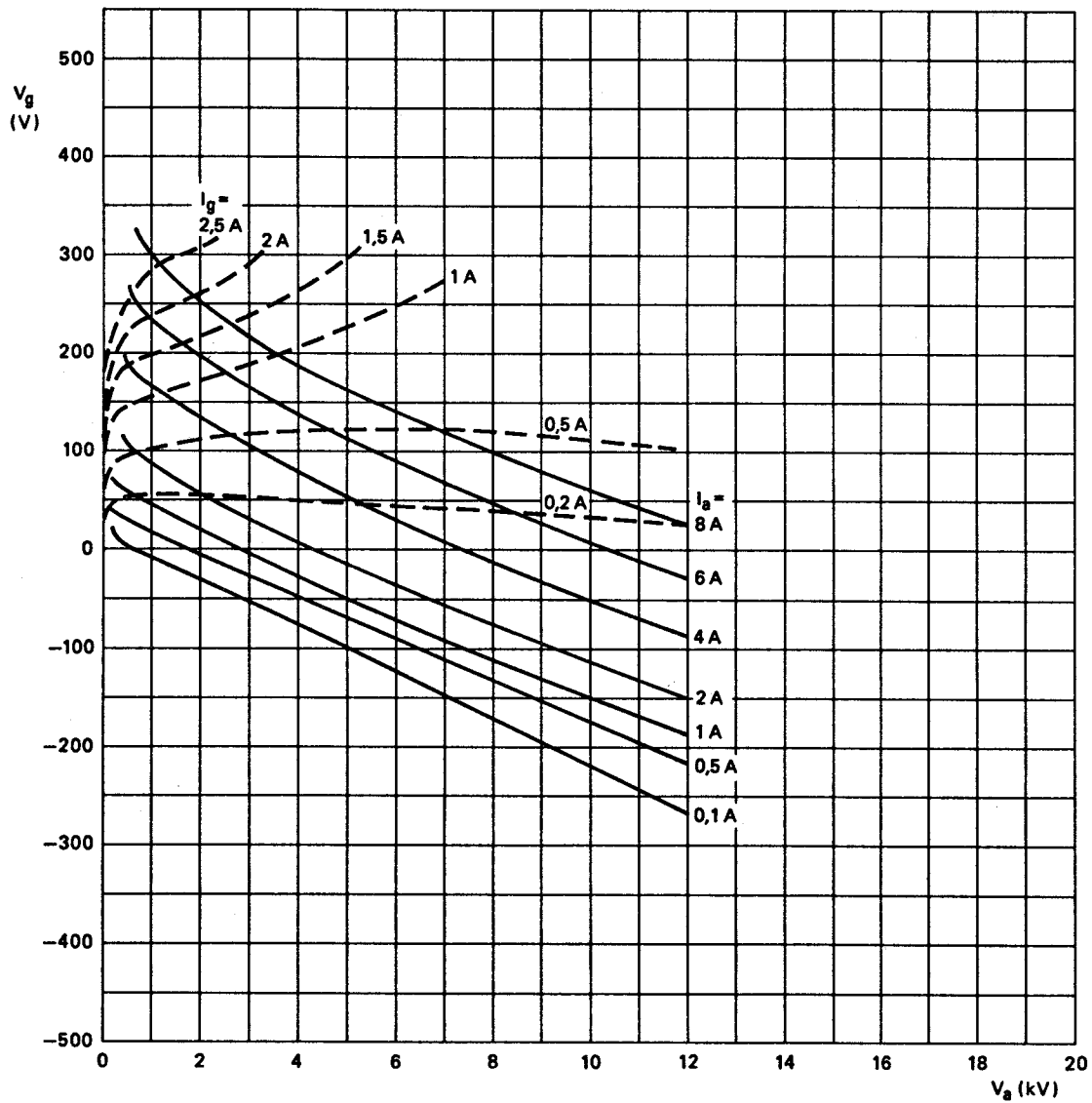
OPERATING CONDITIONS

Frequency	f	50	MHz
Oscillator output power ($W_o - W_{fdb}$)	W_{osc}	13.22	kW
Anode Voltage	V_a	10	kV
Anode Current	I_a	1.75	A
Anode input power	W_{ia}	17.5	kW
Anode dissipation	W_a	3.8	kW
Anode output power	W_o	13.7	kW
Anode efficiency	η_a	78.3	%
Oscillator efficiency	η_{osc}	75.6	%
Feedback ratio	V_{gp}/V_{ap}	12.0	%
Grid resistor	R_g	1.5	k Ω
Grid current, on load	I_g	450	mA
Grid voltage, negative	$-V_g$	675	V
Grid dissipation	W_g	180	W
Grid resistor dissipation	W_{Rg}	304	W

Notes

1. The filament is designed to accept temporary fluctuations of +5% and -10%. It is extremely important that the filament be properly decoupled. This should be done so that the resonance of the circuit formed by the filament and the decoupling elements remain below the fundamental oscillator frequency. In grounded-grid circuits this resonance should be below the grid-cathode resonance.

Figure 1 - Constant Current Characteristics



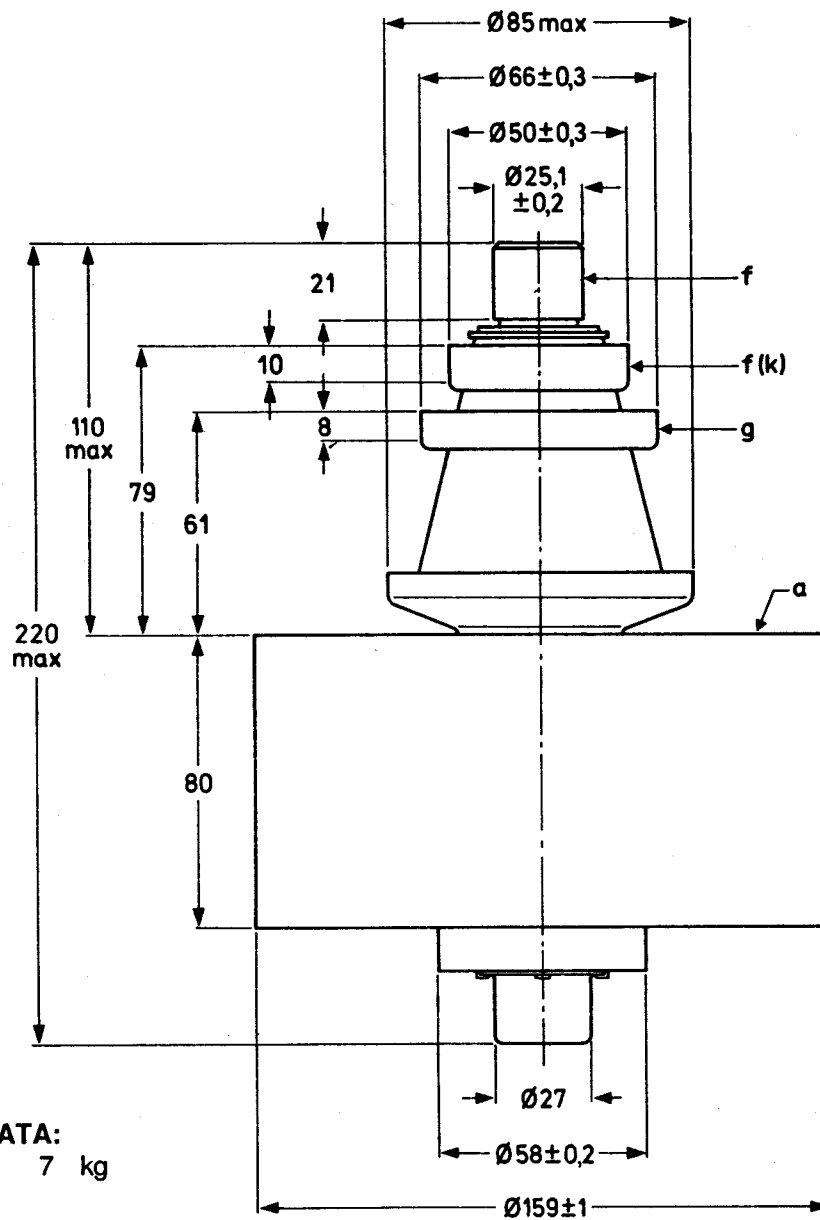
Characteristics and operating values are based upon performance tests. These figures may change without notice as the result of additional data or product refinement. Richardson Electronics, Ltd. should be consulted before using this information for final equipment design.

AmpereX

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Figure 2 - Mechanical Outline

*Dimensions in mm



MECHANICAL DATA:

Net Mass: 7 kg

ACCESSORIES:

Filament connector with cable

type 40692A

Filament/cathode connector with cable

type 40693A

Grid connector

f ≤ 4 MHz

type 40690

f > 4 MHz

type 40691

Insulating pedestal

type 40654

*Note: All dimensions for reference only.