

OA79
2-OA79

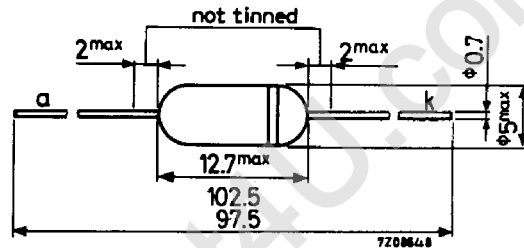
GERMANIUM DIODE

Germanium diode in all glass construction for use in a.m. detector circuits.
Type 2-OA79 consists of 2 diodes OA79 selected for operation in a ratio detector circuit.

MECHANICAL DATA

Dimensions in mm

The white band indicates
the cathode side



RATINGS (Limiting values) ¹⁾

Continuous reverse voltage	V_R	max.	30	V
Repetitive peak reverse voltage	V_{RRM}	max.	45	V
Forward current (d.c.)	I_F	max.	35	mA
Repetitive peak forward current	I_{FRM}	max.	100	mA
Non repetitive peak forward current ($t \leq 1$ s)	I_{FSM}	max.	200	mA
Operating ambient temperature	T_{amb}		-50 to +60	°C

CHARACTERISTICS

Forward voltage

$$I_F = 0.1 \text{ mA}$$

	$T_{amb} = 25^\circ\text{C}$	$T_{amb} = 60^\circ\text{C}$
V_F	typ. 0.23 0.15 to 0.30	typ. 0.16 V 0.1 to 0.25 V

$$I_F = 10 \text{ mA}$$

V_F	typ. 1.5 0.8 to 2.2	typ. 1.4 V 0.7 to 2.1 V
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$$I_F = 30 \text{ mA}$$

V_F	typ. 2.8 1.4 to 4.0	typ. 2.6 V 1.2 to 3.8 V
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Reverse current

$$V_R = 0.1 \text{ V}$$

I_R	typ. 0.35 < 1.0	typ. 4.5 μA < 12 μA
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$$V_R = 1.5 \text{ V}$$

I_R	typ. 0.8 0.1 to 2.8	typ. 6 μA 0.8 to 25 μA
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$$V_R = 10 \text{ V}$$

I_R	typ. 4.5 0.4 to 18	typ. 16 μA 2.5 to 60 μA
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$$V_R = 30 \text{ V}$$

I_R	typ. 35 1.5 to 150	typ. 60 μA 60 to 300 μA
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$$V_R = 45 \text{ V}$$

I_R	typ. 90 4 to 350	typ. 170 μA 15 to 500 μA
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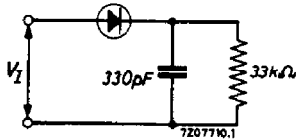
¹⁾ Limiting values according to the Absolute Maximum System as defined in IEC publication 134.

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APPLICATION INFORMATION

Measuring circuit at $T_{amb} = 25\text{ }^{\circ}\text{C}$

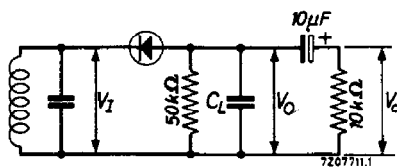


$$V_I(\text{RMS}) = 3\text{ V}$$

$$f = 10.7\text{ MHz}$$

η	typ.	85 %
R_d	typ.	15 $\text{k}\Omega$
		13.5 to 19 $\text{k}\Omega$

Diode in an a.m. detector circuit at $T_{amb} = 25\text{ }^{\circ}\text{C}$

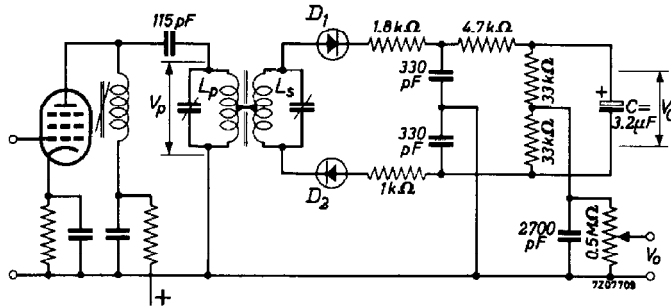


$$V_I(\text{RMS}) = 0.1\text{ V}$$

$$f = 0.5\text{ MHz}$$

V_O	typ.	55 mV
$V_O(\text{rms})$	typ.	4.5 mV ¹⁾
R	typ.	40 $\text{k}\Omega$ ²⁾

Matched pair in a ratio detector circuit



$$L_p = 7.4\text{ }\mu\text{H}$$

$$Q_0 = 80\text{ unloaded}$$

$$R = 40\text{ k}\Omega\text{ unloaded}$$

$$\text{Tap} = 0.5$$

$$L_s = 4.4\text{ }\mu\text{H}$$

$$Q_0 = 150\text{ unloaded}$$

$$R = 45\text{ k}\Omega\text{ unloaded}$$

$$kQ = 0.8\text{ }^3)$$

$$f_0 = 10.7\text{ MHz}$$

$$\Delta f = 15\text{ kHz}$$

$$m = 0.3$$

a.m. suppression factor at $V_C = 2\text{ to }20\text{ V}$

$$f = f_0 \quad \alpha \geq 30$$

$$f = f_0 \pm 25\text{ kHz} \quad \alpha \geq 15$$

For optimum a.m. suppression D_1 must be that diode of the matched pair which has the better dynamic forward characteristic.

For new design the successor types AA119; 2-AA119 are recommended

- 1) Modulation factor $m = 0.3$
- 2) Modulation factor $m = 0$
- 3) Measured in the circuit with $V_p = 350\text{ mV}$

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