

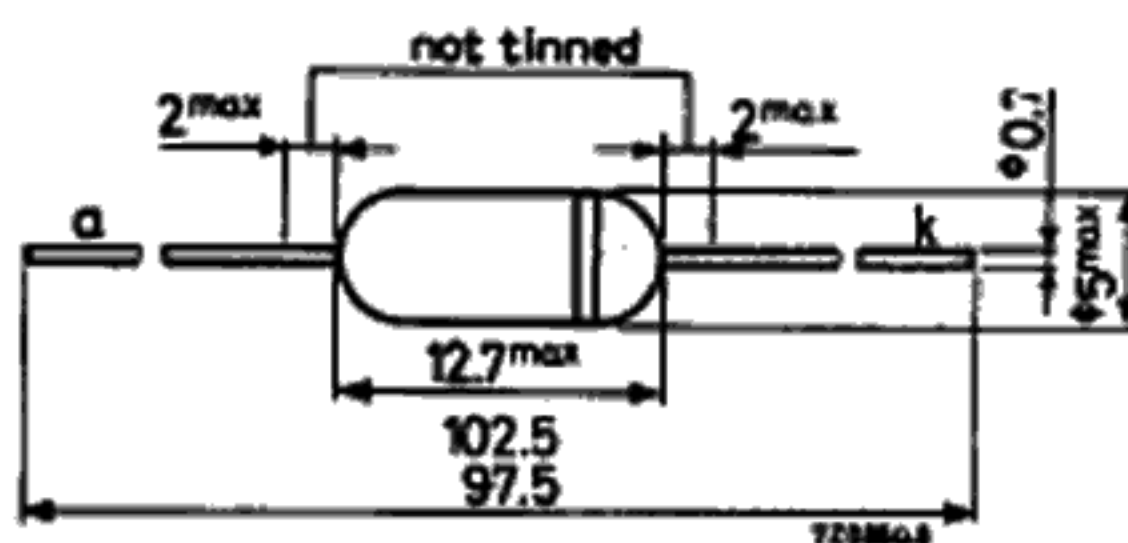
GERMANIUM DIODE

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

$I_F = 0.1$ 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 0.1 to 0.25 V

$I_F = 10$ mA

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

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

$V_R = 0.1$ V

I_R	typ. 0.35 < 1.0	typ. 4.5 < 12 μA
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$V_R = 1.5$ V

I_R	typ. 0.8 0.1 to 2.8	typ. 6 0.8 to 25 μA
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$V_R = 10$ V

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

I_R	typ. 35 1.5 to 150	typ. 60 60 to 300 μA
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$V_R = 45$ V

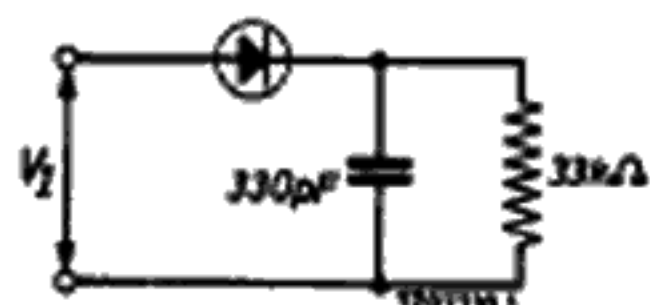
I_R	typ. 90 4 to 350	typ. 170 15 to 500 μA
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¹⁾ Limiting values according to the Absolute Maximum System as defined in IEC publication 134.

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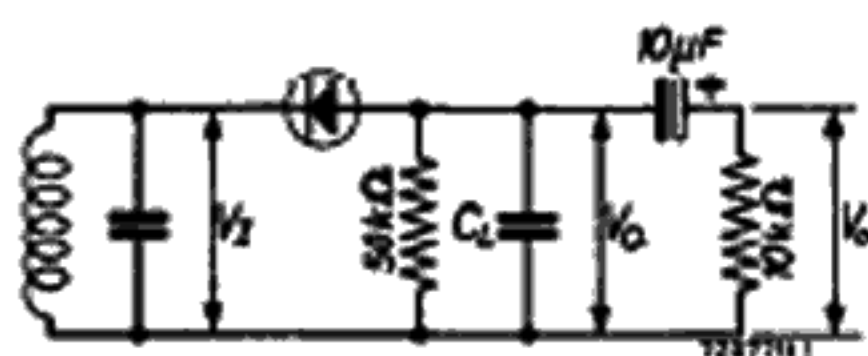
APPLICATION INFORMATION

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



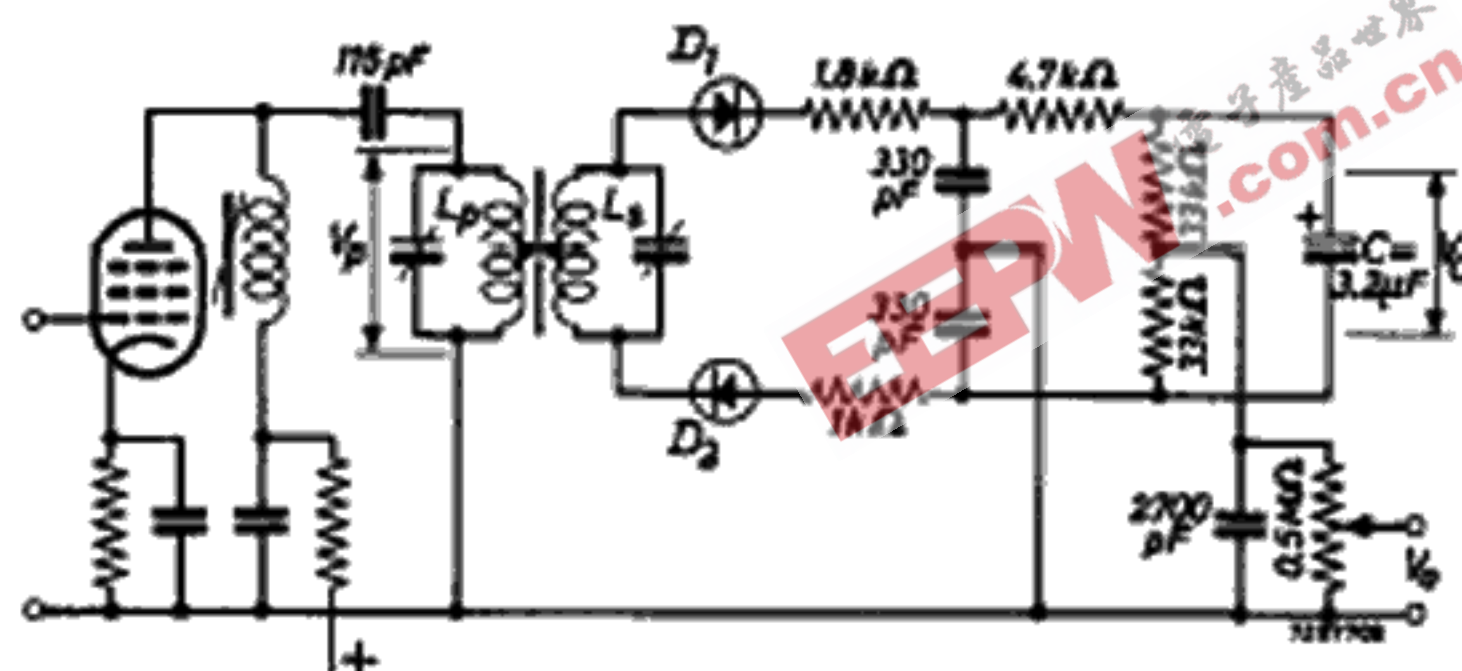
$V_I(RMS)$	=	3 V	η	typ.	85 %
f	=	10.7 MHz	R_d	typ.	15 kΩ
					13.5 to 19 kΩ

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



$V_I(RMS)$	=	0.1 V	V_O	typ.	55 mV
f	=	0.5 MHz	$V_{O(rms)}$	typ.	4.5 mV ¹⁾
			R	typ.	40 kΩ ²⁾

Matched pair in a ratio detector circuit



L_p	=	7.4 μH
Q_0	=	80 unloaded
R	=	40 kΩ unloaded
Tap	=	0.5
L_s	=	4.4 μH
Q_0	=	150 unloaded
R	=	45 kΩ unloaded
kQ	=	0.8 ³⁾
f_0	=	10.7 MHz
Δf	=	15 kHz
m	=	0.3

a.m. suppression factor at $V_C = 2$ to 20 V

$$f = f_0$$

$$\alpha \geq 30$$

$$f = f_0 \pm 25 \text{ kHz}$$

$$\alpha \geq 15$$

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 $V_p = 350$ mV