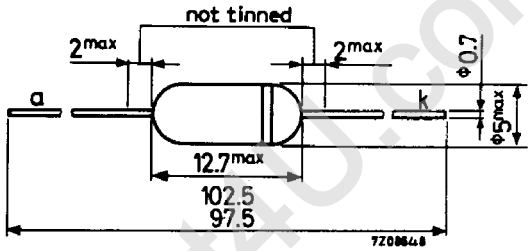
GERMANIUM DIODE

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

		T_{amb} = 25 °C	T_{amb} = 60 °C	
Forward voltage				
I_F = 0.1 mA	V_F	typ. 0.23	typ. 0.16	V
		0.15 to 0.30	0.1 to 0.25	V
I_F = 10 mA	V_F	typ. 1.5	typ. 1.4	V
		0.8 to 2.2	0.7 to 2.1	V
I_F = 30 mA	V_F	typ. 2.8	typ. 2.6	V
		1.4 to 4.0	1.2 to 3.8	V
Reverse current				
V_R = 0.1 V	I_R	typ. 0.35	typ. 4.5	μA
		< 1.0	< 12	μA
V_R = 1.5 V	I_R	typ. 0.8	typ. 6	μA
		0.1 to 2.8	0.8 to 25	μA
V_R = 10 V	I_R	typ. 4.5	typ. 16	μA
		0.4 to 18	2.5 to 60	μA
V_R = 30 V	I_R	typ. 35	typ. 60	μA
		1.5 to 150	60 to 300	μA
V_R = 45 V	I_R	typ. 90	typ. 170	μA
		4 to 350	15 to 500	μA

[1]) Limiting values according to the Absolute Maximum System as defined in IEC publication 134.

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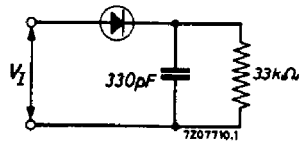
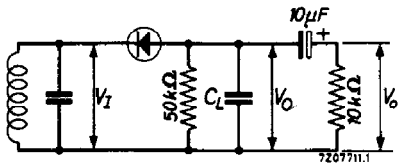
APPLICATION INFORMATION

Measuring circuit at T_{amb} = 25 °C



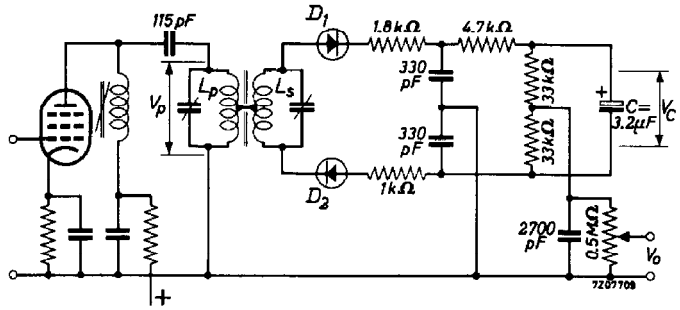
$V_{I(RMS)}$	= 3 V	η	typ.	85	%
f	= 10.7 MHz	R_d	typ.	15	kΩ
			13.5 to	19	kΩ

Diode in an a.m. detector circuit at T_{amb} = 25 °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

$f = f_0$	$\alpha \geq 30$
$f = f_0 \pm 25$ 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

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