

Small Signal Switching Diode



Features:

- Silicon epitaxial planar diode
- High speed switching diode
- 500mW power dissipation
- These diodes are also available in glass case DO-34. Mini-MELF

Mechanical Data:

- Case: DO-35, glass case
- Polarity: Colour band denotes cathode
- Weight: 0.004oz, 0.13g

Maximum Ratings and Electrical Characteristics:

Ratings at 25°C ambient temperature unless otherwise specified.

Characteristics		1N4148-T	Units
Reverse voltage	V_R	75	V
Peak reverse voltage	V_{RM}	100	V
Average forward rectified current half wave rectification with resist. load at $T_A=25^\circ\text{C}$ and $f \geq 50\text{Hz}$	I_{AV}	150	mA
Forward surge current at $t < 1\text{s}$ and $T_J = 25^\circ\text{C}$	I_{FSM}	500	mA
Power dissipation at $T_A=25^\circ\text{C}$ (Note 1)	P_{tot}	500	mW
Junction temperature	T_J	175	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +175	$^\circ\text{C}$

Note

(1) Valid provided that leads at a distance of 8mm from case are kept at ambient temperature.

Electrical Characteristics:

Characteristics		Min.	Typ.	Max.	Units
Forward voltage at $I_F=10\text{mA}$	V_F	-	-	1	V
Leakage current					
at $V_R=20\text{V}$	I_R	-	-	25	nA
at $V_R=75\text{V}$		-	-	5	μA
at $V_R=20\text{V}$ $T_J = 150$		-	-	50	μA
Capacitance at $V_F=V_R=0\text{V}$	C_J	-	-	4	pF
Voltage rise when switching on tested with 50mA pulses $t_p=0.1\mu\text{s}$. Rise time $< 30\text{ns}$. $f_p=5$ to 100kHz	V_{fr}	-	-	2.5	V
Reverse recovery time from $I_F=10\text{mA}$ to $I_R=1\text{mA}$ $V_R=6\text{V}$. $R_L=100\Omega$	t_{rr}	-	-	4	ns
Thermal resistance junction to ambient (Note 1)	$R_{\theta JA}$			350	k/W
Rectification efficiency at 100MHz, $V_{RF}=2\text{V}$	η_V	0.45	-	-	-

Note

(1) Valid provided that leads at a distance of 8mm from case are kept at ambient temperature.

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**FIG.1 – ADMISSIBLE POWER DISSIPATION
VERSUS AMBIENT TEMPERATURE**

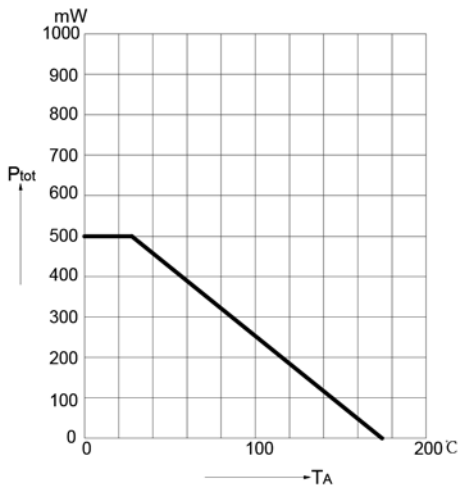


FIG.2 – FORWARD CHARACTERISTICS

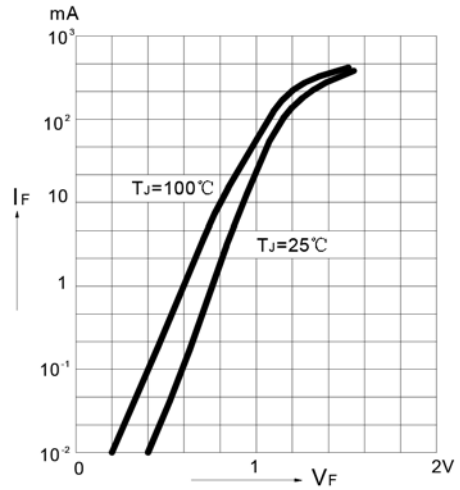
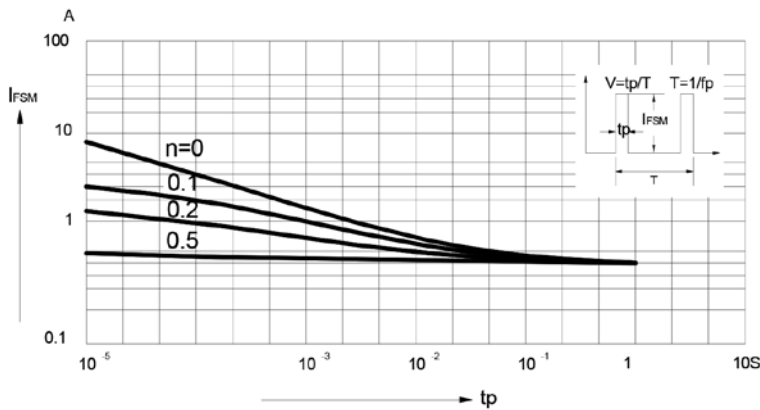
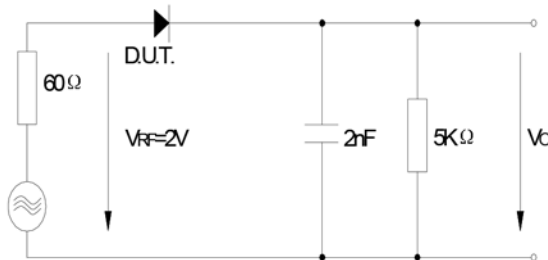


FIG.3 – ADMISSIBLE REPETITIVE PEAK FORWARD CURRENT VERSUS PULSE DURATION



**FIG.4 – RECTIFICATION EFFICIENCY
MEASUREMENT CIRCUIT**



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FIG.5 – RELATIVE CAPACITANCE VERSUS VOLTAGE

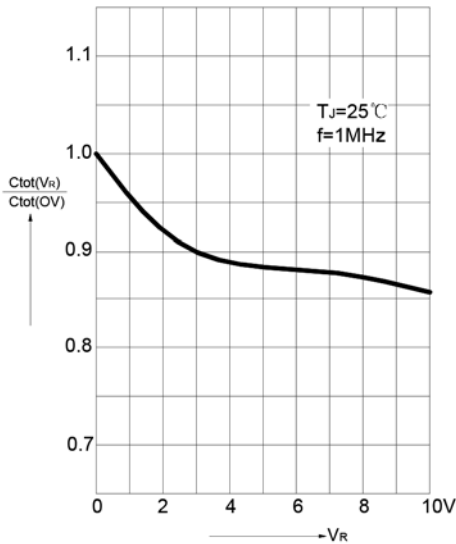


FIG.6 – LEAKAGE CURRENT VERSUS JUNCTION TEMPERATURE

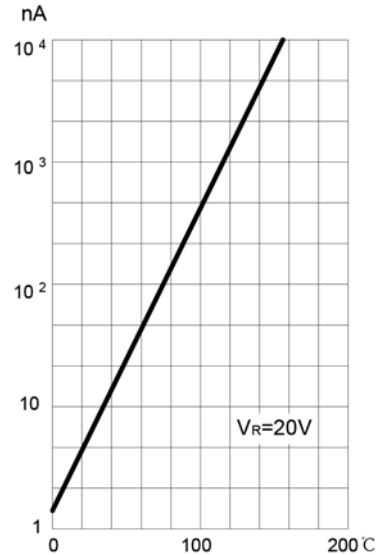
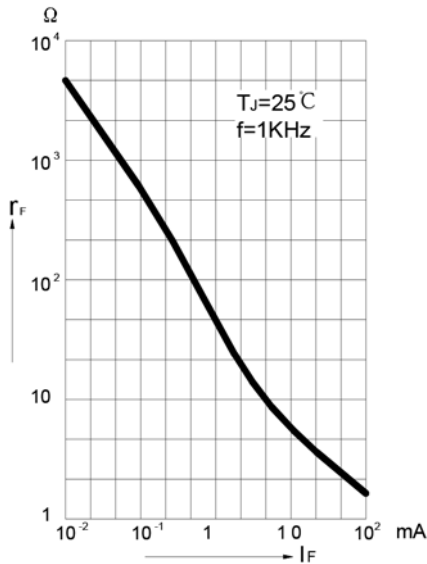


FIG.7 – DYNAMIC FORWARD RESISTANCE VERSUS FORWARD CURRENT



Part Number Table

Description	Part Number
Small Signal Switching Diode	1N4148-T

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