

High-speed switching diode



Features

1. Small surface mounting type
2. High reliability
3. High speed ($t_{rr} = 4 \text{ ns}$)

Applications

Extreme fast switches

Construction

Silicon epitaxial planar

Absolute Maximum Ratings

$T_j = 25^\circ\text{C}$

Repetitive peak reverse voltage			V_{RRM}	100	V
Reverse voltage			V_R	75	V
Peak forward surge current	$t_p = 1 \mu\text{s}$		I_{FSM}	2	A
Repetitive peak forward voltage			I_{FRM}	500	mA
Forward current			I_F	300	mA
Average forward current	$V_R = 0$		I_{FAV}	150	mA
Power dissipation			P_V	500	mW
Junction temperature			T_j	175	°C
Storage temperature range			T_{stg}	-65~+175	°C

Maximum Thermal Resistance

$T_j = 25^\circ\text{C}$

Junction ambient	on PC board $50\text{mm} \times 50\text{mm} \times 1.6\text{mm}$	R_{thJA}	500	K/W

Electrical Characteristics

 $T_j=25^\circ$

				Min	Typ	Max	Unit
Forward voltage	$I_F=5\text{mA}$	MM4148	V_F	0.62		0.72	V
	$I_F=10\text{mA}$	MM4148	V_F		0.86	1	V
	$I_F=100\text{mA}$	MM4448	V_F		0.93	1	V
Reverse current	$V_R=20\text{V}$		I_R			25	nA
	$V_R=20\text{V}, T_j=150^\circ$		I_R			50	μA
	$V_R=75\text{V}$		I_R			5	μA
Breakdown current	$I_R=100\mu\text{A}, t_p/T=0.01, t_b=0.3\text{ms}$		$V_{(BR)}$	100			V
Diode capacitance	$V_R=0, f=1\text{MHz}, V_{HF}=50\text{mV}$		C_D			4	pF
Rectification efficiency	$V_{HF}=2\text{V}, f=100\text{MHz}$		η_R	45			%
Reverse recovery time	$I_F=I_R=10\text{mA}, i_R=1\text{mA}$		t_{rr}			8	ns
	$I_F=10\text{mA}, V_R=6\text{V}, i_R=0.1 \times I_R, R_L=1000$		t_{rr}			4	ns

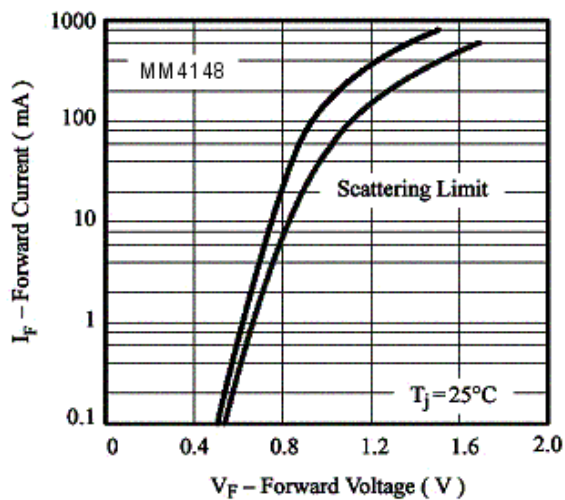
Characteristics ($T_j=25^\circ$ unless otherwise specified)

Figure 1. Forward Current vs. Forward Voltage

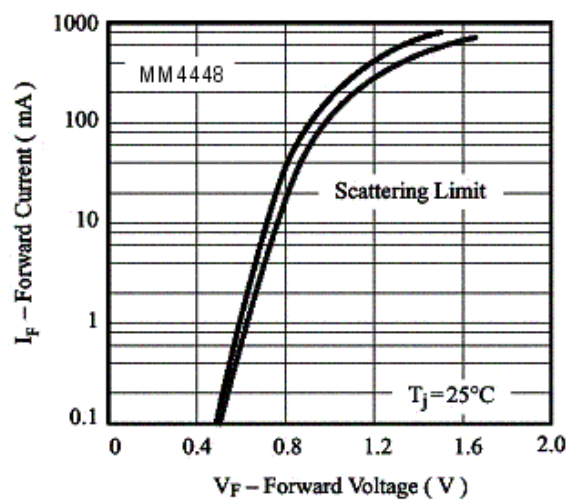


Figure 2. Forward Current vs. Forward Voltage

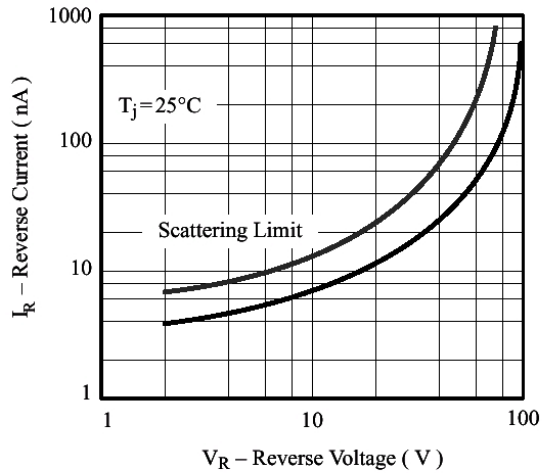


Figure 3. Reverse Current vs. Reverse Voltage

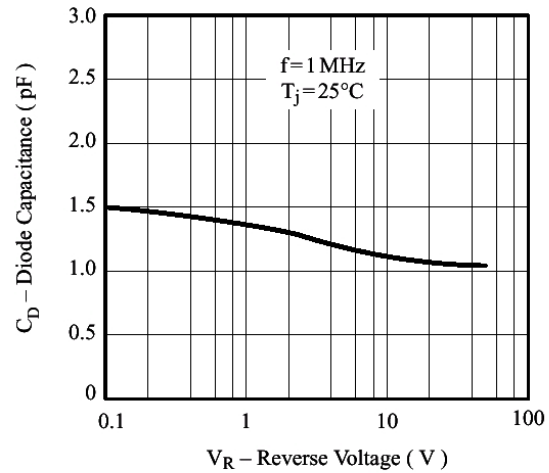
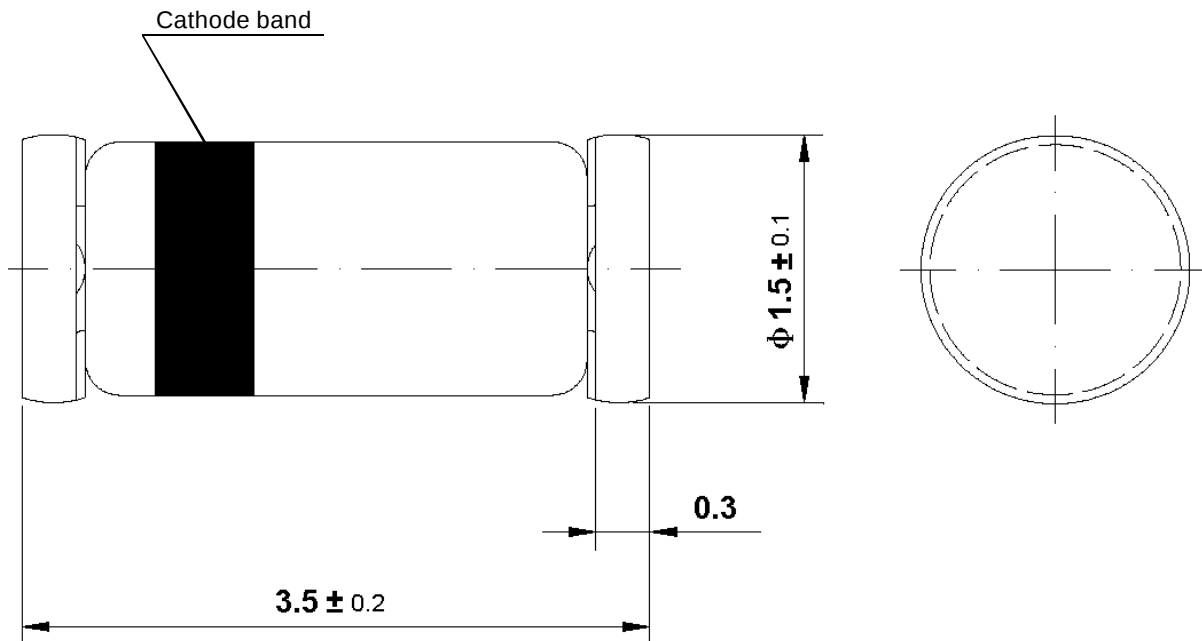


Figure 4. Diode Capacitance vs. Reverse Voltage

Dimensions in mm



Glass Case
Mini Melf / SOD 80
JEDEC DO 213 AA