

# 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	?
Storage temperature range		$T_{stg}$	-65~+175	?

## Maximum Thermal Resistance

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

Junction ambient	on PC board 50mm × 50mm × 1.6mm	$R_{thJA}$	500	K/W
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Electrical Characteristics

T<sub>j</sub>=25?

				Min	Typ	Max	Unit
Forward voltage	I <sub>F</sub> =5mA	MM4148	V <sub>F</sub>	0.62		0.72	V
	I <sub>F</sub> =10mA	MM4148	V <sub>F</sub>		0.86	1	V
	I <sub>F</sub> =100mA	MM4448	V <sub>F</sub>		0.93	1	V
Reverse current	V <sub>R</sub> =20V		I <sub>R</sub>			25	nA
	V <sub>R</sub> =20V, T <sub>j</sub> =150?		I <sub>R</sub>			50	μ A
	V <sub>R</sub> =75V		I <sub>R</sub>			5	μ A
Breakdown current	I <sub>R</sub> =100μ A, t <sub>p</sub> /T=0.01, t <sub>p</sub> =0.3ms		V <sub>(BR)</sub>	100			V
Diode capacitance	V <sub>R</sub> =0, f=1MHz, V <sub>HF</sub> =50mV		C <sub>D</sub>			4	pF
Rectification efficiency	V <sub>HF</sub> =2V, f=100MHz		? <sub>R</sub>	45			%
Reverse recovery time	I <sub>F</sub> = I <sub>R</sub> =10mA, i <sub>R</sub> =1mA		t <sub>rr</sub>			8	ns
	I <sub>F</sub> =10mA, V <sub>R</sub> =6V, i <sub>R</sub> =0.1 × I <sub>R</sub> , R <sub>L</sub> =1000		t <sub>rr</sub>			4	ns

Characteristics (T<sub>j</sub>=25? unless otherwise specified)

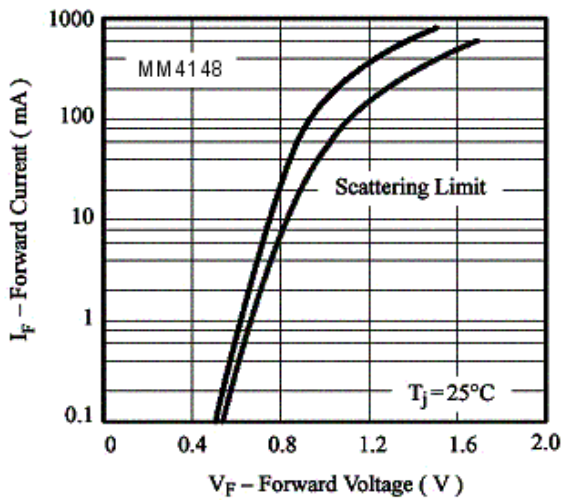


Figure 1. Forward Current vs. Forward Voltage

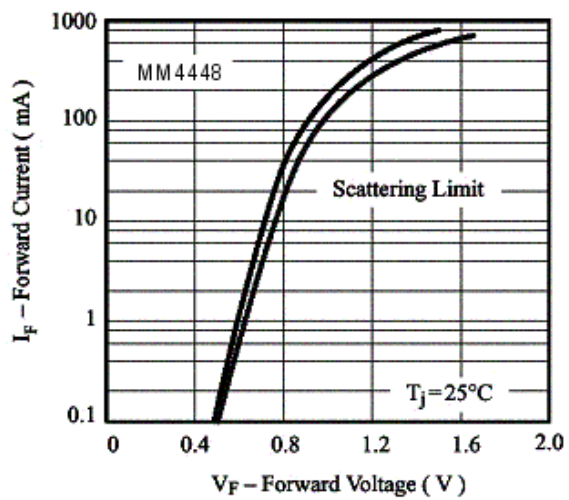


Figure 2. Forward Current vs. Forward Voltage

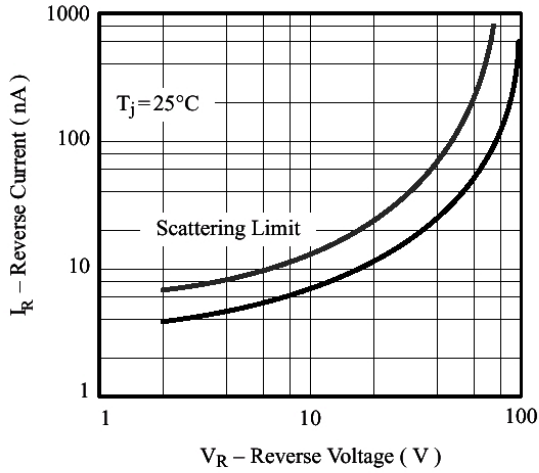


Figure 3. Reverse Current vs. Reverse Voltage

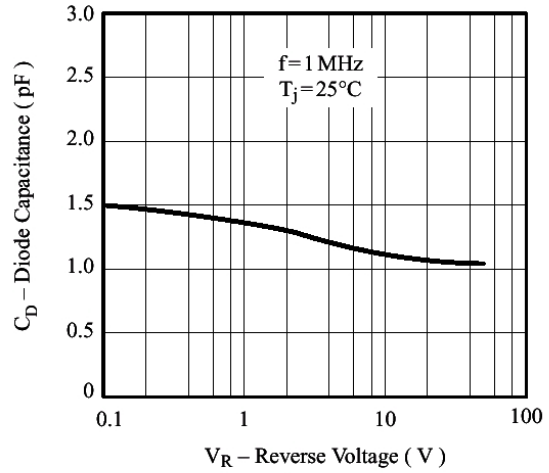
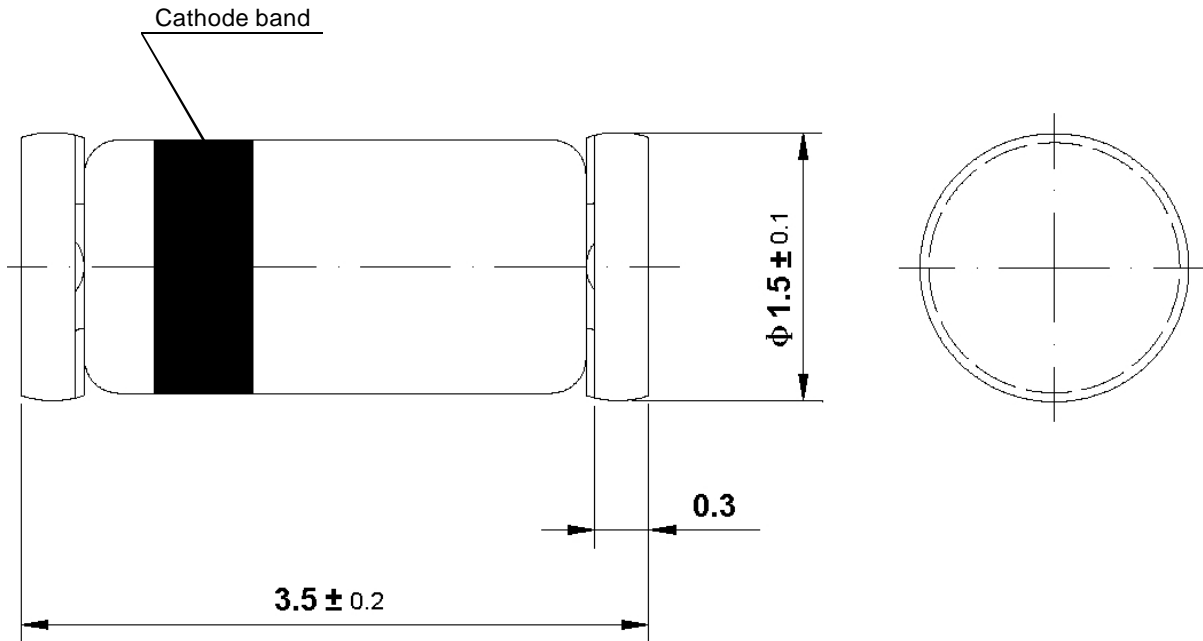


Figure 4. Diode Capacitance vs. Reverse Voltage

Dimensions in mm



Glass Case  
 Mini Melf / SOD 80  
 JEDEC DO 213 AA