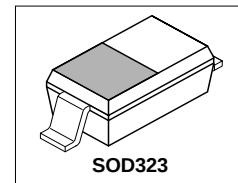


International IOR Rectifier

MBRX0540

SCHOTTKY DIODE

0.5 Amp



Major Ratings and Characteristics

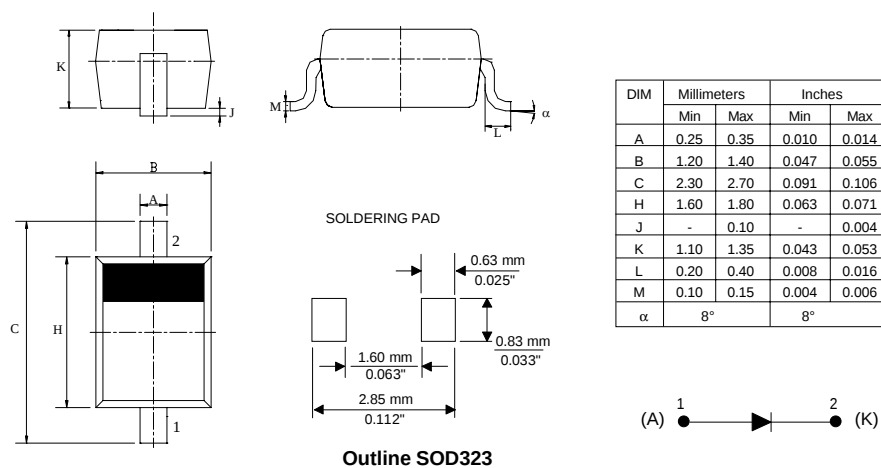
Characteristics	Value	Units
$I_{F(AV)}$ (DC)	0.5	A
V_{RRM}	40	V
I_{FSM} @ $t_p = 10$ ms sine	5.5	A
V_F @ 0.5Apk, $T_J = 100^\circ\text{C}$	0.38	V
P_d Power Dissipation @ $T_A = 25^\circ\text{C}$	360	mW
T_J range	- 65 to 150	$^\circ\text{C}$

Description/ Features

This Schottky barrier diode is designed for high speed switching application, voltage clamping and circuit protection. Miniature surface mount packages with reduced footprint are excellent for portable application where space is limited.

- Small footprint, surface mountable
- Very low forward voltage drop
- Extremely fast switching speed for high frequency operation

Case Styles



Voltage Ratings

Part number	Value
V_R Max. DC Reverse Voltage (V)	40
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	Value	Units	Conditions
I_F Forward Current	0.5	A	DC, $T_L = 80^\circ\text{C}$
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current, @ $T_J = 25^\circ\text{C}$	40	A	5 μs Sine or 3 μs Rect. pulse
	5.5	A	10ms Sine or 6ms Rect. pulse

Following any rated load condition and with rated V_{RRM} applied

Electrical Specifications

Parameters	Typ.	Max.	Units	Conditions
V_{FM} Max. Forward Voltage Drop	0.44	0.51	V	@ 0.5A
	0.54	0.62	V	@ 1A
	0.38	0.46	V	@ 0.5A
	0.52	0.61	V	@ 1A
I_{RM} Max. Reverse Leakage Current	2	10	μA	@ $V_R = 20\text{ V}$
	4	20	μA	@ $V_R = 40\text{ V}$
	0.4	5	mA	@ $V_R = 20\text{ V}$
	0.6	13	mA	@ $V_R = 40\text{ V}$
C_T Max. Junction Capacitance	25	50	pF	$V_R = 5\text{V}$
dv/dt Max. Voltage Rate of Change	-	10000	V/ μs	(Rated V_R)

Thermal-Mechanical Specifications

Parameters	Value	Units	Conditions
T_J Max. Junction Temperature Range (*)	-65 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-65 to 150	$^\circ\text{C}$	
R_{thJL} Max. Thermal Resistance Junction to Lead	340	$^\circ\text{C/W}$	Mounted on PC board FR4 with minimum pad size
$R_{th(j-a)}$ Max. Thermal Resistance Junction to Ambient	420	$^\circ\text{C/W}$	
Wt Approximate Weight	0.004	g	
Case Style	SOD323		

(*) $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink

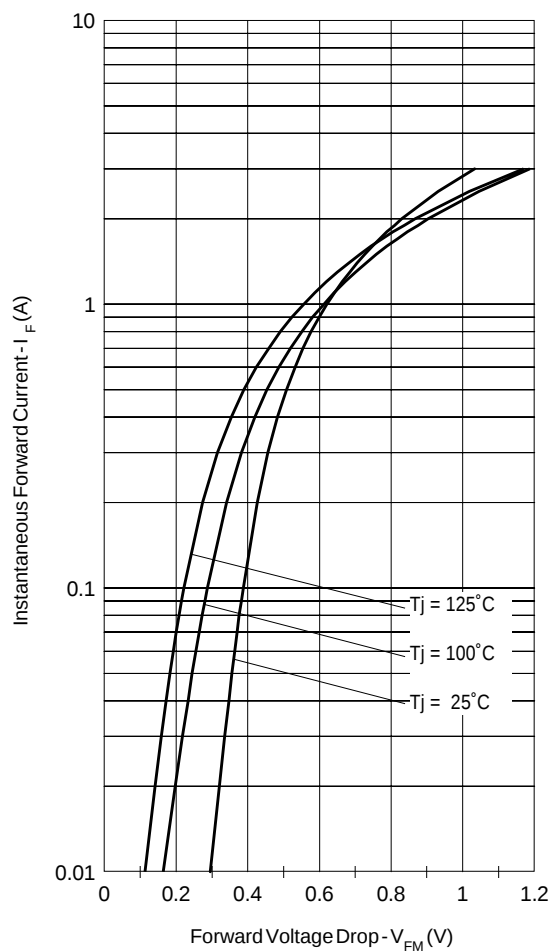


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

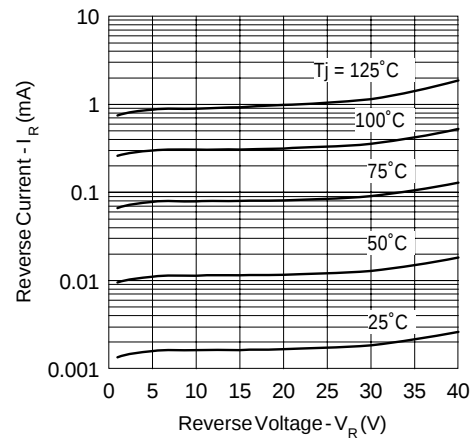


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

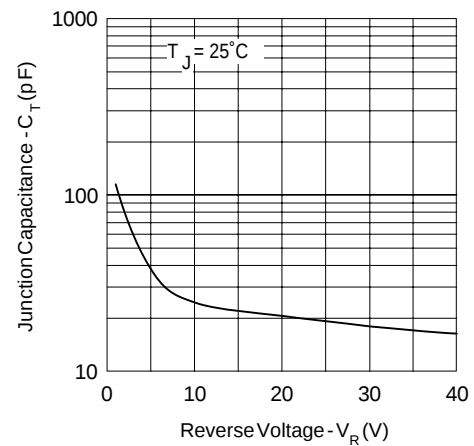


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

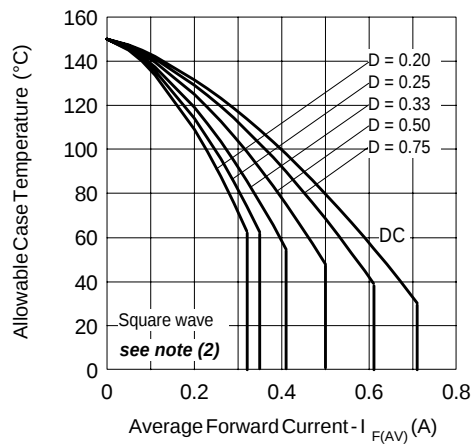


Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current

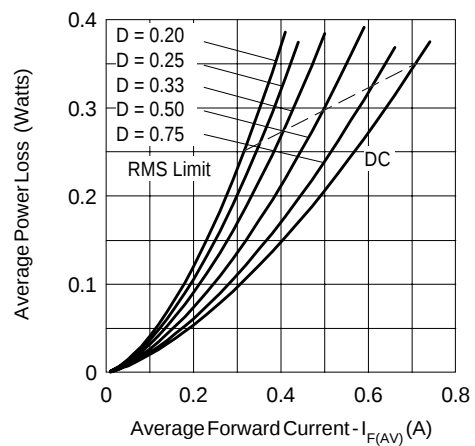


Fig. 5 - Forward Power Loss Characteristics

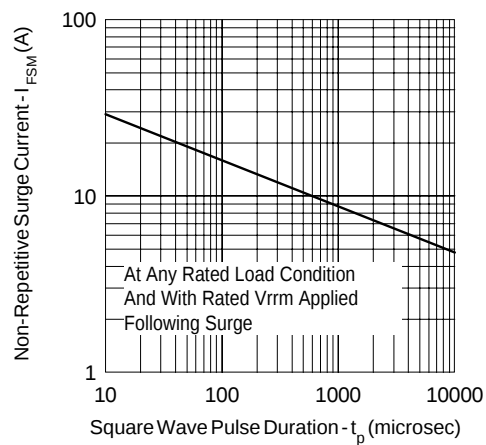
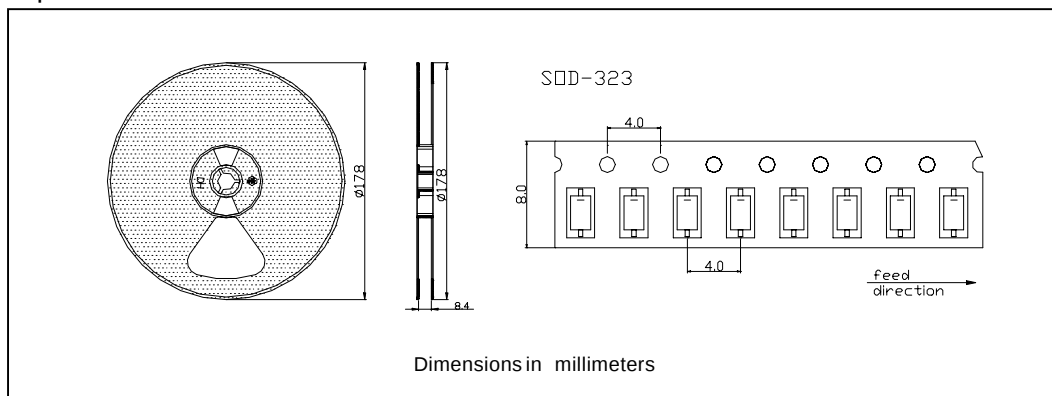


Fig. 6 - Max. Non-Repetitive Surge Current

(2) Formula used: $T_C = T_J - P_d \times R_{thJC}$;

P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 4)

Tape & Reel Information



Ordering Information Table

Device	Package	Marking	Base qty	Delivery mode
MBRX0540	SOD-323	IR4X	3000	Tape & reel

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

International
IR Rectifier

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