

**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**

DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.25	0.35	0.010	0.014
B	1.20	1.40	0.047	0.055
C	2.30	2.70	0.091	0.106
H	1.60	1.80	0.063	0.071
J	-	0.10	-	0.004
K	1.10	1.35	0.043	0.053
L	0.20	0.40	0.008	0.016
M	0.10	0.15	0.004	0.006
$\alpha$	8°		8°	

**SOLDERING PAD**

$1.60$  mm  
 $0.063$ "  
 $2.85$  mm  
 $0.112$ "  
 $0.63$  mm  
 $0.025$ "  
 $0.83$  mm  
 $0.033$ "

**Outline SOD323**

### Voltage Ratings

Part number	Value
V <sub>R</sub> Max. DC Reverse Voltage (V)	40
V <sub>RWM</sub> Max. Working Peak Reverse Voltage (V)	

### Absolute Maximum Ratings

Parameters	Value	Units	Conditions
I <sub>F</sub> Forward Current	0.5	A	DC, T <sub>L</sub> = 80°C
I <sub>FSM</sub> Max. Peak One Cycle Non-Repetitive Surge Current, @ T <sub>J</sub> = 25°C	40	A	5µs Sine or 3µs Rect. pulse
	5.5	A	10ms Sine or 6ms Rect. pulse

Following any rated load condition and with rated V<sub>RRM</sub> applied

### Electrical Specifications

Parameters	Typ.	Max.	Units	Conditions
V <sub>FM</sub> 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 <sub>RM</sub> Max. Reverse Leakage Current	2	10	µA	@ V <sub>R</sub> = 20 V
	4	20	µA	@ V <sub>R</sub> = 40 V
	0.4	5	mA	@ V <sub>R</sub> = 20 V
	0.6	13	mA	@ V <sub>R</sub> = 40 V
C <sub>T</sub> Max. Junction Capacitance	25	50	pF	V <sub>R</sub> = 5V
dv/dt Max. Voltage Rate of Change	-	10000	V/µs	(Rated V <sub>R</sub> )

### Thermal-Mechanical Specifications

Parameters	Value	Units	Conditions
T <sub>J</sub> Max. Junction Temperature Range (*)	-65 to 150	°C	
T <sub>stg</sub> Max. Storage Temperature Range	-65 to 150	°C	
R <sub>th(j-l)</sub> Max. Thermal Resistance Junction to Lead	340	°C/W	Mounted on PC board FR4 with minimum pad size
R <sub>th(j-a)</sub> Max. Thermal Resistance Junction to Ambient	420	°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

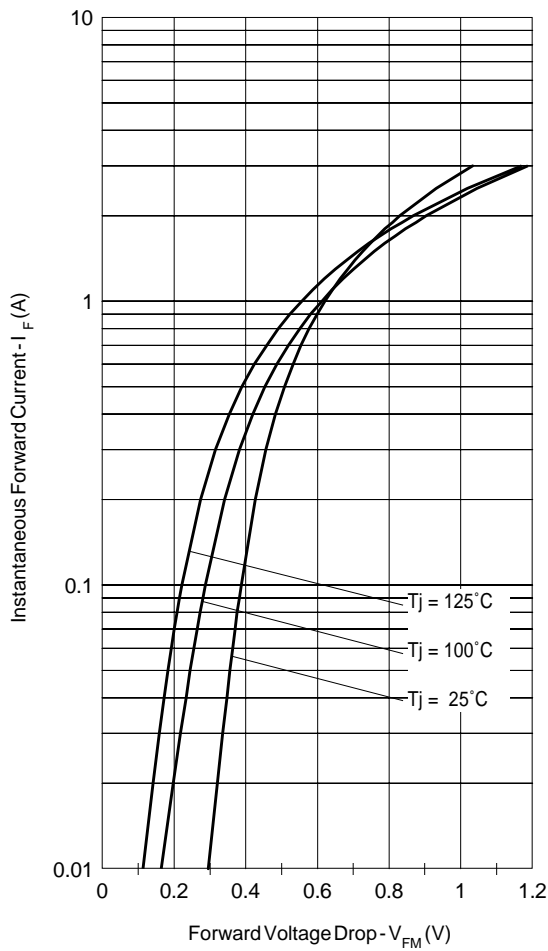


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

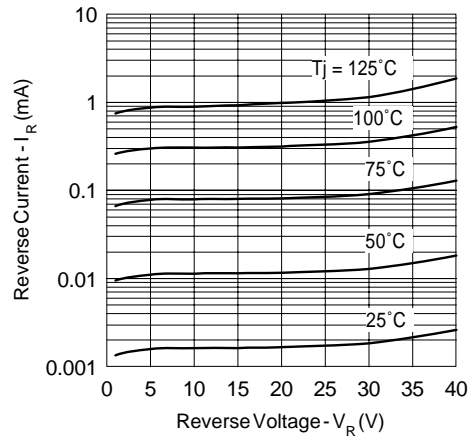


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

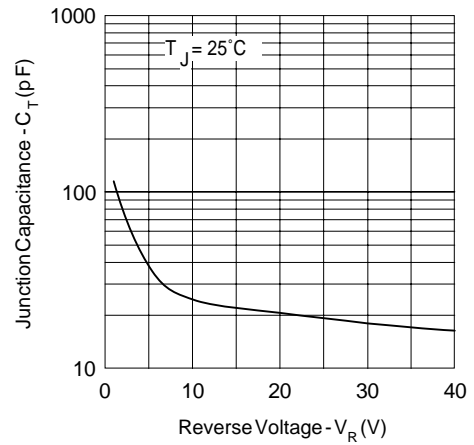


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

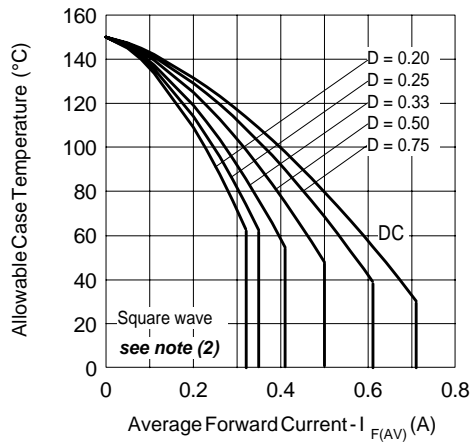


Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current

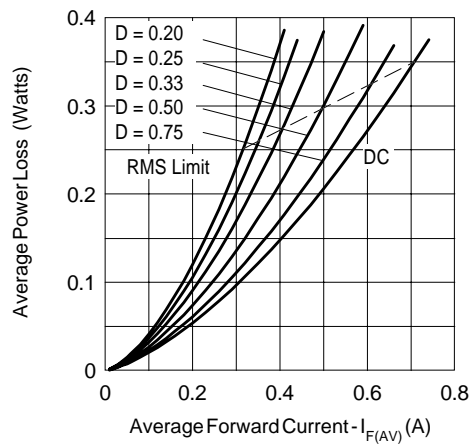


Fig. 5 - Forward Power Loss Characteristics

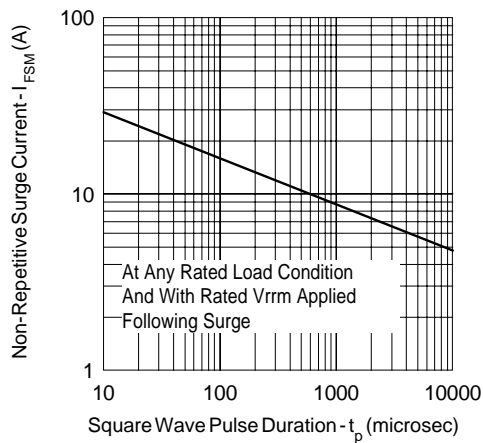
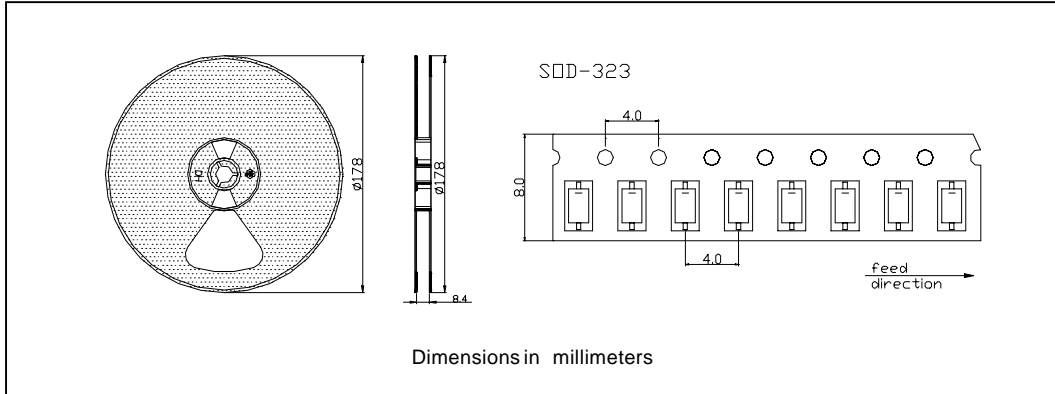


Fig. 6 - Max. Non-Repetitive Surge Current

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

$Pd$  = 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.