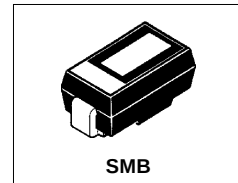


International
IOR Rectifier

MBRS130TR

SCHOTTKY RECTIFIER

1 Amp



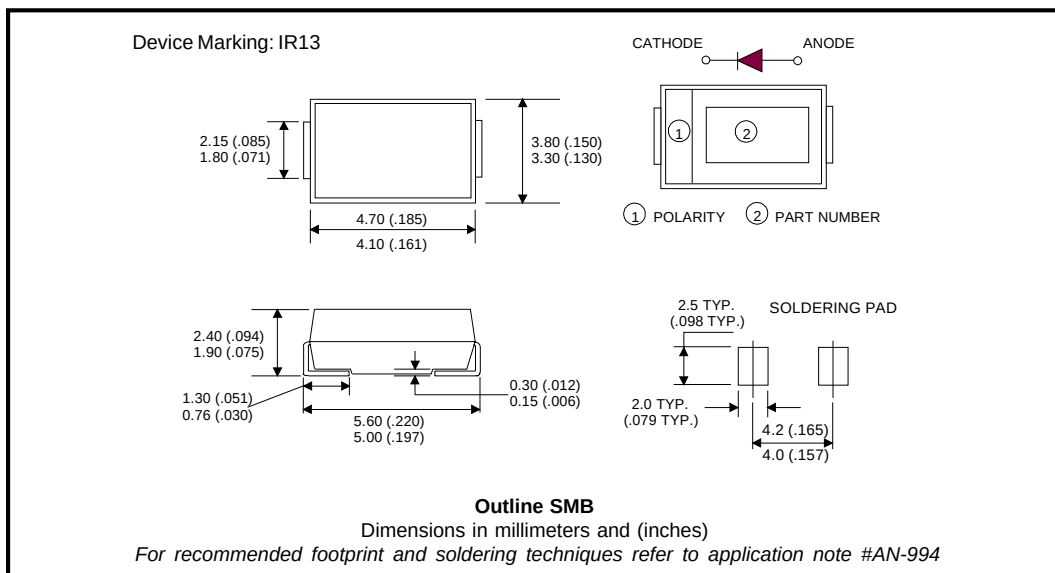
Major Ratings and Characteristics

Characteristics	MBRS130TR	Units
$I_{F(AV)}$ Rectangular waveform	1.0	A
V_{RRM}	30	V
I_{FSM} @ $t_p = 5 \mu s$ sine	230	A
V_F @ 1.0A pk, $T_J = 125^\circ C$	0.42	V
T_J range	- 55 to 125	$^\circ C$

Description/ Features

The MBRS130TR surface-mount Schottky rectifier has been designed for applications requiring low forward drop and small foot prints on PC boards. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

- Small foot print, surface mountable
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



Voltage Ratings

Part number	MBRS130TR
V_R Max. DC Reverse Voltage (V)	30
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters		Value	Units	Conditions		
I _{F(AV)}	Max. Average Forward Current	1.0	A	50% duty cycle @ T _L = 147 °C, rectangular wave form		
I _{FSM}	Max. Peak One Cycle Non-Repetitive	870	A	5μs Sine or 3μs Rect. pulse	Following any rated load condition and with rated V _{RRM} applied	
	Surge Current	50		10ms Sine or 6ms Rect. pulse		
E _{AS}	Non- Repetitive Avalanche Energy	3.0	mJ	T _J = 25 °C, I _{AS} = 1A, L = 6mH		
I _{AR}	Repetitive Avalanche Current	1.0	A	Current decaying linearly to zero in 1 μsec Frequency limited by T _J max. Va = 1.5 x Vr typical		

Electrical Specifications

Parameters			Value	Units	Conditions	
V _{FM}	Max. Forward Voltage Drop	(1)	0.6	V	@ 1A	T _J = 25 °C
			0.67	V	@ 2A	
			0.42	V	@ 1A	T _J = 125 °C
			0.52	V	@ 2A	
I _{RM}	Max. Reverse Leakage Current		(1)	0.5	mA	T _J = 25 °C V _R = rated V _R
			5.0	mA	T _J = 100 °C	
			15	mA	T _J = 125 °C	
C _T	Max. Junction Capacitance		200	pF	V _R = 5V _{DC} (test signal range 100KHz to 1Mhz) 25°C	
L _S	Typical Series Inductance		2.0	nH	Measured lead to lead 5mm from package body	
dv/dt	Max. Voltage Rate of Change (Rated V _R)		10000	V/μs		

(1) Pulse Width < 300 μs , Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	Value	Units	Conditions
T_J Max. Junction Temperature Range (*)	-55 to 125	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
R_{thJL} Max. Thermal Resistance Junction to Lead (**)	25	$^\circ\text{C/W}$	DC operation
R_{thJA} Max. Thermal Resistance Junction to Ambient	80	$^\circ\text{C/W}$	DC operation
wt Approximate Weight	0.10 (0.003)	g (oz.)	
Case Style	SMB		Similar to DO-214AA
Device Marking	IR13		

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

(**) Mounted 1 inch square PCB

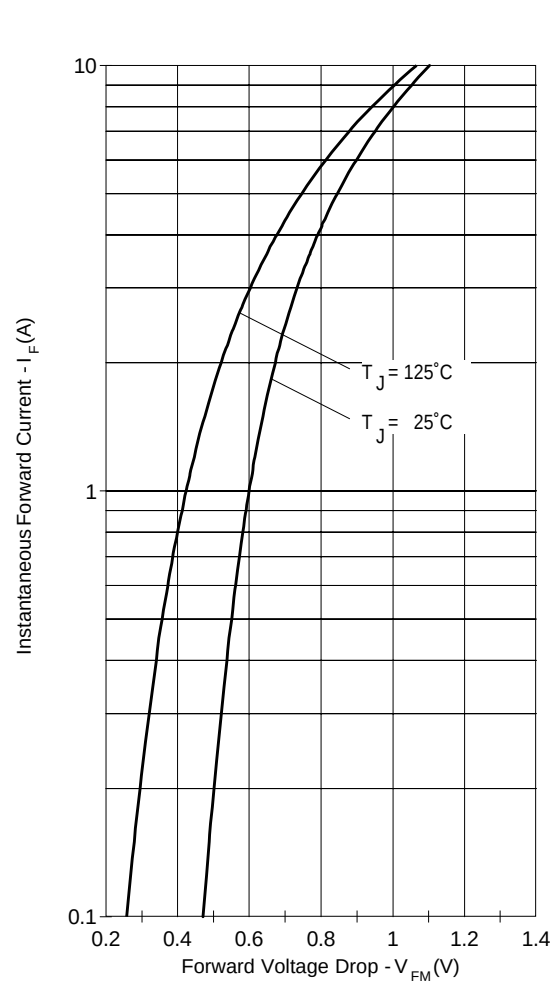


Fig. 1 - Maximum Forward Voltage Drop Characteristics

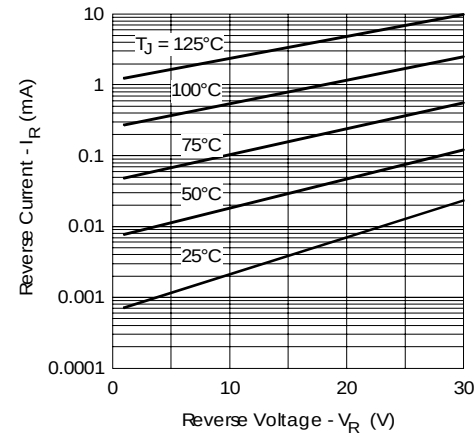


Fig. 2 - Typical Peak Reverse Current Vs. Reverse Voltage

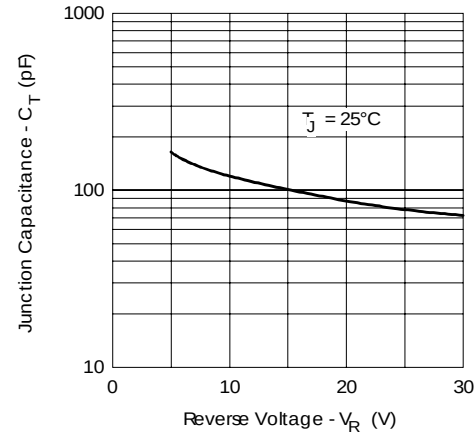


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

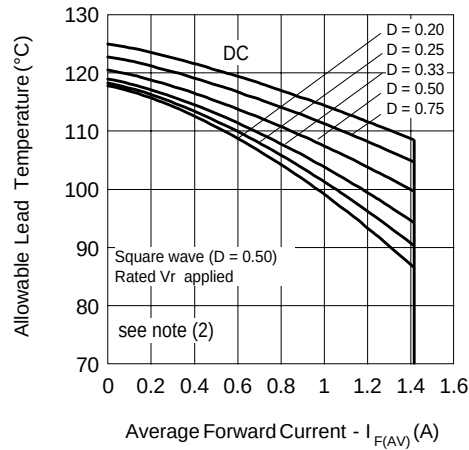


Fig. 4 - Maximum Average Forward Current
Vs. Allowable Lead Temperature

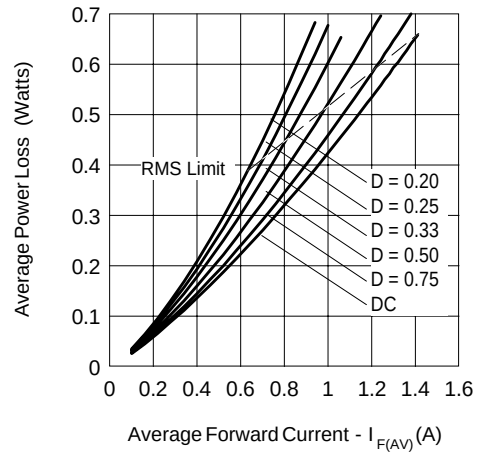


Fig. 5 - Maximum Average Forward Dissipation
Vs. Average Forward Current

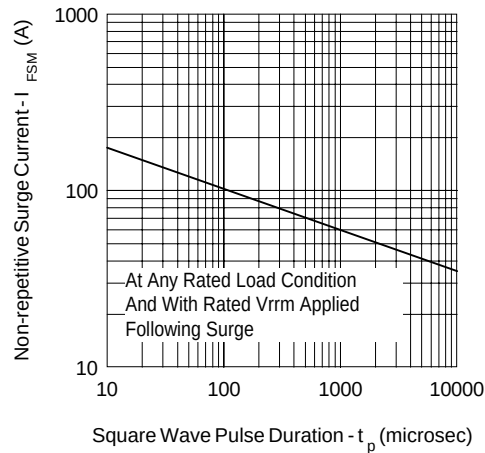


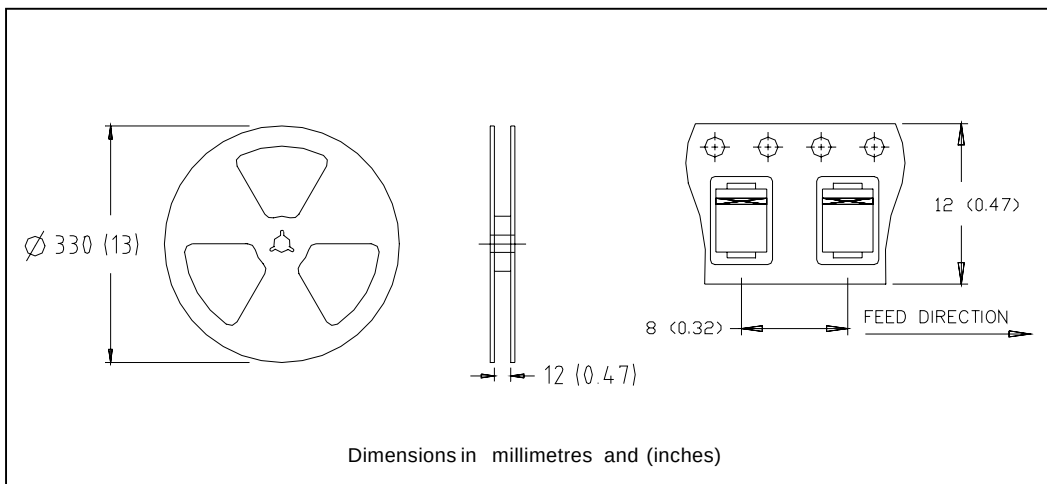
Fig. 6 - Maximum Peak Surge Forward Current Vs. Pulse Duration

(2) Formula used: $T_c = T_j - (Pd + Pd_{REV}) \times R_{thJC}$;

Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

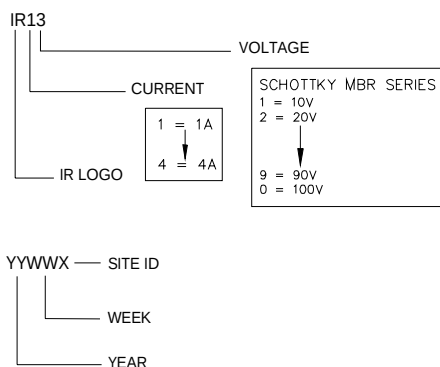
Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1} = 80\%$ rated V_R

Tape & Reel Information



Marking & Identification

Each device has 2 rows for identification. The first row designates the device as manufactured by International Rectifier as indicated by the letters "IR", and the Part Number (indicates the current and the voltage rating). The second row indicates the year, the week of manufacturing and the Site ID.



Ordering Information

MBRS130TR - TAPE AND REEL

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 3000 PIECES).

EXAMPLE: MBRS130TR - 6000 PIECES

MBRS130TR

Bulletin PD-20584 rev. D 03/03

International
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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.

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