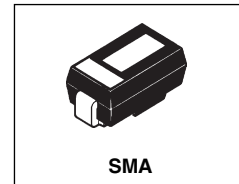


SCHOTTKY RECTIFIER

2.1 Amp



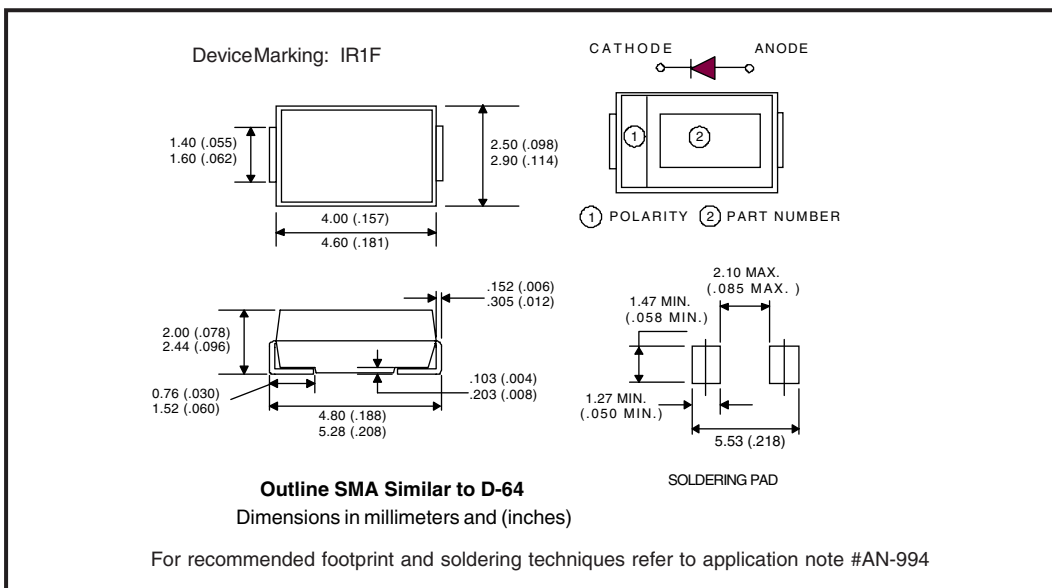
Major Ratings and Characteristics

Characteristics	10MQ040N	Units
I_F DC	2.1	A
V_{RRM}	40	V
I_{FSM} @ $t_p=5\mu s$ sine	120	A
V_F @ 1.5Apk, $T_J=125^\circ C$	0.56	V
T_J range	-40 to 150	$^\circ C$

Description/Features

The 10MQ040N surface mount Schottky rectifier has been designed for applications requiring low forward drop and very 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
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



Voltage Ratings

Part number	10MQ040N
V_R Max. DC Reverse Voltage (V)	40
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	10MQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 4	1.5	A	50% duty cycle @ $T_C = 123^\circ\text{C}$, rectangular waveform On PC board 9mm ² island (.013mm thick copper pad area)
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 6	120	A	5 μ s Sine or 3 μ s Rect. pulse
	30		10ms Sine or 6ms Rect. pulse

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

Electrical Specifications

Parameters	10MQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1) * See Fig. 1	0.54	V	@ 1A
	0.62	V	@ 1.5A
	0.49	V	@ 1A
	0.56	V	@ 1.5A
I_{RM} Max. Reverse Leakage Current (1) * See Fig. 2	0.5	mA	$T_J = 25^\circ\text{C}$
	26	mA	$T_J = 125^\circ\text{C}$
$V_{F(TO)}$ Threshold Voltage	0.36	V	$T_J = T_J \text{ max.}$
r_t Forward Slope Resistance	104	m Ω	
C_T Typical Junction Capacitance	38	pF	$V_R = 10V_{DC}$; $T_J = 25^\circ\text{C}$; test signal = 1Mhz
L_S Typical Series Inductance	2.0	nH	Measured lead to lead 5mm from package body

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

Thermal-Mechanical Specifications

Parameters	10MQ	Units	Conditions
T_J Max. Junction Temperature Range	-40 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-40 to 150	$^\circ\text{C}$	
R_{thJA} Max. Thermal Resistance Junction to Ambient	160	$^\circ\text{C/W}$	DC operation
wt Approximate Weight	0.07(0.026)	g(oz.)	
Case Style	SMA		Similar D-64
Device Marking	IR1F		

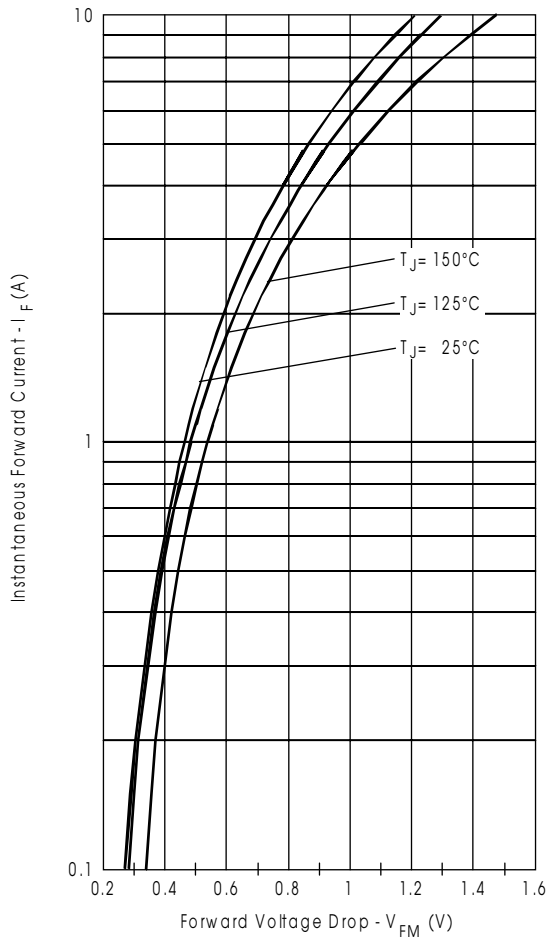


Fig. 1 - Maximum Forward Voltage Drop Characteristics

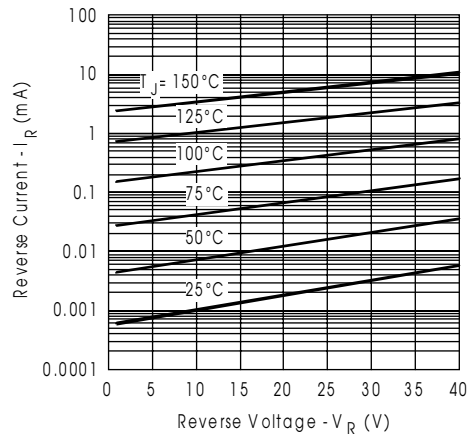


Fig. 2 - Typical Peak Reverse Current Vs. Reverse Voltage

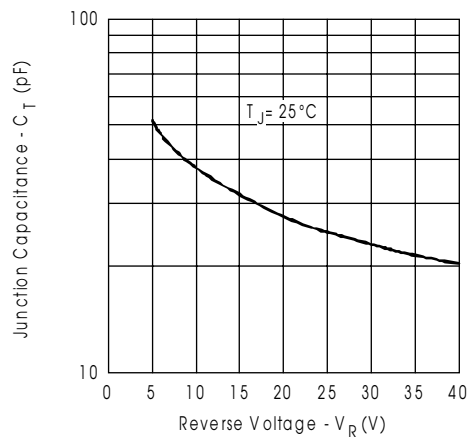


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

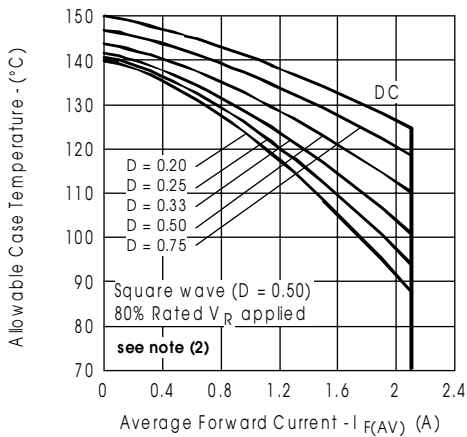


Fig. 4- Maximum Average Forward Current Vs. Allowable Lead Temperature

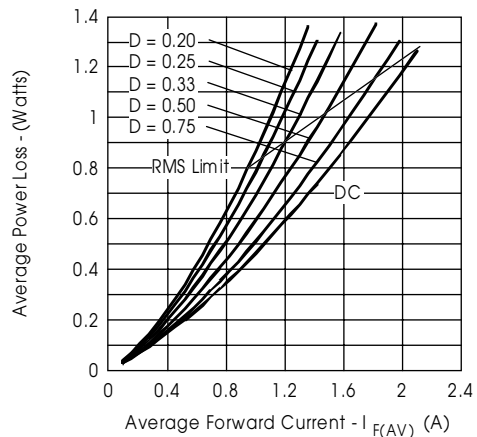


Fig. 5- Maximum Average Forward Dissipation Vs. Average Forward Current

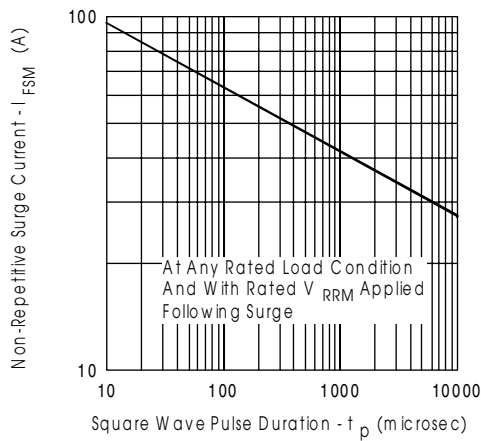


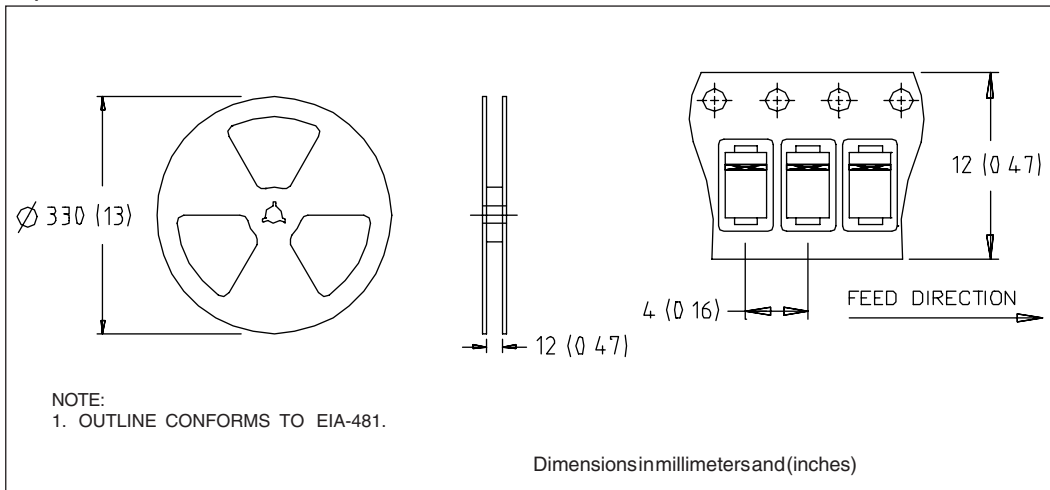
Fig. 6- Maximum Peak Surge Forward Current Vs. Pulse Duration

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

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

$P_{d_{REV}}$ = 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 4 characters, configured two digits on two rows, for identification. The first row designates the device as manufactured by International Rectifier as indicated by the letters "IR". The second row indicates the current rating and voltage/process. See the drawing below for marking code.

FIRST ROW

IR

SECOND ROW

1st DIGIT = CURRENT RATING
 2nd DIGIT = VOLTAGE/PROCESS

EXAMPLE: IR — INTERNATIONAL RECTIFIER
 1F — 40 VOLT/STANDARD PROCESS
 | — 1 AMP

1st DIGIT	2nd DIGIT
CURRENT	VOLTAGE/PROCESS
1 = 1 AMP	B = 15 VOLTS/STANDARD
	E = 30 VOLTS
	F = 40 VOLTS
	H = 60 VOLTS
	J = 100 VOLTS

Ordering Information

10MQSERIES - TAPE AND REEL

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 7500 PIECES).

EXAMPLE: 10MQ040TR - 15000PIECES

10MQSERIES - BULK QUANTITIES

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 1000 PIECES).

EXAMPLE: 10MQ040 - 2000PIECES

10MQ040N

PD-20518 rev. D 11/99

International
IOR Rectifier

International
IOR Rectifier

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IR GERMANY: Saalburgstrasse 157, 61350 Bad Homburg. Tel: ++ 49 6172 96590. Fax: ++ 49 6172 965933.
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IR SOUTHEAST ASIA: 1 Kim Seng Promenade, Great World City West Tower, 13-11, Singapore 237994. Tel: ++ 65 838 4630.
IR TAIWAN: 16 Fl. Suite D.207, Sec. 2, Tun Haw South Road, Taipei, 10673, Taiwan. Tel: 886 2 2377 9936.

<http://www.irf.com>

Fax-On-Demand: +44 1883 733420

Data and specifications subject to change without notice.