International
IOR Rectifier

10MQ040NPbF

SCHOTTKY RECTIFIER

2.1 Amp

$I_{F(AV)}$ = 2.1Amp
V_R = 40V

Major Ratings and Characteristics

Characteristics	Value	Units
I_F DC	2.1	A
V_{RRM}	40	V
I_{FSM} @ tp = 5 µs sine	120	A
V_F @ 1.5Apk, T_J=125°C	0.56	V
T_J range	- 55 to 150	°C

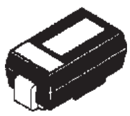
Description/ Features

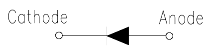
The 10MQ040NPbF surface mount Schottky rectifier has been designed for applications requiring low forward drop and very small foot prints on PC boards. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

- Small foot print, surface mountable
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Lead-Free ("PbF" suffix)

Case Styles

10MQ040NPbF





SMA

Voltage Ratings

Part number		10MQ040NPbF
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_L = 123 °C, rectangular wave form. On PC board 9mm^2 island (.013mm thick copper pad area)	
I_{FSM}	Max. Peak One Cycle Non-Repetitive	120	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
	Surge Current * See Fig. 6	30		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		

Electrical Specifications

Parameters		10MQ	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (1) * See Fig. 1	0.54	V	@ 1A	T_J = 25 °C
		0.62	V	@ 1.5A	
		0.49	V	@ 1A	T_J = 125 °C
		0.56	V	@ 1.5A	
I_{RM}	Max. Reverse Leakage Current (1) * See Fig. 2	0.5	mA	T_J = 25 °C	V_R = rated V_R
		26	mA	T_J = 125 °C	
$V_{F(TO)}$	Threshold Voltage	0.36	V	T_J = T_J max.	
r_t	Forward Slope Resistance	104	mΩ		
C_T	Typical Junction Capacitance	38	pF	V_R = 10V_{DC}, T_J = 25°C, test signal = 1Mhz	
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 < 300µs, Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters		10MQ	Units	Conditions
T_J	Max. Junction Temperature Range (*)	- 55 to 150	°C	
T_{stg}	Max. Storage Temperature Range	- 55 to 150	°C	
R_{thJA}	Max. Thermal Resistance Junction to Ambient	80	°C/W	DC operation
wt	Approximate Weight	0.07(0.002)	g (oz.)	
	Case Style	SMA		Similar D-64
	Device Marking	IR1F		

(*) $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

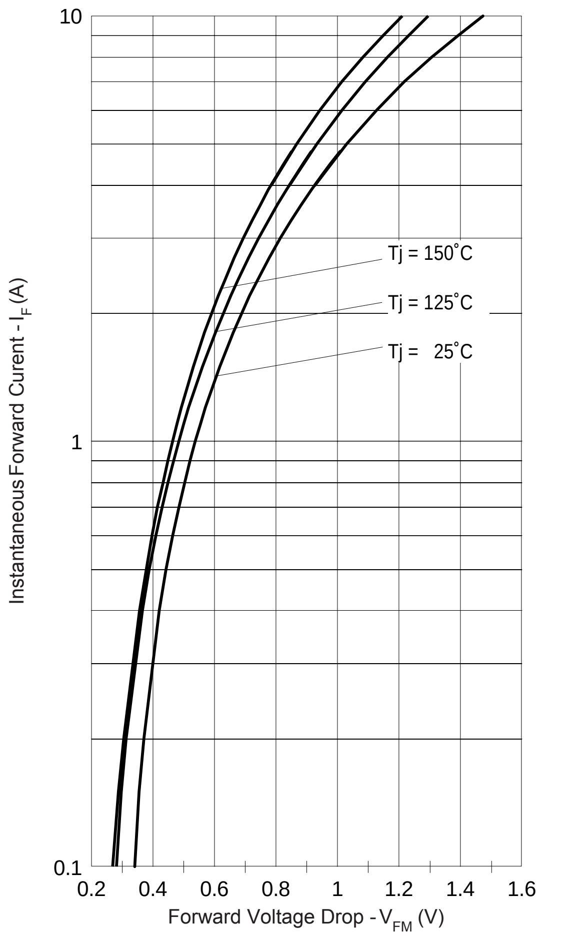


Fig. 1 - Maximum Forward Voltage Drop Characteristics

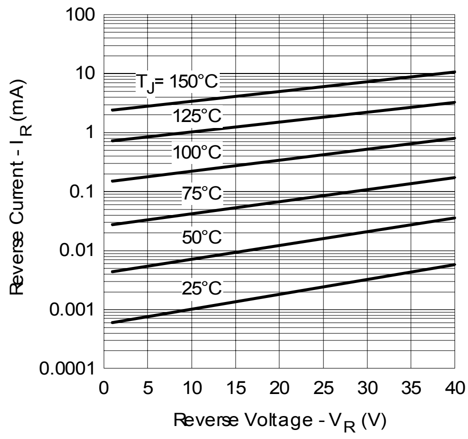


Fig. 2 - Typical Peak Reverse Current Vs. Reverse Voltage

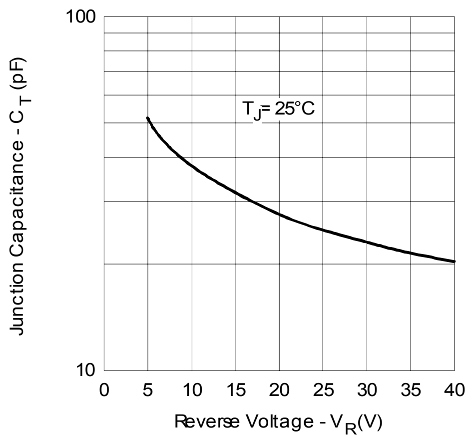


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

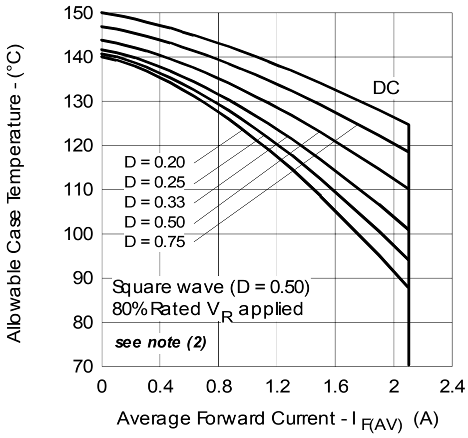


Fig. 4 - Maximum Average Forward Current Vs. Allowable Lead Temperature

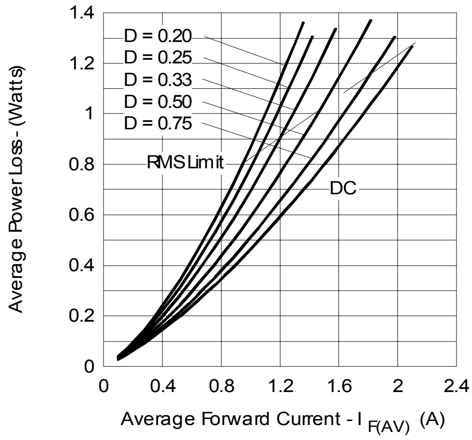


Fig. 5 - Maximum Average Forward Dissipation Vs. Average Forward Current

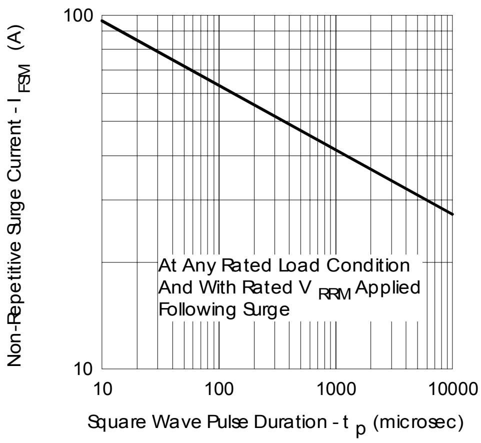
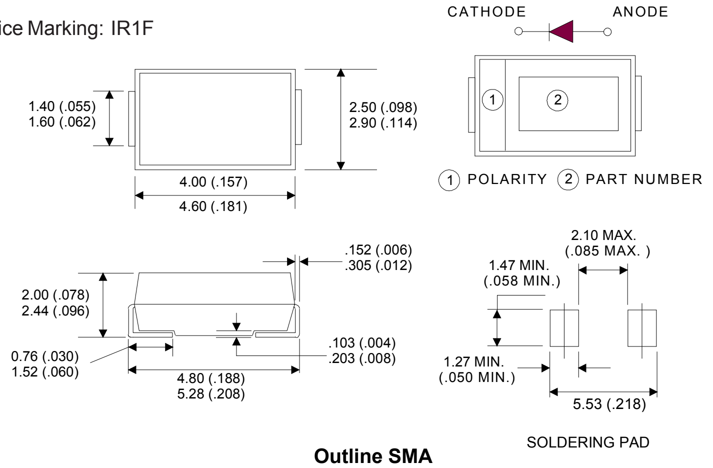


Fig. 6 - Maximum Peak Surge Forward Current Vs. Pulse Duration

(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

Outline Table

Device Marking: IR1F



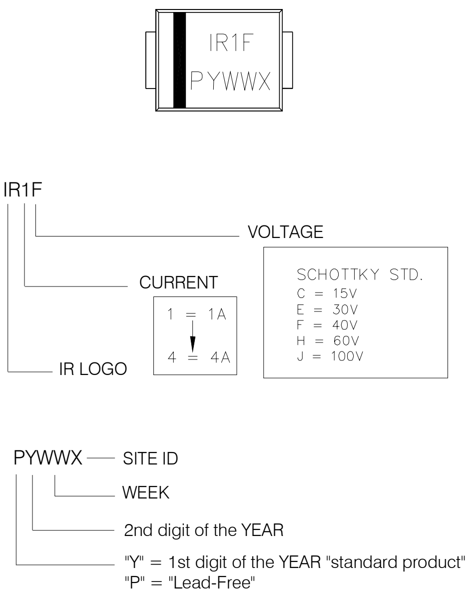
Outline SMA

Dimensions in millimeters and (inches)

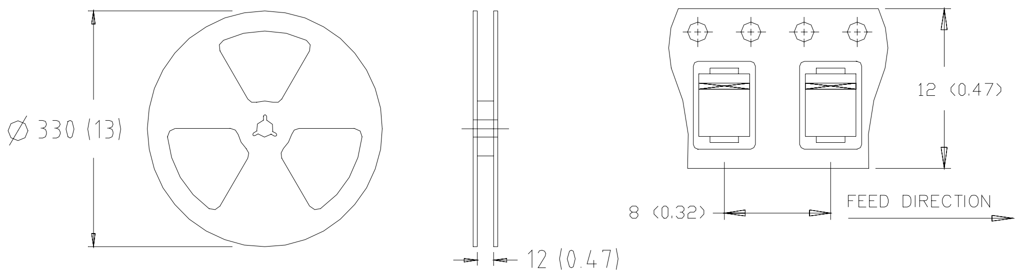
For recommended footprint and soldering techniques refer to application note #AN-994

Marking & Identification

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



Tape & Reel Information



Dimensions in millimetres and (inches)

Ordering Information Table

Device Code

10	M	Q	040	N	TR	PbF
1	2	3	4	5	6	7

1 - Current Rating
2 - M = SMA
3 - Q = Schottky Q Series
4 - Voltage Rating (040 = 40V)
5 - N = New SMA
6 - • none = Box (1000 pieces)
  • TR = Tape & Reel (7500 pieces)
7 - • none = Standard Production
  • PbF = Lead-Free

```
10MQ040N
*******************************************
*     This model has been developed by            *
*    Wizard SPICE MODEL GENERATOR (1999)    *
*         (International Rectifier Corporation)          *
*  Contain Proprietary Information                   *
*******************************************
* SPICE Model Diode is composed by a       *
* simple diode plus paralled VCG2T       *
*******************************************
.SUBCKT 10MQ040N ANO CAT
D1 ANO 1 DMOD (0.00472)
*Define diode model
.MODEL DMOD D(IS=1.29526323971343E-04A,N=1.14666404869581,BV=52V,
+ IBV=0.260404749526768A,RS= 0.00048144,CJO=2.04792476092255E-08,
+ VJ=1.82174923822158,XTI=2, EG=0.779470593365538)
*******************************************
*Implementation of VCG2T
VX 1 2 DC 0V
R1 2 CAT TRES 1E-6
.MODEL TRES RES(R=1,TC1=-43.3354342653501)
GP1 ANO CAT VALUE={-ABS(I(VX))*(EXP((((-4.190325E-03/-43.33543)*((V(2,CAT)*1E6)/(I(VX)+1E-6)-
1))+1)*7.842581E-02*ABS(V(ANO,CAT)))-1)}
*******************************************
.ENDS 10MQ040N
```


International
IOR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7309
07/04

Notice

The products described herein were acquired by Vishay Intertechnology, Inc., as part of its acquisition of International Rectifier's Power Control Systems (PCS) business, which closed in April 2007. Specifications of the products displayed herein are pending review by Vishay and are subject to the terms and conditions shown below.

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.

International Rectifier®, IR®, the IR logo, HEXFET®, HEXSense®, HEXDIP®, DOL®, INTERO®, and POWIRTRAIN® are registered trademarks of International Rectifier Corporation in the U.S. and other countries. All other product names noted herein may be trademarks of their respective owners.

单击下面可查看定价，库存，交付和生命周期等信息

>>Vishay(威世)