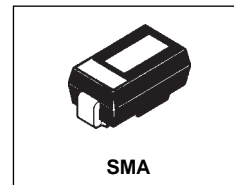


SCHOTTKY RECTIFIER

2.1 Amp



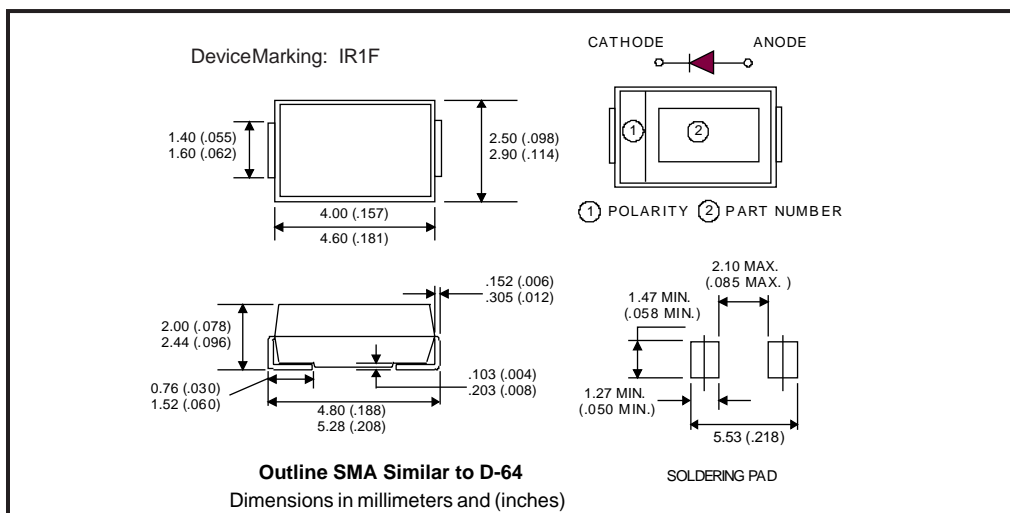
Major Ratings and Characteristics

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

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		

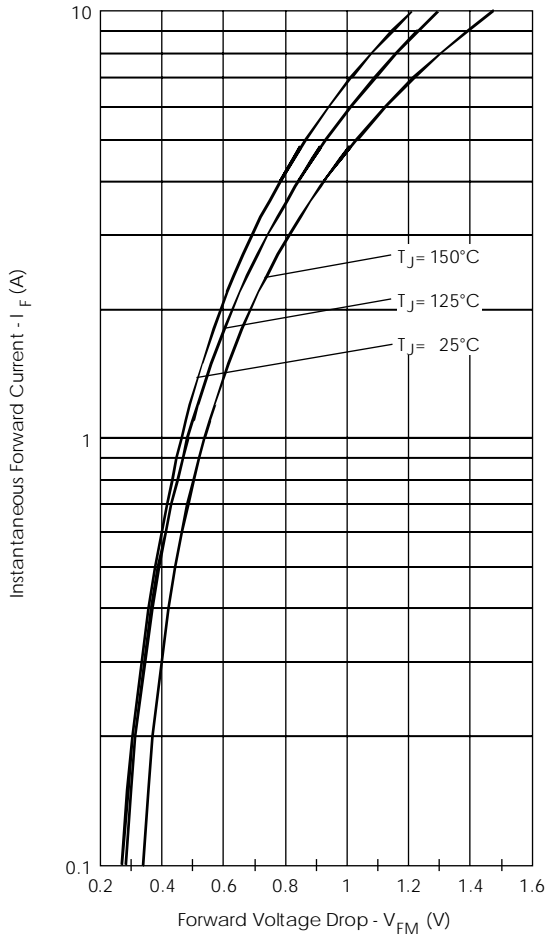


Fig. 1 - Maximum Forward Voltage Drop Characteristics

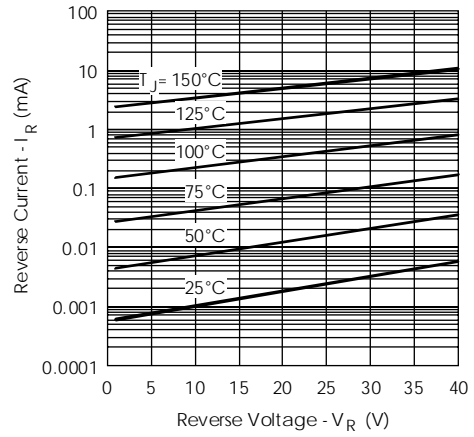


Fig. 2 - Typical Peak Reverse Current Vs. Reverse Voltage

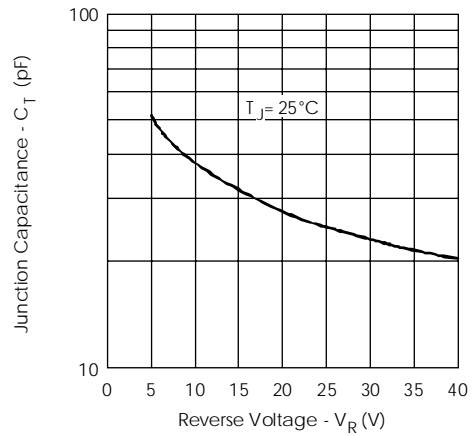


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

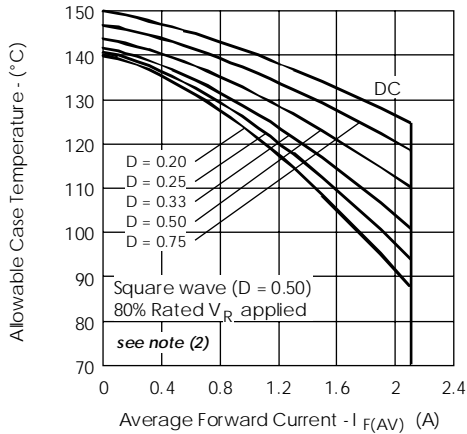


Fig. 4- Maximum Average Forward Current Vs. Allowable Lead Temperature

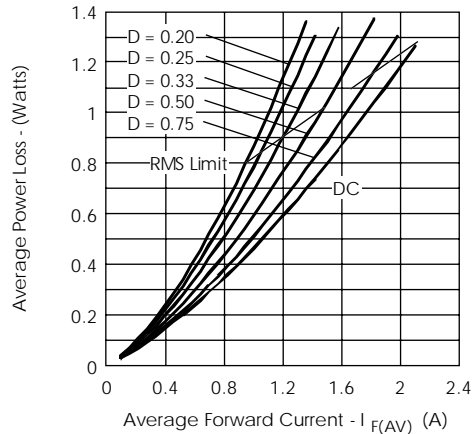


Fig. 5- Maximum Average Forward Dissipation Vs. Average Forward Current

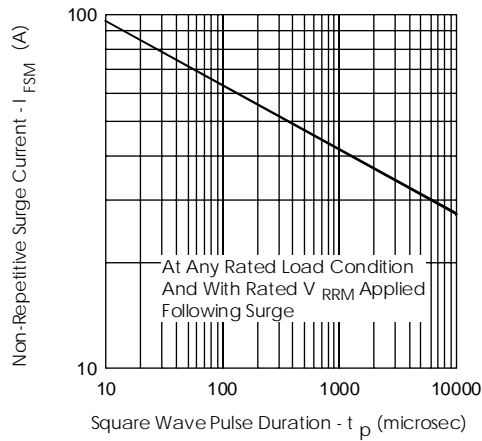


Fig. 6- Maximum Peak Surge Forward Current Vs. Pulse Duration

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

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

