TAYCHIPST

SCHOTTKY RECTIFIER

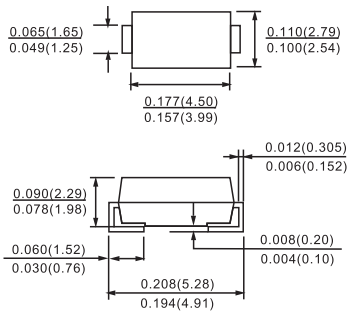
15MQ040N

40V 3.0A

FEATURES

- Switching power supplies
- Meter protection
- Reverse protection for power input to PC board circuits
- Battery isolation and charging
- Low threshold voltage diode
- Free-wheeling or by-pass diode
- Low voltage clamp

DO-214AC(SMA)



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

	Parameters	15MQ	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current * See Fig. 4	2.1	A	50% duty cycle @ T_L = 105 °C, rectangular wave form. On PC board 9mm² island(.013mm thick copper pad area)	
I_{FSM}	Max. Peak One Cycle Non-Repetitive	330	A	5μs Sine or 3μs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
	Surge Current * See Fig. 6	140		10ms Sine or 6ms Rect. pulse	
E_{AS}	Non-Repetitive Avalanche Energy	6.0	mJ	T_J = 25 °C, I_{AS} = 1A, L = 12mH	
I_{AR}	Repetitive Avalanche Current	1.0	A		

Electrical Specifications

	Parameters	15MQ	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (1) * See Fig. 1	0.42	V	@ 1A	T_J = 25 °C
		0.49	V	@ 2A	
		0.34	V	@ 1A	T_J = 125 °C
		0.43	V	@ 2A	
I_{RM}	Max. Reverse Leakage Current (1) * See Fig. 2	0.5	mA	T_J = 25 °C	V_R = rated V_R
		20	mA	T_J = 125 °C	
$V_{F(TO)}$	Threshold Voltage	0.26	V	T_J = T_J max.	
r_t	Forward Slope Resistance	64.6	mΩ		
C_T	Typical Junction Capacitance	134	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	10000	V/μs	(Rated V_R)	

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

Thermal-Mechanical Specifications

	Parameters	15MQ	Units	Conditions
T_J	Max. Junction Temperature Range (*)	-40 to 150	°C	
T_{stg}	Max. Storage Temperature Range	-40 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	IR3F		

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

RATINGS AND CHARACTERISTIC CURVES 15MQ040N

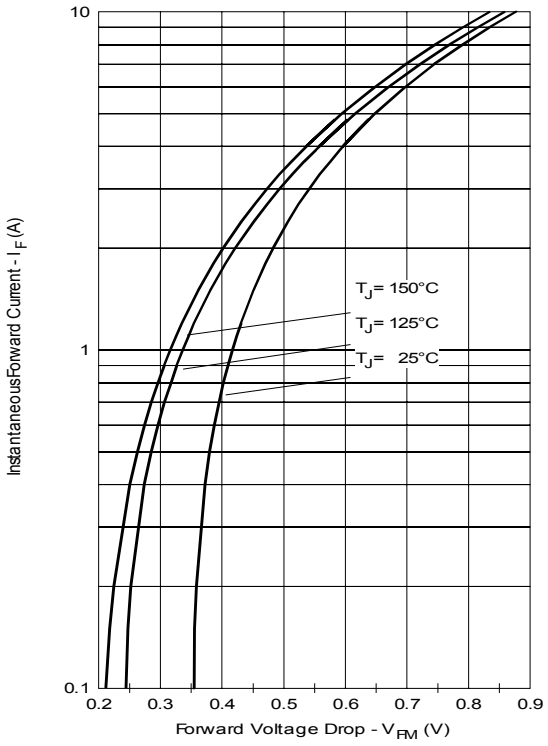


Fig. 1 - Maximum Forward Voltage Drop Characteristics

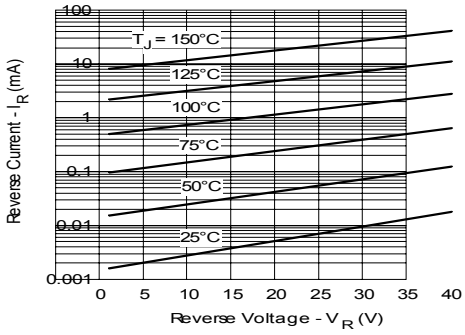


Fig. 2 - Typical Peak Reverse Current
Vs. Reverse Voltage

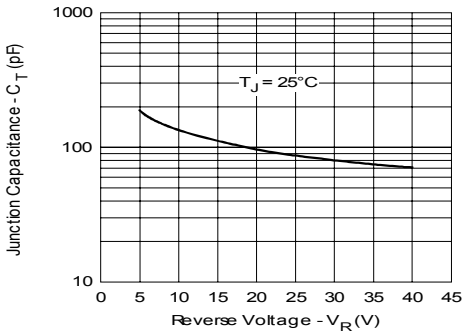


Fig. 3 - Typical Junction Capacitance
Vs. Reverse Voltage

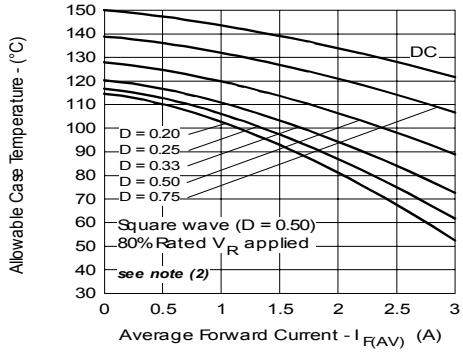


Fig. 4 - Maximum Average Forward Current
Vs. Allowable Lead Temperature

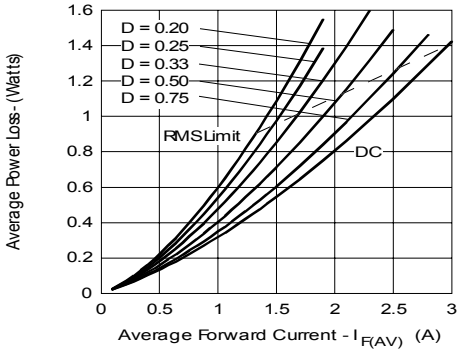


Fig. 5 - Maximum Average Forward Dissipation
Vs. Average Forward Current

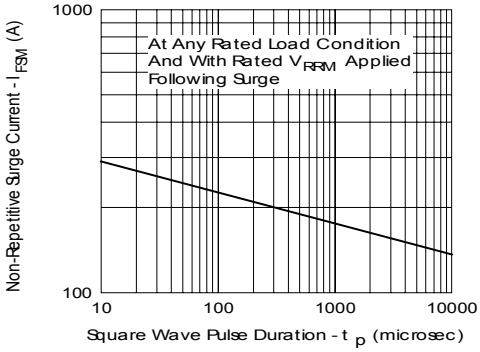


Fig. 6 - Maximum Peak Surge Forward Current Vs. Pulse Duration