TAYCHIPST

SCHOTTKY RECTIFIER

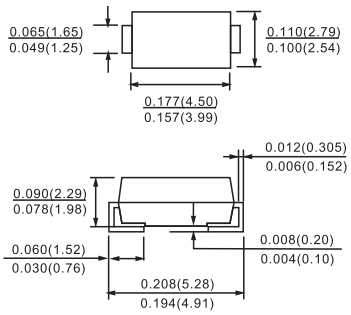
10MQ040NPbF

40V 2.1A

FEATURES

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

DO-214AC(SMA)



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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 9mm² island(.013mm thick copper pad area)	
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 6	120	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
		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		

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		

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

RATINGS AND CHARACTERISTIC CURVES 10MQ040NPbF

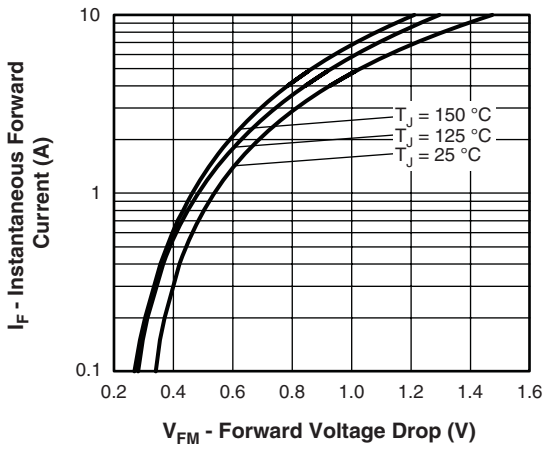


Fig. 1 - Maximum Forward Voltage Drop Characteristics

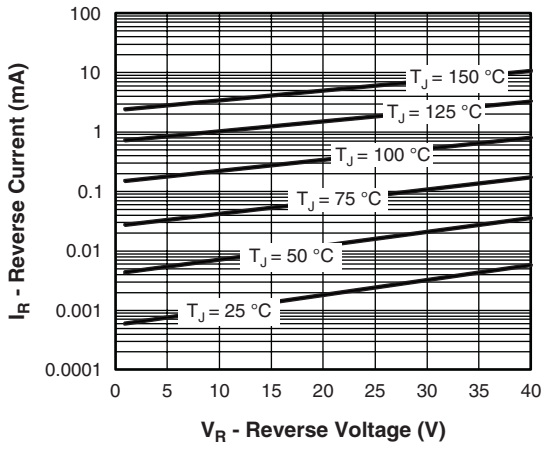


Fig. 2 - Typical Peak Reverse Current vs. Reverse Voltage

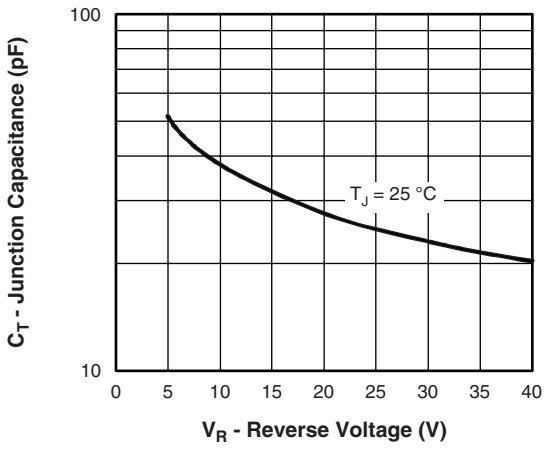


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

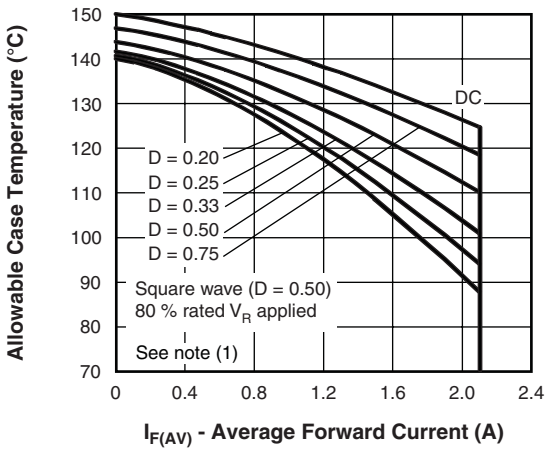


Fig. 4 - Maximum Average Forward Current vs. Allowable Lead Temperature

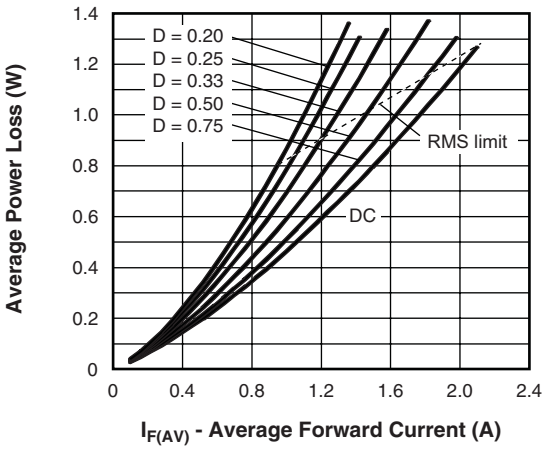


Fig. 5 - Maximum Average Forward Dissipation vs. Average Forward Current

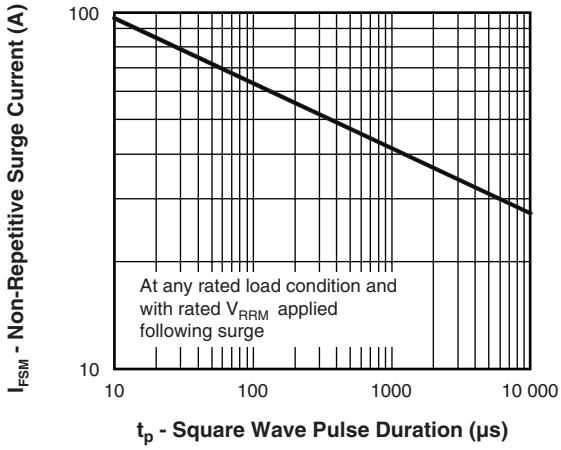


Fig. 6 - Maximum Peak Surge Forward Current vs. Pulse Duration