TAYCHIPST

SCHOTTKY RECTIFIER

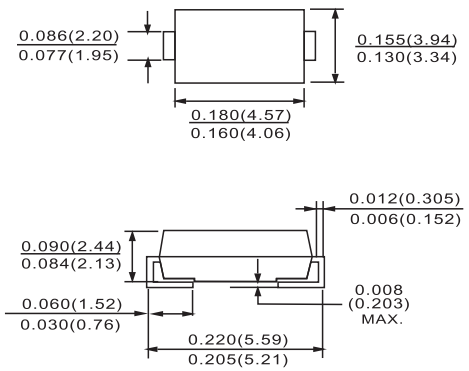
10BQ040

40V 1.0A

FEATURES

- Small footprint, surface mountable
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long-term reliability

DO-214AA(SMB)



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Voltage Ratings

Part number		10BQ040
V_R	Max. DC Reverse Voltage (V)	40
V_{RWM}	Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

	Parameters	10BQ	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current See Fig. 5	1.0	A	50% duty cycle @ T_C = 112°C, rectangular waveform	
I_{FSM}	Max. Peak One Cycle Non - Repetitive Surge Current — see Fig. 7	430	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied.
		45		10ms Sine 0r 6ms Rect. pulse	
E_{AS}	Non - Repetitive Avalanche Energy	18	mJ	T_J = 25°C, I_{AS} = 0.2A, L = 13mH	
I_{AR}	Repetitive Avalanche Current	0.2	A	Current decaying linearly to zero in 1µsec Frequency limited by T_J max. V_A = 1.5 X V_R typical	

Electrical Specifications

Parameters		10BQ	Units		Conditions
V_{FM}	Max. Forward Voltage Drop See Fig. 1 ①	0.53	V	@ 1.0A	T_J = 25°C
		0.70	V	@ 2.0A	
		0.49	V	@ 1.0A	T_J = 125°C
		0.64	V	@ 2.0A	
I_{RM}	Max. Reverse Leakage Current ① See Fig. 2	0.10	mA	T_J = 25°C	V_R = rated V_R
		4.0	mA	T_J = 125°C	
C_T	Max. Junction Capacitance	80	pF	V_R = 5V_{DC}, (test signal range 100KHz to 1MHz) 25°C	
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)	5,300	V/µs		

Thermal-Mechanical Specifications

	Parameters	10BQ	Units	Conditions
T_J	Max.Junction Temperature Range	-55 to 100	°C	
T_{STG}	Max. Storage Temperature Range	-55 to 100	°C	
R_{thJA}	Max. Thermal Resistance, Junction to Ambient	140	°C/W	DC operation — See Fig. 4
R_{thJL}	Max. Thermal Resistance, Junction to Lead ②	36	°C/W	DC operation
wt	Approximate Weight	0.10	g	
	Case Style	SMB		Similar to DO-214AA

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

② Mounted 1 inch square PCB, thermal probe connected to lead 2mm from package

RATINGS AND CHARACTERISTIC CURVES 10BQ040

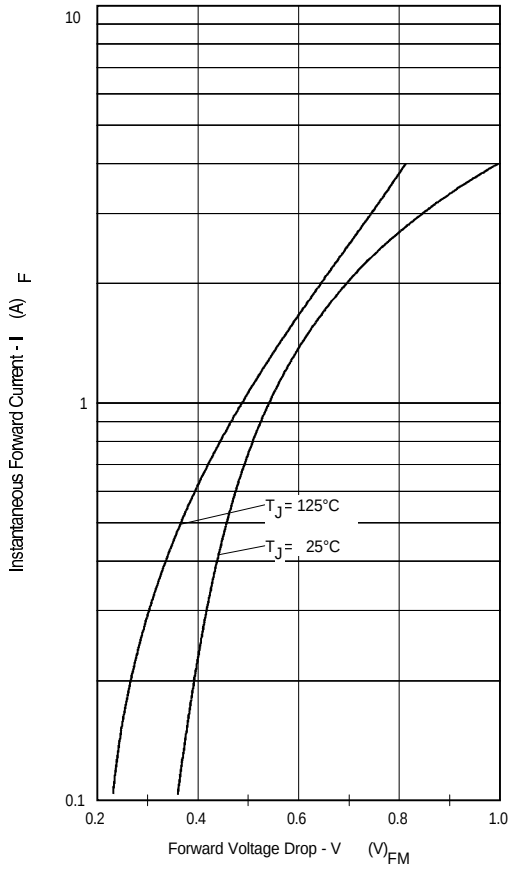


Fig. 1 Max. Forward Voltage Drop Characteristics

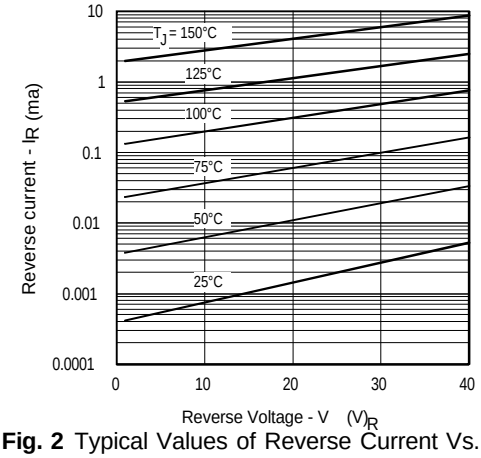


Fig. 2 Typical Values of Reverse Current Vs. Reverse Voltage

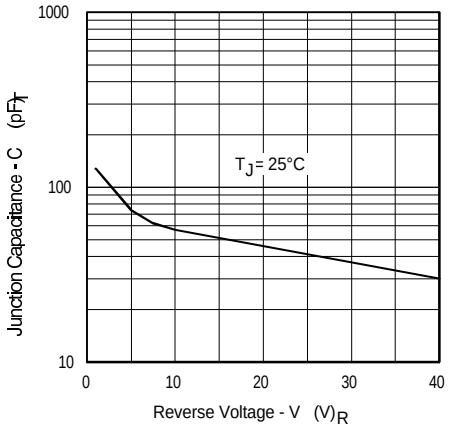


Fig. 3 Typical Junction CapacitanceVs. Reverse Voltage

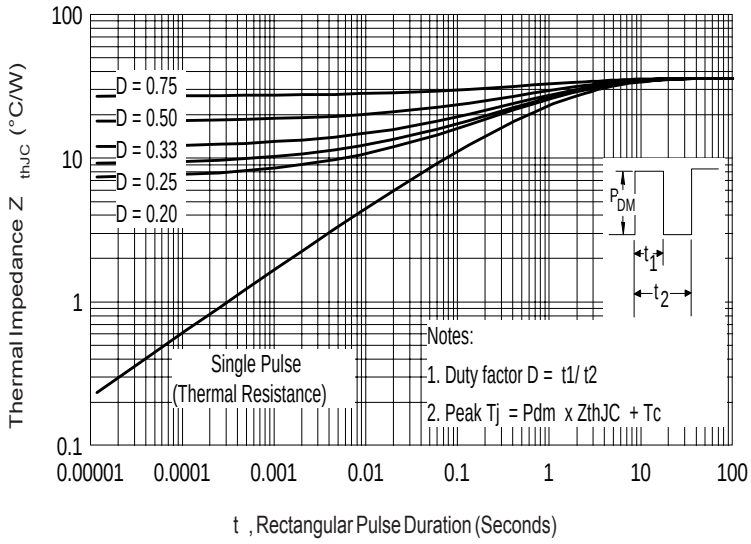


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

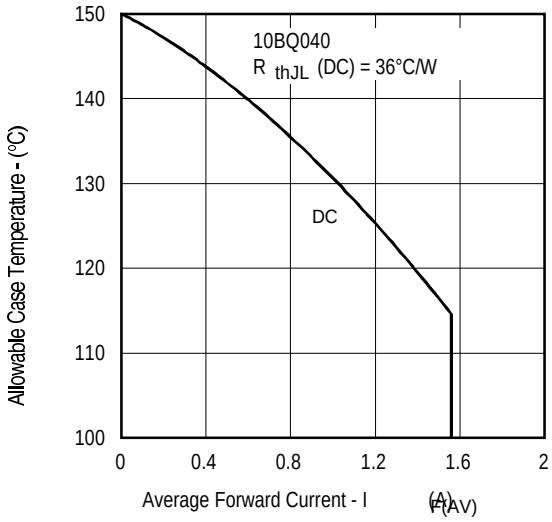


Fig. 5 Max. Allowable Case Temperature Vs. Average Forward Current

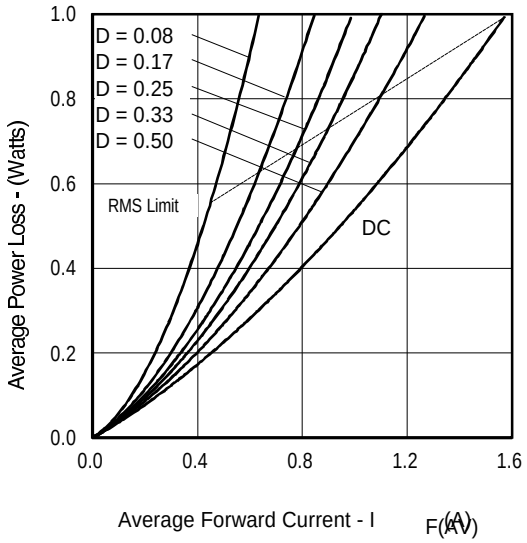


Fig. 6 Forward Power Loss Characteristics

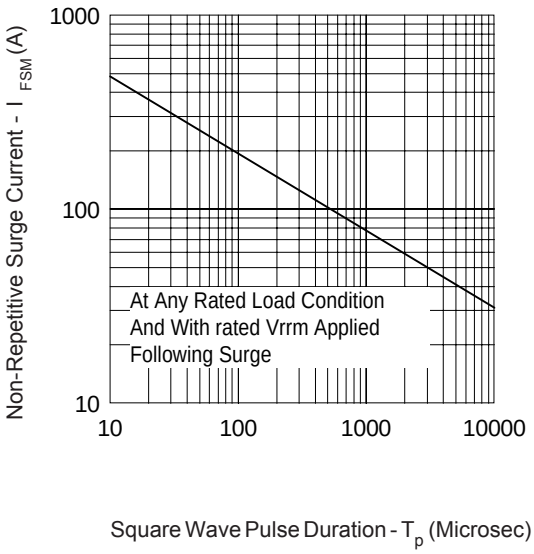


Fig. 7 - Maximum Peak Surge Forward Current Vs. Pulse Duration