

FEATURES

- Low Forward Voltage Drop Low Power Losses
- Low Leakage Current
- High Efficiency
- Heatsink Design



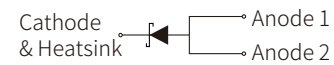
TO-277B



Marking

APPLICATIONS

- For Low Voltage High Frequency Inverters, DC/DC Converters And Polarity Protection And Polarity Protection Application



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	120	V
Maximum RMS Voltage	V_{RMS}	100	V
Maximum DC Blocking Voltage	V_{DC}	120	V
Maximum Average Forward Rectified Current	$I_{F(AV)}^{1)}$	20	A
	$I_{F(AV)}^{2)}$	10	A
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed On Rated Load	I_{FSM}	300	A
Operating Junction And Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$

Note 1: The thermal resistance from junction to ambient, case or mount, on PCB with 30×30mm copper pads, 2 OZ, FR4 PCB.
 2: Mounted on recommended copper pad area free air.

ELECTRICAL CHARACTERISTICS($T_A=25^{\circ}\text{C}$)

Parameter	Test Condition		Symbol	Min.	Typ.	Max.	Unit
Maximum Instantaneous Forward Voltage	I _F =5A, T _A =25°C		V _F		0.58		V
	I _F =15A, T _A =25°C				0.73		
	I _F =20A, T _A =25°C				0.78	0.80	
Maximum DC Reverse Current At Rated DC Blocking Voltage	Rated VR	T _A =25°C	I _R			0.08	mA
		T _A =100°C				10	
Typical Thermal Resistance ¹⁾	Juntion to Ambient		R _{θJA}			100	°C/W

CHARACTERISTIC CURVES

Fig.1 Forward Current Derating Curve

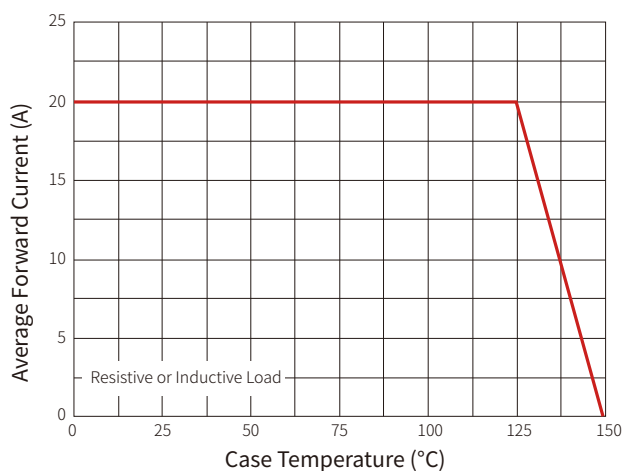


Fig.2 Typical Junction Capacitance

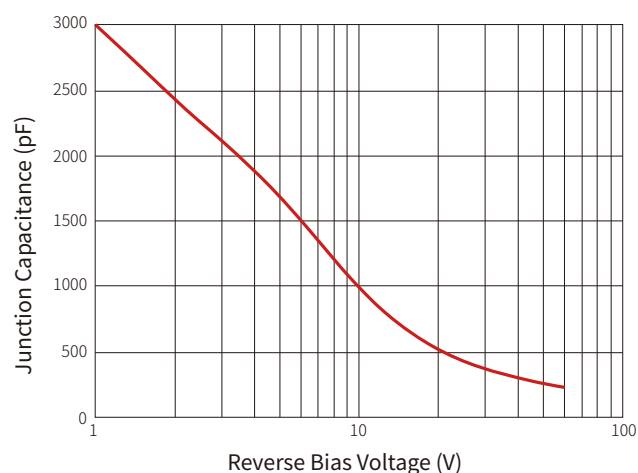
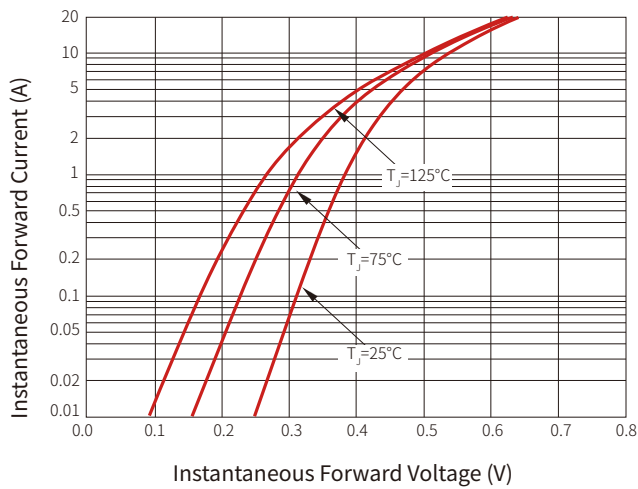
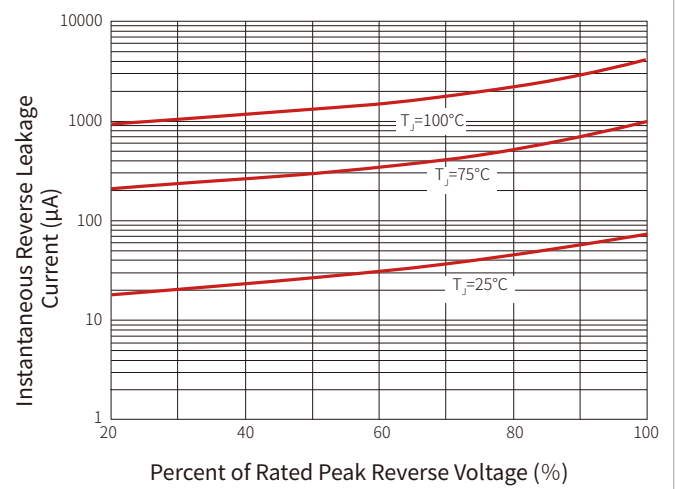
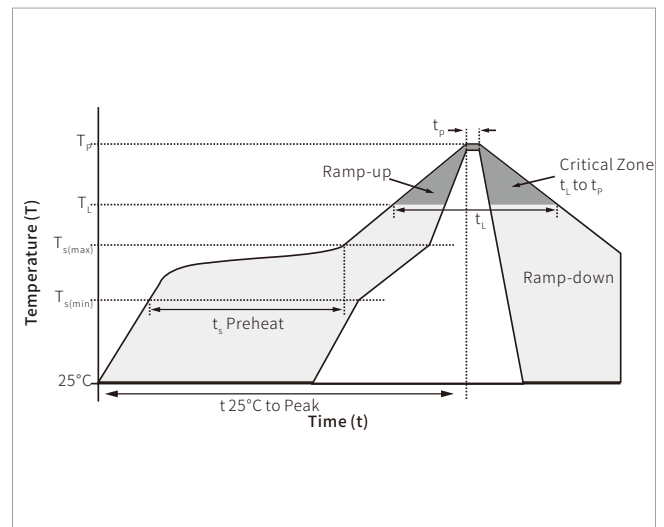


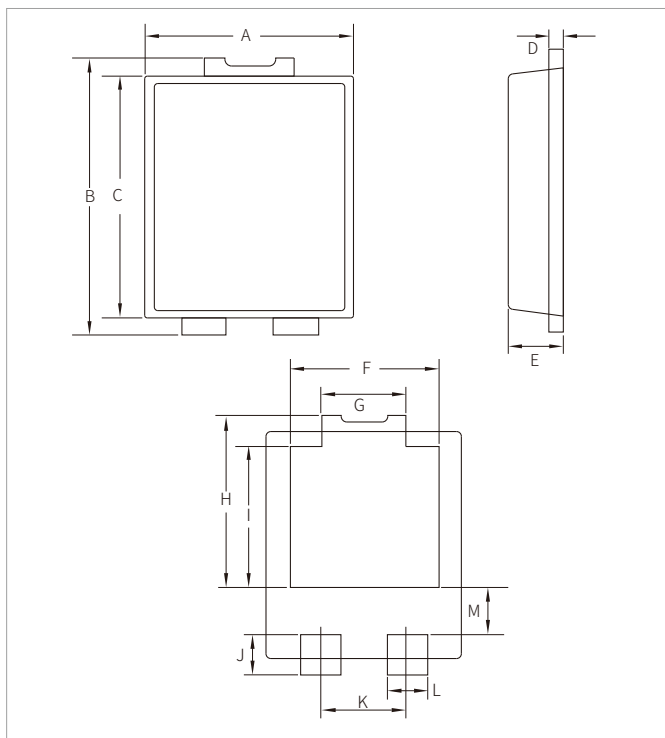
Fig.3 Typical Instantaneous Forward Characteristics

Fig.4 Typical Reverse Leakage Characteristics


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

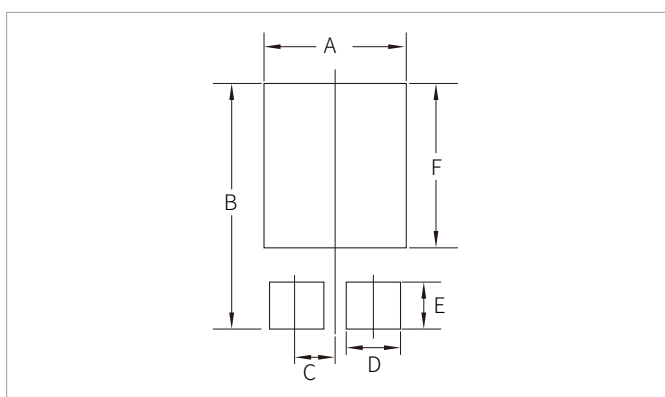


TO-277B PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.00	4.60	0.157	0.181
B	6.20	6.80	0.244	0.268
C	5.50	6.00	0.216	0.236
D	0.25	0.40	0.010	0.016
E	1.05	1.35	0.041	0.053
F	3.00	3.50	0.118	0.138
G	1.70	2.00	0.067	0.079
H	4.20	4.50	0.165	0.177
I	3.52Nom		0.139Nom	
J	0.85	1.10	0.033	0.043
K	1.86Nom		0.073Nom	
L	0.80	1.00	0.031	0.039
M	1.10	1.40	0.043	0.055

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.40	-	0.134	-
B	6.90		0.272	
C	0.95		0.037	
D	1.30	-	0.051	-
E	1.30	-	0.051	-
F	4.60	-	0.181	-

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
ST20120L	TO-277B	5000PCS	13"

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