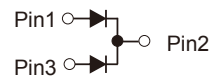


## Features

- Power pack
- Metal silicon junction, majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss, high efficiency
- High current capability, low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder bath temperature 275°C maximum, 10s, per JESD22-B106
- Component in accordance to RoHS 2015/863/EU



**Schematic Diagram**

## Mechanical Data

- Case: JEDEC ITO-220AB
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked
- Mounting torque: 10 in-lbs maximum

## Applications

For use in low voltage, high frequency inverters, DC/DC converters, free wheeling and polarity protection applications.

## Maximum Ratings (Ratings at 25°C ambient temperature unless otherwise specified )

Parameter	Symbol	Value	Unit
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	300	V
Maximum Average Forward Rectified Current (see Fig.1)	Per leg	20.0	A
	Total device	40.0	
Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method at Rated $T_L$ )	$I_{FSM}$	350	A
Peak Repetitive Reverse Current Per Diode at $t_p=2\mu s$ 1KHz	$I_{RRM}$	0.5	A
Isolation Voltage from Terminals to Heatsink $t=1$ min	$V_{AC}$	1500	V
Typical Thermal Resistance <sup>1</sup>	$R_{\theta JC}$	2.0	°C/W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	°C

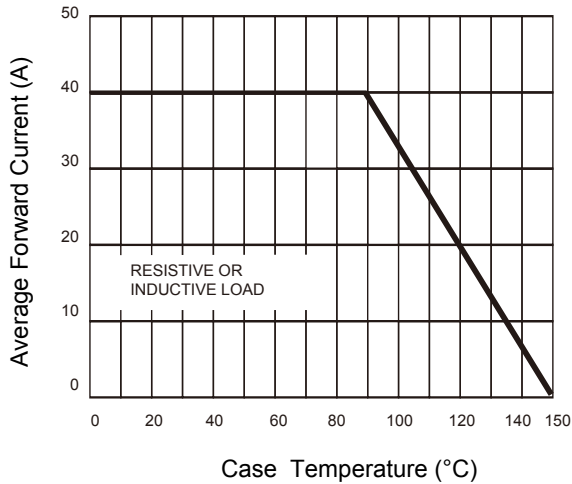
## **Electrical Characteristics** (Per Leg $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Conditions	Typ.	Max.	Unit	
Instaneous Forward Voltage <sup>2</sup>	$V_F$	$I_F=20.0\text{A}$	$T_A=25^\circ\text{C}$	0.90	0.975	V
			$T_A=100^\circ\text{C}$	0.79	-	
			$T_A=125^\circ\text{C}$	0.76	-	
		$I_F=5.0\text{A}$	$T_A=25^\circ\text{C}$	0.75	-	
			$T_A=100^\circ\text{C}$	0.65	-	
			$T_A=125^\circ\text{C}$	0.61	-	
Reverse Current <sup>3</sup>	$I_R$	$V_R=300\text{V}$	$T_A=25^\circ\text{C}$	0.2	5.0	$\mu\text{A}$
			$T_A=100^\circ\text{C}$	-	0.5	mA
			$T_A=125^\circ\text{C}$	-	1.5	
Typical Junction Capacitance	$C_J$	4V,1MHz	210		pF	

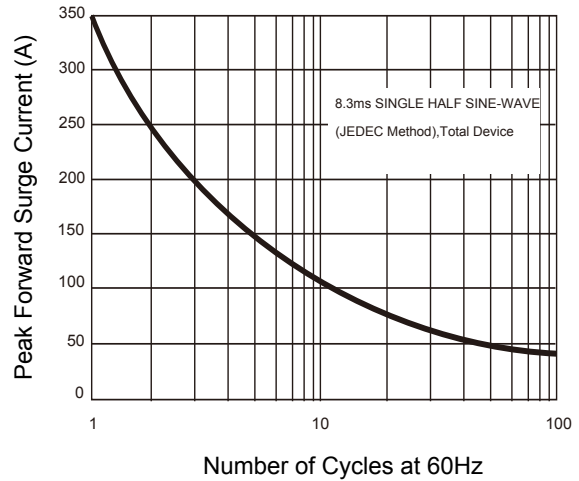
Notes:

1. Thermal resistance from junction to case, total device
2. Pulse test: 300 $\mu\text{s}$  pulse width, 1% duty cycle
3. Pulse test: pulse width  $\leq$  40ms

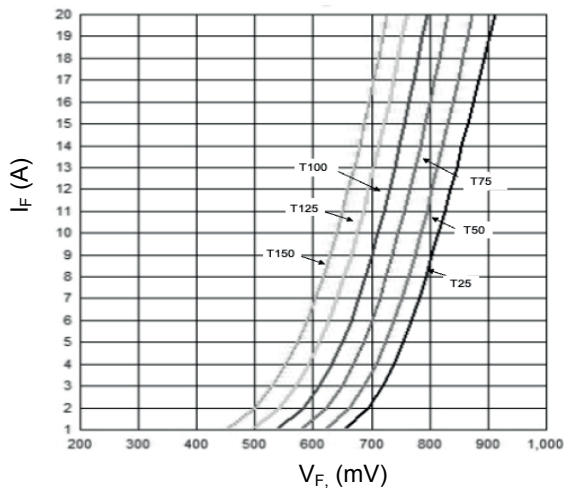
## Ratings and Characteristics Curves



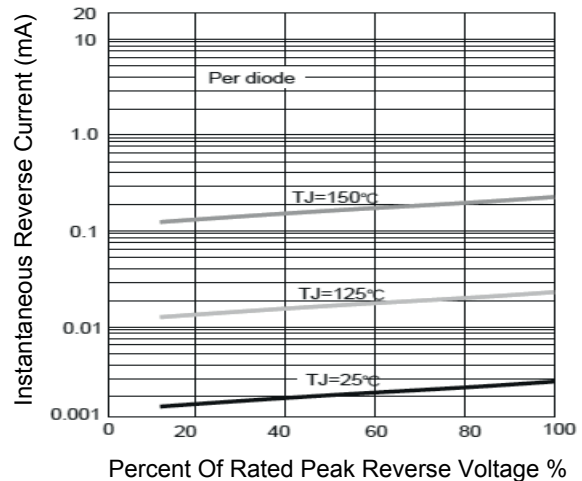
**Figure 1. Forward Current Derating Curve**



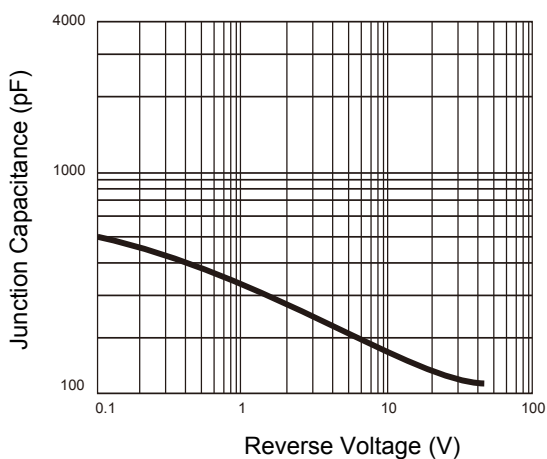
**Figure 2. Maximum Non-Repetitive Peak Forward Surge Current**



**Figure 3. Typical Instantaneous Forward Characteristics**

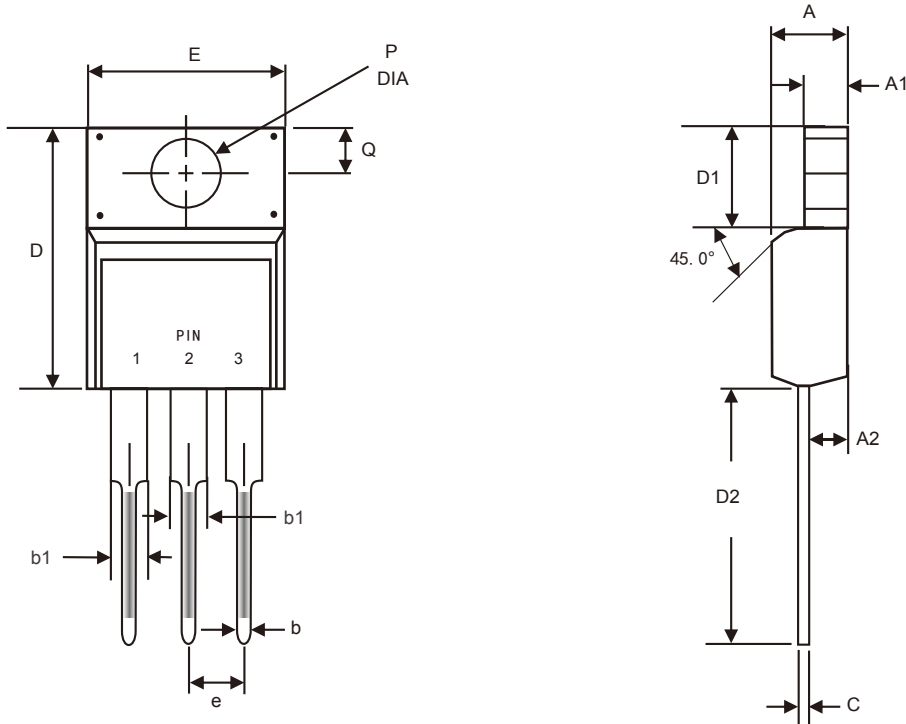


**Figure 4. Typical Reverse Characteristics**



**Figure 5. Typical Junction Capacitance**

## Package Outline Dimensions (ITO-220AB)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.49	4.89	0.177	0.192
A1	2.28	2.88	0.090	0.113
A2	2.50	2.90	0.098	0.114
b	0.67	0.93	0.026	0.037
b1	1.10	1.43	0.043	0.056
C	0.37	0.63	0.015	0.025
D	15.40	16.40	0.606	0.646
D1	6.45	6.85	0.254	0.270
D2	12.50	13.50	0.492	0.531
e	2.44	2.64	0.096	0.104
E	9.91	10.41	0.390	0.410
Q	3.05	3.45	0.120	0.136
P	3.15	3.45	0.124	0.132

## Order Information

Device	Package	Marking	Quantity	HSF Status
GSRF40300CT	ITO-220AB	SRF40300CT	50pcs / Tube	RoHS Compliant