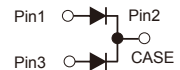
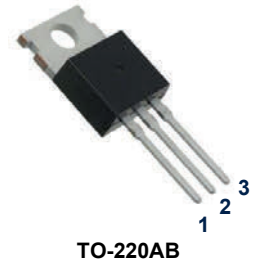


Features

- 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 TO-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
Typical Thermal Resistance ¹	$R_{\theta JC}$	0.9	°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 note)

Parameter	Symbol	Test Conditions	Typ.	Max.	Unit	
Instaneous Forward Voltage ²	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 ³	I_R	$V_R=300\text{V}$	$T_A=25^\circ\text{C}$	0.2	5.0	μA
			$T_A=100^\circ\text{C}$	-	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 μs pulse width, 1% duty cycle
3. Pulse test: pulse width \leq 40ms

Ratings and Characteristics Curves

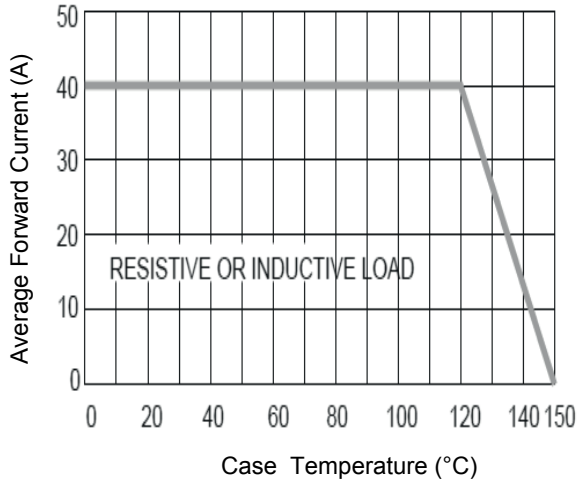


Figure 1. Forward Current Derating Curve

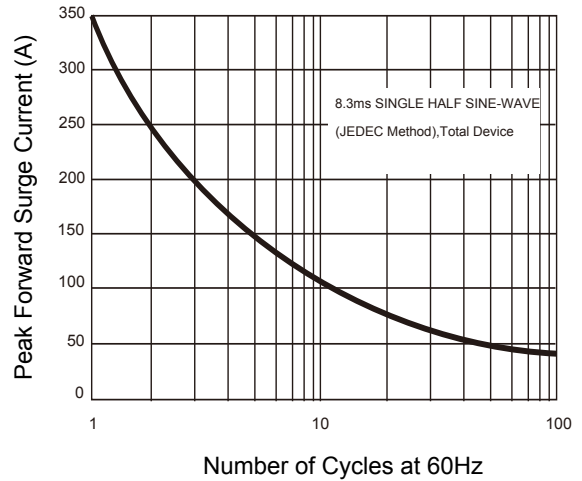


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

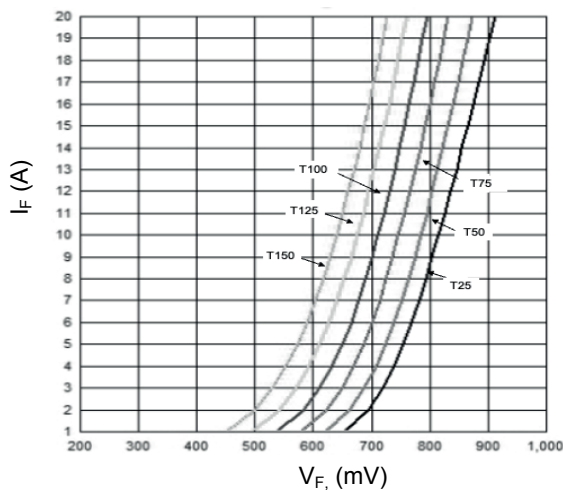


Figure 3. Typical Instantaneous Forward Characteristics

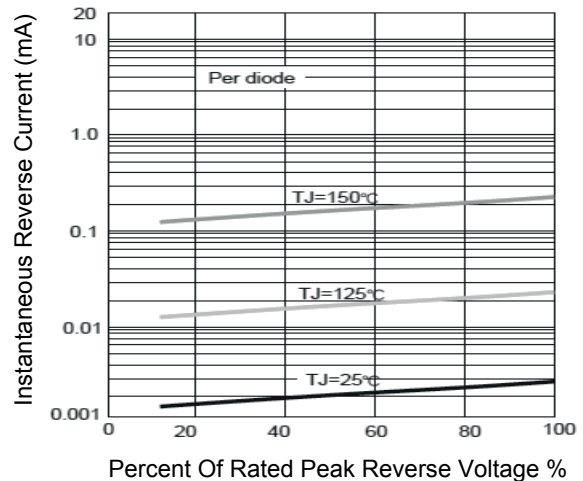


Figure 4. Typical Reverse Characteristics

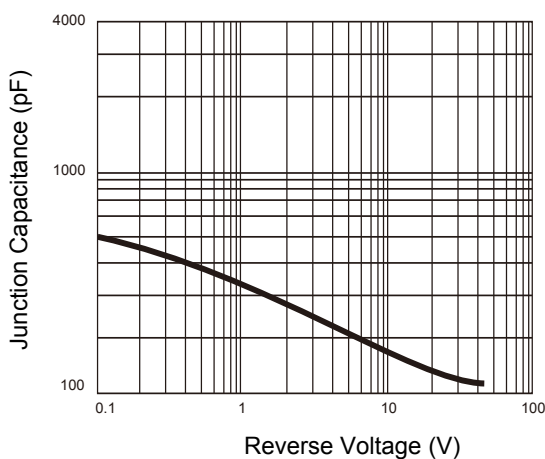
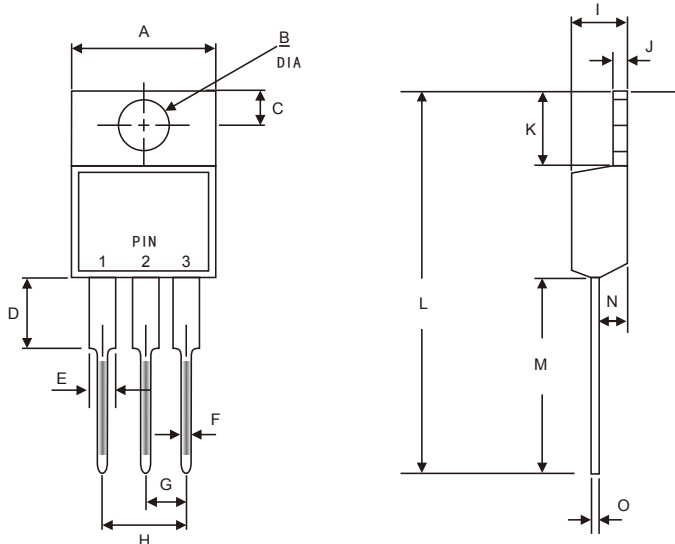


Figure 5. Typical Junction Capacitance

Package Outline Dimensions (TO-220AB)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	9.91	10.41	0.390	0.410
B	3.74	4.10	0.147	0.161
C	2.60	2.90	0.102	0.114
D	3.50	4.05	0.138	0.159
E	1.20	1.34	0.047	0.053
F	0.68	0.94	0.027	0.037
G	2.41	2.67	0.095	0.105
H	4.88	5.28	0.192	0.208
I	4.44	4.70	0.175	0.185
J	1.14	1.39	0.045	0.055
K	6.20	7.20	0.244	0.283
L	28.10	29.50	1.106	1.161
M	13.10	14.22	0.516	0.560
N	2.50	2.90	0.098	0.114
O	0.35	0.58	0.014	0.023

Order Information

Device	Package	Marking	Quantity	HSF Status
GSR40300CT	TO-220AB	SR40300CT	50pcs / Tube	RoHS Compliant