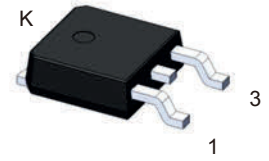


## Features

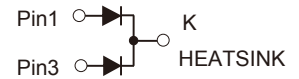
- Power pack
- Metal silicon junction, majority carrier conduction
- Guard ring for over voltage protection
- Low power loss, high efficiency
- High current capability, low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL Level 1, per J-STD-020, LF MAX peak of 245°C
- Component in accordance to RoHS 2011/65/EU



TO-252

## Mechanical Data

- Case: JEDEC TO-252
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked



Schematic Diagram

## 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	$V_{RRM}$	100	V
Maximum Average Forward Rectified Current (see Fig.1)	Per leg	10.0	A
	Total device	20.0	
Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method at Rated $T_L$ )	$I_{FSM}$	200	A
Peak Repetitive Reverse Current per Diode at $t_p=2\mu s$ 1KHz	$I_{RRM}$	0.5	A
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	°C
Typical Thermal Resistance <sup>1</sup>	$R_{\theta JC}$	2.5	°C/W

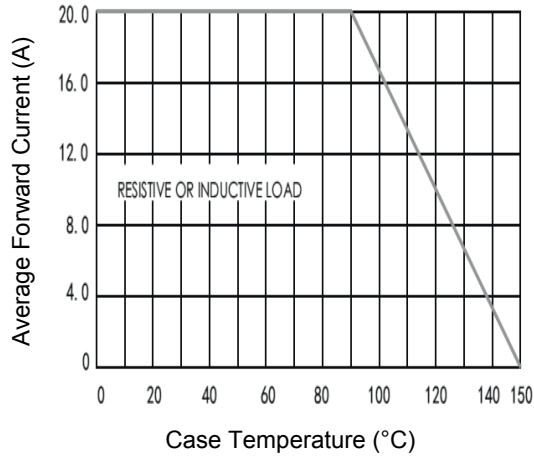
## Electrical Characteristics ( $T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Test Conditions	Typ.	Max.	Unit	
Instaneous Forward Voltage Per Leg <sup>2</sup>	$V_F$	$I_F=10.0A$	$T_A=25^\circ C$	0.80	0.85	V
			$T_A=100^\circ C$	0.70	-	
			$T_A=125^\circ C$	0.66	-	
		$I_F=5.0A$	$T_A=25^\circ C$	0.53	0.57	
			$T_A=100^\circ C$	0.51	-	
			$T_A=125^\circ C$	0.50	-	
Reverse Current <sup>3</sup>	$I_R$	$V_R=100V$	$T_A=25^\circ C$	-	20	$\mu A$
			$T_A=100^\circ C$	-	1	mA
			$T_A=125^\circ C$	-	3	
Typical Junction Capacitance	$C_J$	4V, 1MHz	260		pF	

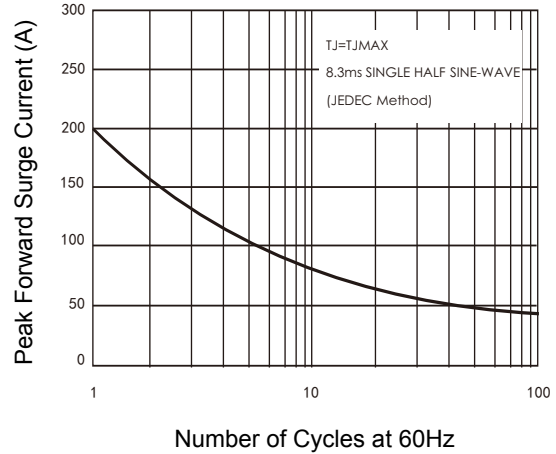
Notes:

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

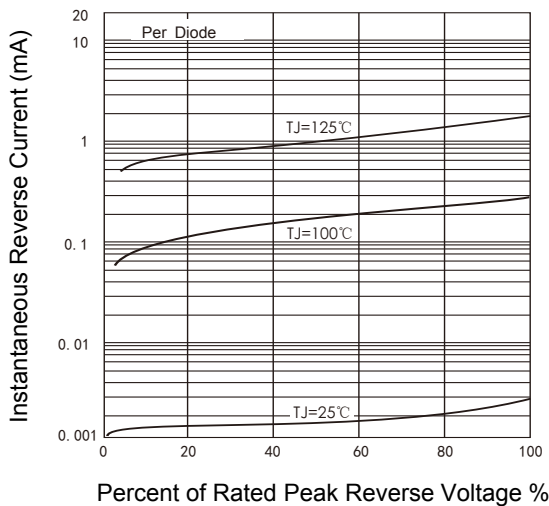
## Ratings and Characteristics Curves



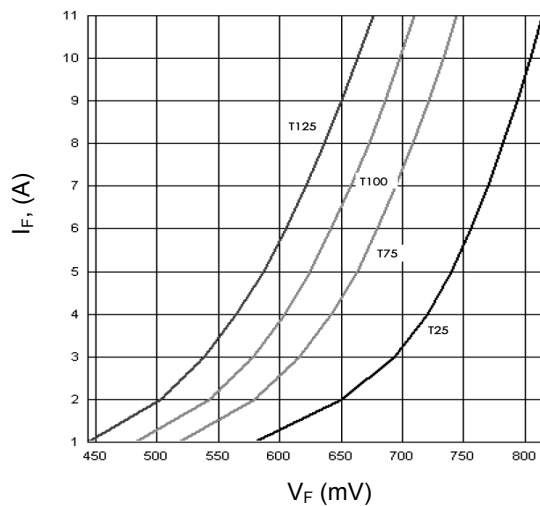
**Figure 1. Forward Current Derating Curve**



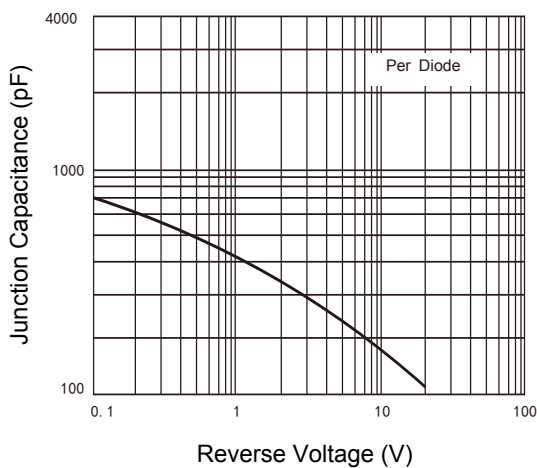
**Figure 2. Maximum Non-Repetitive Peak Forward Surge Current**



**Figure 3. Typical Reverse Characteristics**

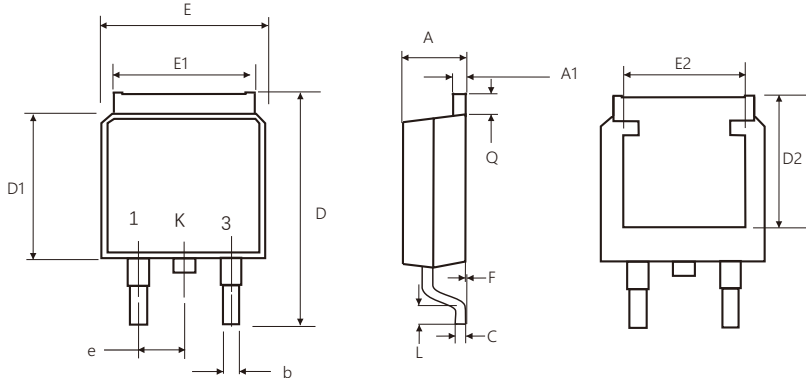


**Figure 4. Typical Instantaneous Forward Characteristics**



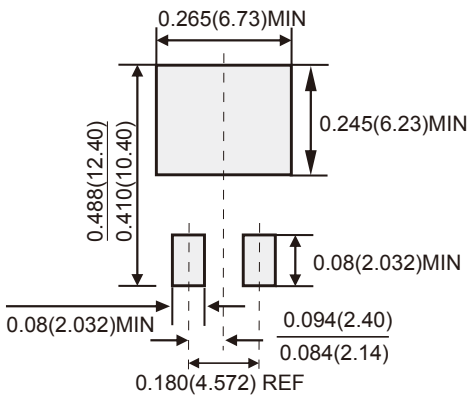
**Figure 5. Typical Junction Capacitance**

## Package Outline Dimensions (TO-252)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.15	2.65	0.085	0.104
A1	0.42	0.58	0.017	0.023
e	2.14	2.40	0.084	0.094
b	0.64	0.89	0.025	0.035
Q	0.88	1.27	0.035	0.050
C	0.42	0.58	0.017	0.023
D	9.00	10.41	0.354	0.410
D1	5.60	6.22	0.220	0.245
E	6.20	6.73	0.244	0.265
E1	5.21	5.46	0.205	0.215
L	1.00	-	0.039	-
F	0.01	0.11	0.000	0.004
D2	5.11	5.58	0.201	0.220
E2	4.31	5.33	0.170	0.210

## Recommended Pad Layout



Note:

1. Unit in inches (millimeters)
2. Pad layout for reference

## Order Information

Device	Package	Marking	Quantity	HSF Status
GSR20100M1	TO-252	SR20100M1	2,500pcs / Reel	RoHS Compliant