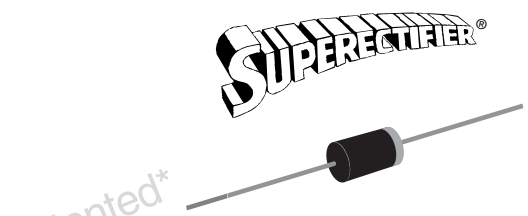
Glass Passivated Junction Rectifier



Case Style GP20

*Glass-platisc encapsulation technique is covered by Patent No. 3,996,602, brazed-lead assembly by Patent No. 3,930,306

FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, I_R less than 0.1 µA
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for both consumer and automotive applications.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
V_{RRM}	50 V to 600 V
I_{FSM}	65 A
V_F	1.2 V, 1.1 V
I_R	5.0 µA
T_J max.	175 °C

MECHANICAL DATA

Case: GP20, molded epoxy over glass body

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	GP20A	GP20B	GP20D	GP20G	GP20J	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at T_A = 55 °C	$I_{F(AV)}$	2.0					A
Peak forward surge current 8.3 ms single half sine wave superimposedon rated load	I_{FSM}	65					A
Maximum full load reverse current, full cycle average, 0.375" (9.5 mm) lead length at T_A = 55 °C	$I_{R(AV)}$	100					µA
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175					°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONs		SYMBOL	GP20A	GP20B	GP20D	GP20G	GP20J	UNIT
Maximum instantaneous forward voltage	2.0 A		V_F	1.2		1.1			V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R	5.0					µA
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	5.0					µs
Typical junction capacitance	4.0 V, 1 MHz		C_J	40					pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	GP20A	GP20B	GP20D	GP20G	GP20J	UNIT
Typical thermal resistance (1)	$R_{\theta JA}$ $R_{\theta JL}$	25 10					°C/W

Note:

(1) Thermal resistance from junction to ambient and from junction to lead at 0.375" (9.5 mm) lead length, P.C.B. mounted

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
GP20J-E3/54	1.013	54	1400	13" diameter paper tape and reel
GP20J-E3/73	1.013	73	1000	Ammo pack packaging
GP20JHE3/54 (1)	1.013	54	1400	13" diameter paper tape and reel
GP20JHE3/73 (1)	1.013	73	1000	Ammo pack packaging

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

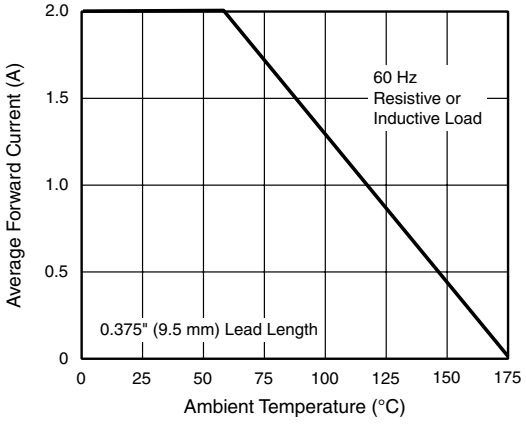


Figure 1. Forward Current Derating Curve

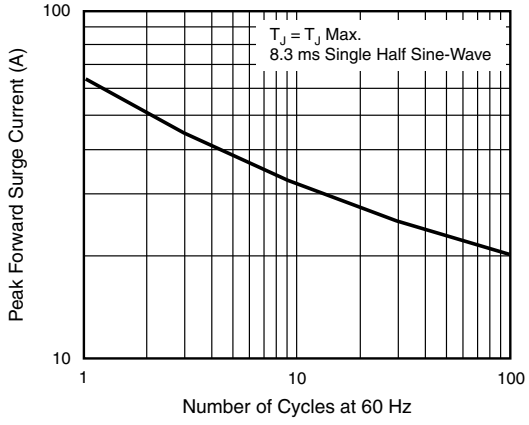


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

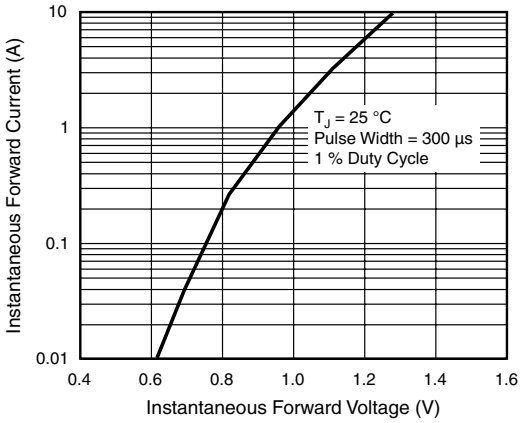


Figure 3. Typical Instantaneous Forward Characteristics

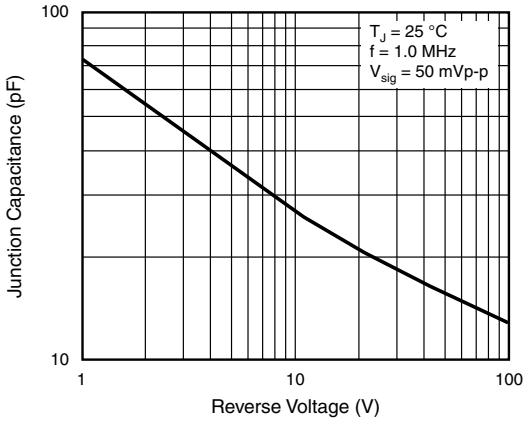


Figure 5. Typical Junction Capacitance

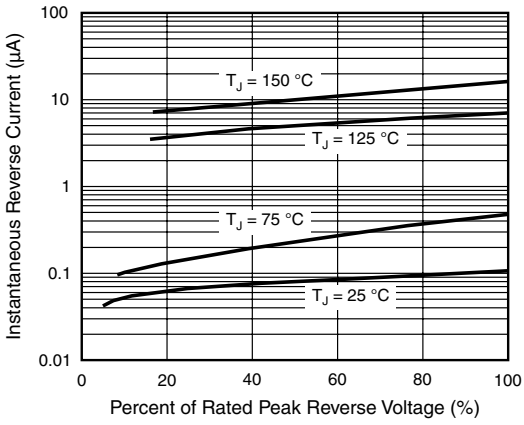


Figure 4. Typical Reverse Characteristics

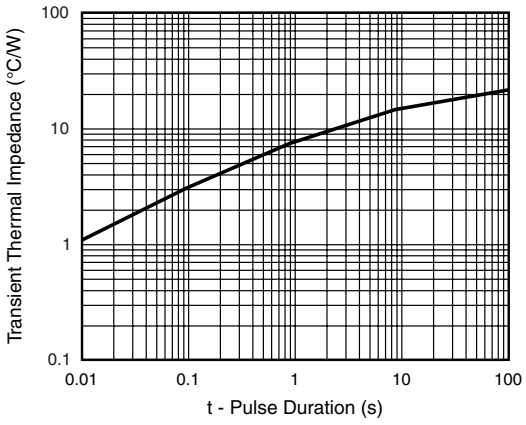
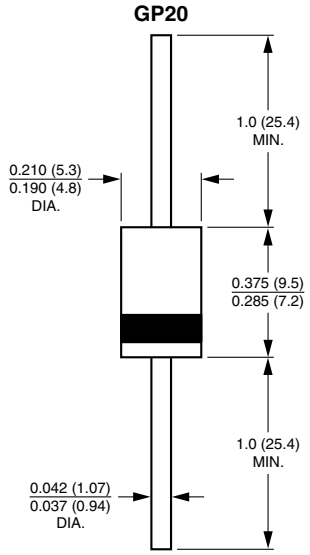


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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