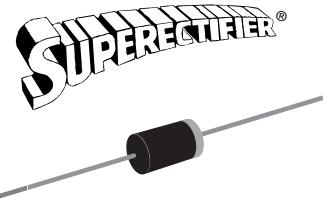


## Glass Passivated Junction Fast Switching Rectifier


**Case Style GP20**
*Patented\**

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


**RoHS  
COMPLIANT**

### FEATURES

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Fast switching for high efficiency
- Low leakage current, typical  $I_R$  less than 0.2  $\mu$ A
- 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

### TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

### 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

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2.0 A
$V_{RRM}$	50 V to 600 V
$I_{FSM}$	80 A
$t_{rr}$	150 ns, 250 ns
$V_F$	1.3 V
$I_R$	5.0 $\mu$ A
$T_J$ max.	175 °C

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

PARAMETER	SYMBOL	RGP20A	RGP20B	RGP20D	RGP20G	RGP20J	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 superimposed on rated load	$I_{FSM}$	80					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					$\mu$ A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175					°C

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	RGP20A	RGP20B	RGP20D	RGP20G	RGP20J	UNIT
Maximum instantaneous forward voltage	2.0 A	$V_F$			1.3			V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25^\circ\text{C}$ $T_A = 125^\circ\text{C}$	$I_R$			5.0 100			$\mu\text{A}$
Maximum reverse recovery time	$I_F = 0.5 \text{ A}$ , $I_R = 1.0 \text{ A}$ , $I_{rr} = 0.25 \text{ A}$	$t_{rr}$		150		250		ns
Typical junction capacitance	4.0 V, 1 MHz	$C_J$		35				pF

 **THERMAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	RGP20A	RGP20B	RGP20D	RGP20G	RGP20J	UNIT
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$		22				$^\circ\text{C}/\text{W}$

**Note:**

(1) Thermal resistance from junction to ambient 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
RGP20J-E3/54	1.013	54	1400	13" diameter paper tape and reel
RGP20J-E3/73	1.013	73	1000	Ammo pack packaging
RGP20JHE3/54 <sup>(1)</sup>	1.013	54	1400	13" diameter paper tape and reel
RGP20JHE3/73 <sup>(1)</sup>	1.013	73	1000	Ammo pack packaging

**Note:**

(1) Automotive grade AEC Q101 qualified

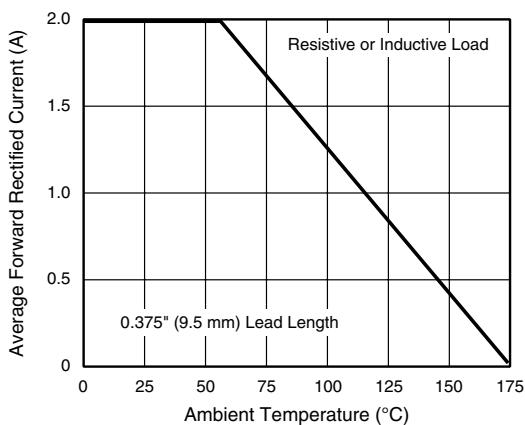
**RATINGS AND CHARACTERISTICS CURVES** $(T_A = 25^\circ\text{C}$  unless otherwise noted)

Figure 1. Forward Current Derating Curve

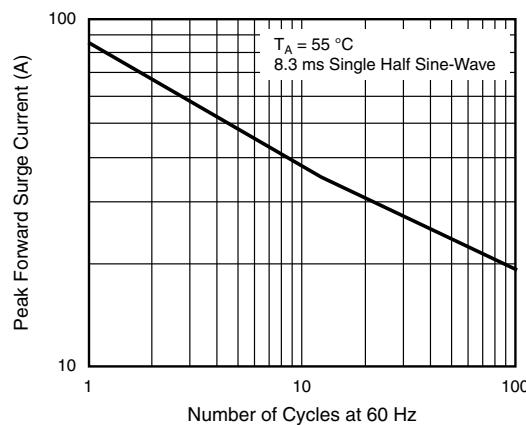


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

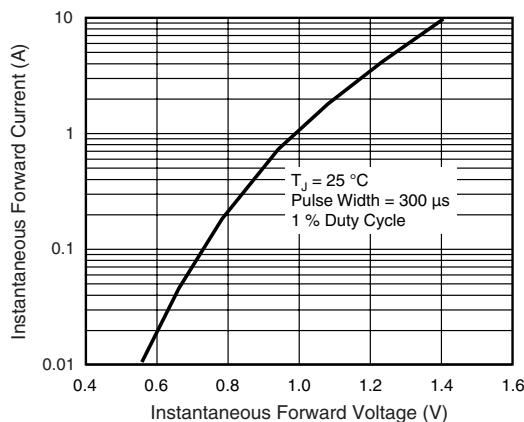


Figure 3. Typical Instantaneous Forward Characteristics

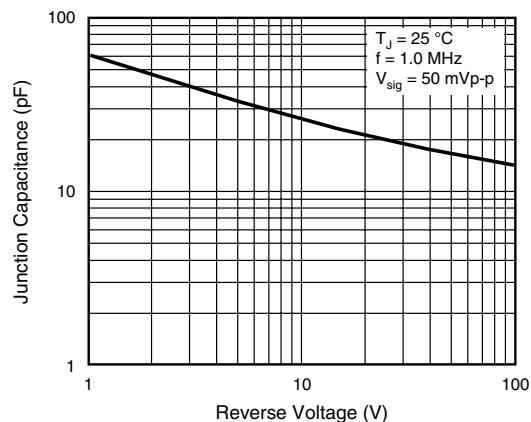


Figure 5. Typical Junction Capacitance

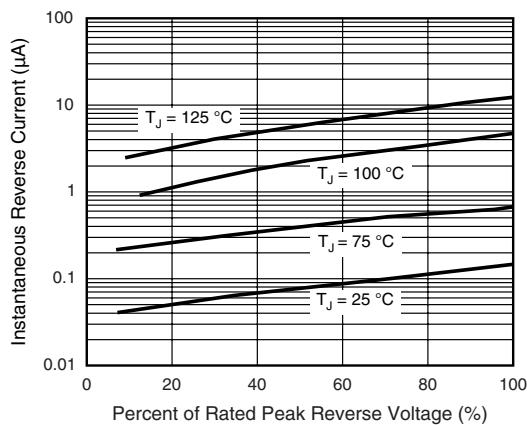


Figure 4. Typical Reverse Characteristics

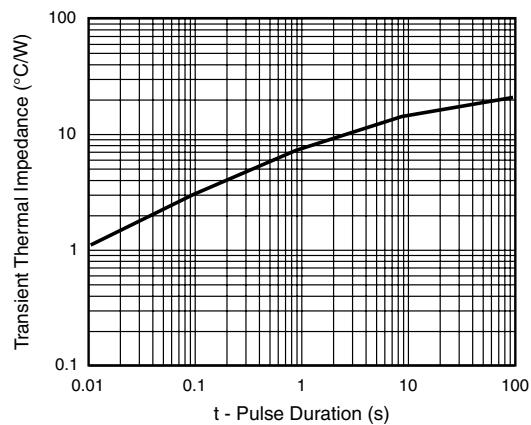
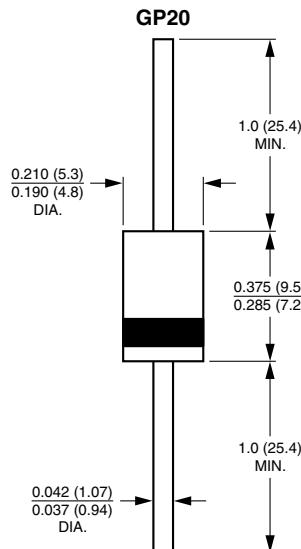


Figure 6. Typical Transient Thermal Impedance

#### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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