

Glass Passivated Ultrafast Rectifier


DO-204AC (DO-15)

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

FEATURES

- Cavity-free glass-passivated junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- High forward surge capability
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in high frequency rectification and free-wheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

MECHANICAL DATA

Case: DO-204AC, molded epoxy over glass body

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

Polarity: Color band denotes cathode end

MAJOR RATINGS AND CHARACTERISTICS

$I_{F(AV)}$	2.0 A
V_{RRM}	50 V to 400 V
I_{FSM}	75 A
t_{rr}	50 ns
V_F	0.95 V, 1.25 V
$T_j \text{ max.}$	150 °C

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	EGP20A	EGP20B	EGP20C	EGP20D	EGP20F	EGP20G	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	210	280	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	300	400	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55 \text{ °C}$	$I_{F(AV)}$	2.0						A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	75						A
Operating and storage temperature range	T_J, T_{STG}	- 65 to + 150						°C



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)									
PARAMETER	TEST CONDITIONS	SYMBOL	EGP20A	EGP20B	EGP20C	EGP20D	EGP20F	EGP20G	UNIT
Maximum instantaneous forward voltage	at 2.0 A	V_F	0.95				1.25		V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$	I_R	5.0 100						μA
Maximum reverse recovery time	at $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $t_{rr} = 0.25\text{ A}$	t_{rr}	50						ns
Typical junction capacitance	at 4.0 V, 1 MHz	C_J	70				45		pF

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	EGP20A	EGP20B	EGP20C	EGP20D	EGP20F	EGP20G	UNIT	
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$ $R_{\theta JL}$	40 15						$^\circ\text{C/W}$	

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
EGP20D-E3/54	0.452	54	4000	13" Diameter Paper Tape & Reel
EGP20D-E3/73	0.452	73	2000	Ammo Pack Packaging
EGP20DHE3/54 ⁽¹⁾	0.452	54	4000	13" Diameter Paper Tape & Reel
EGP20DHE3/73 ⁽¹⁾	0.452	73	2000	Ammo Pack Packaging

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

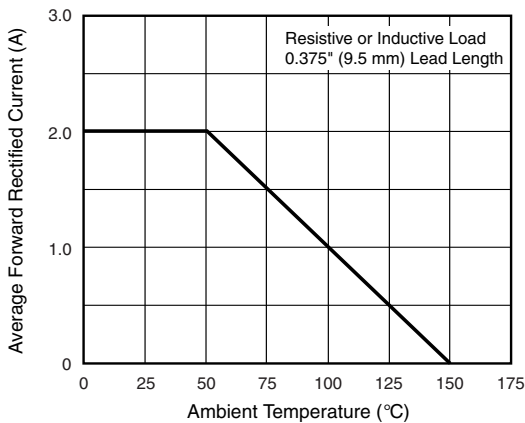


Figure 1. Maximum Forward Current Derating Curve

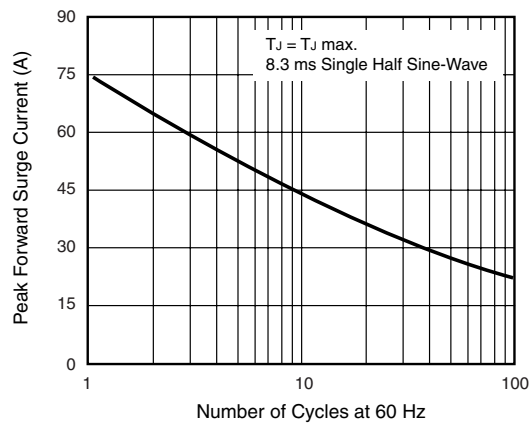


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

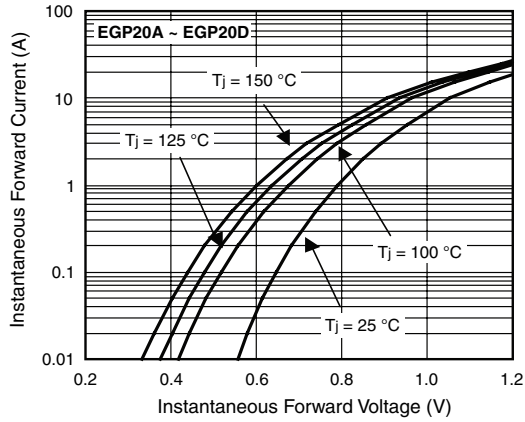


Figure 3. Typical Instantaneous Forward Characteristics

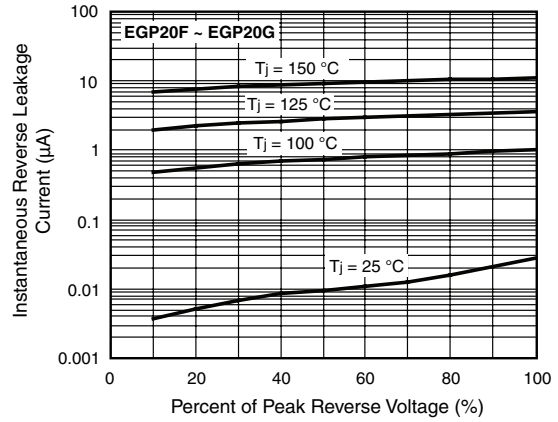


Figure 6. Typical Reverse Leakage Characteristics

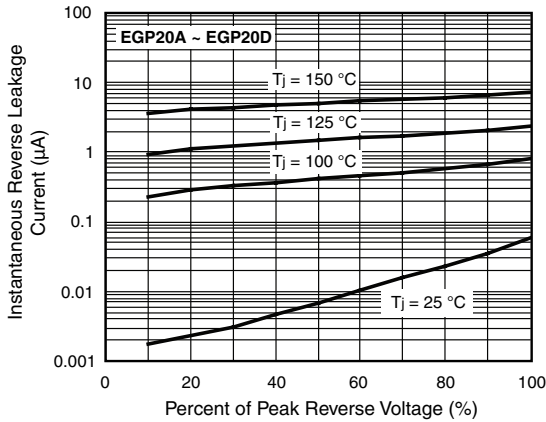


Figure 4. Typical Reverse Leakage Characteristics

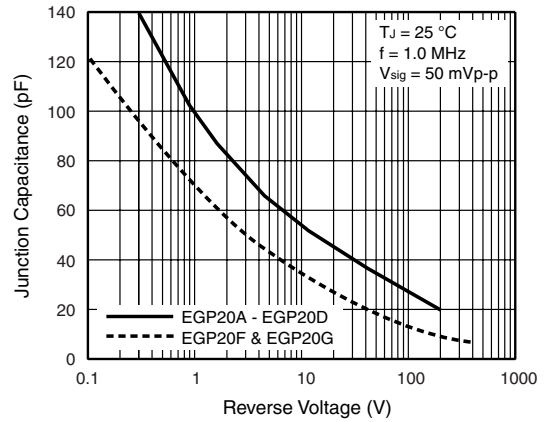


Figure 7. Typical Junction Capacitance

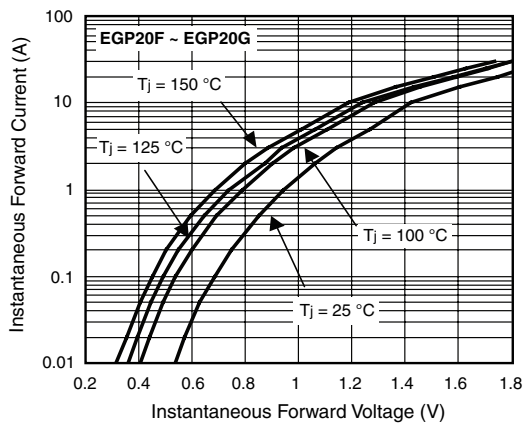


Figure 5. Typical Instantaneous Forward Characteristics

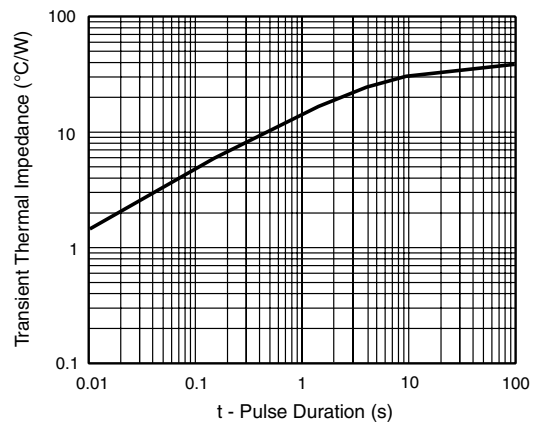
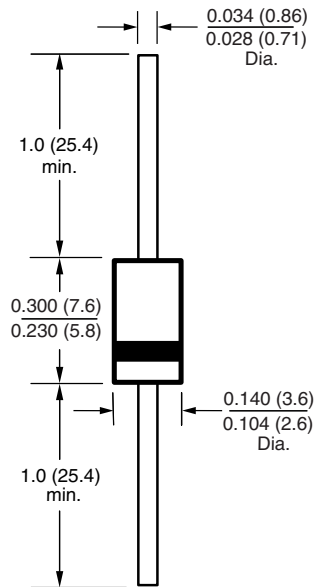


Figure 8. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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