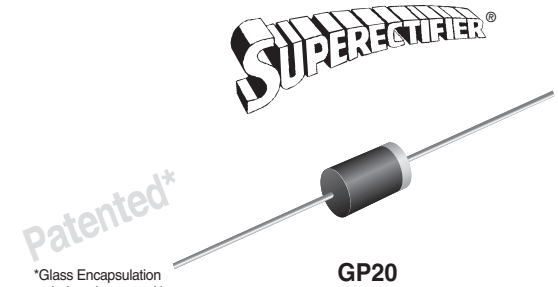
Glass Passivated Ultrafast Rectifier

Major Ratings and Characteristics

$I_{F(AV)}$	5.0 A
V_{RRM}	50 V to 400 V
I_{FSM}	150 A
t_{rr}	50 ns
V_F	0.95 V, 1.25 V
T_j max.	150 °C



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

GP20

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

Typical Applications

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer 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-002B and JESD22-B102D

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

Polarity: Color band denotes cathode end

Maximum Ratings

T_A = 25 °C unless otherwise specified

Parameter	Symbol	EGP50A	EGP50B	EGP50C	EGP50D	EGP50F	EGP50G	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_L = 55 °C	$I_{F(AV)}$	5						A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	150						A
Operating and storage temperature range	T_J,T_{STG}	- 65 to + 150						°C

Electrical Characteristics

T_A = 25 °C unless otherwise specified

Parameter	Test condition	Symbol	EGP50A	EGP50B	EGP50C	EGP50D	EGP50F	EGP50G	Unit
Maximum instantaneous forward voltage	at 5.0 A	V_F	0.95				1.25		V
Maximum DC reverse current at rated DC blocking voltage	T_A = 25 °C T_A = 125 °C	I_R	5.0 50						µA
Maximum reverse recovery time	at I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A	t_{rr}	50						ns
Typical junction capacitance	at 4.0 V, 1 MHz	C_J	95				75		pF

Thermal Characteristics

T_A = 25 °C unless otherwise specified

Parameter	Symbol	EGP50A	EGP50B	EGP50C	EGP50D	EGP50F	EGP50G	Unit
Typical thermal resistance (1)	$R_{\theta JA}$ $R_{\theta JL}$	20 5.0						°C/W

Notes:

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

Ratings and Characteristics Curves

(T_A = 25 °C unless otherwise noted)

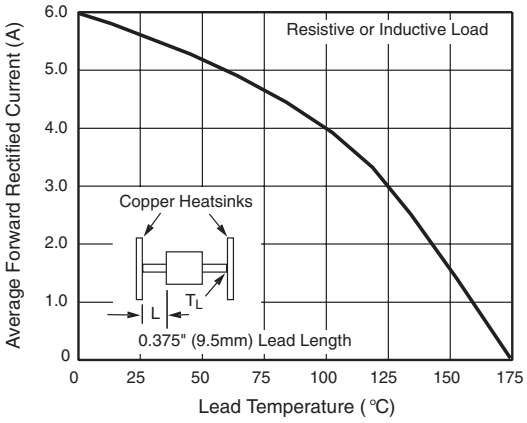


Figure 1. Maximum Forward Current Derating Curve

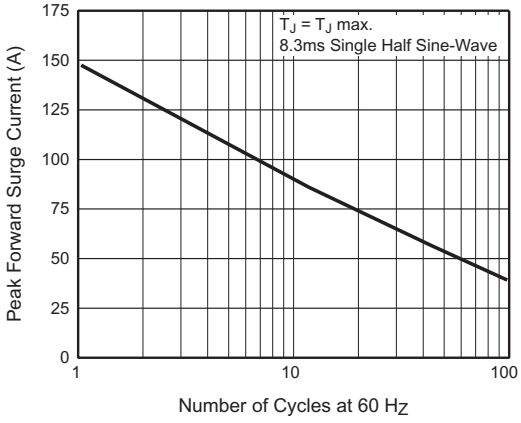


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

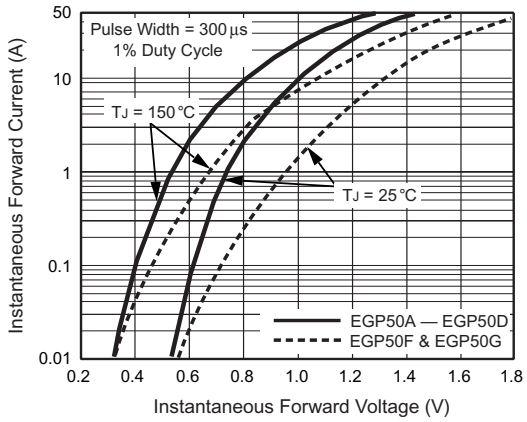


Figure 3. Typical Instantaneous Forward Characteristics

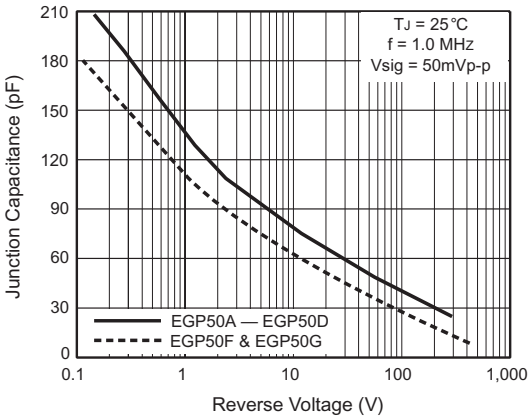


Figure 5. Typical Junction Capacitance

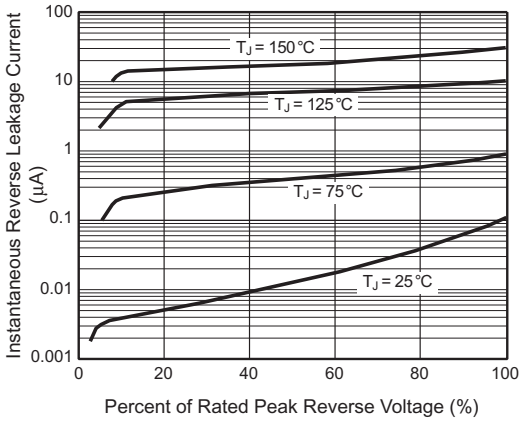


Figure 4. Typical Reverse Leakage Characteristics

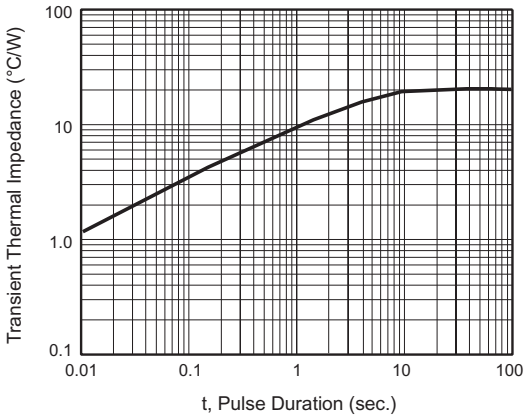


Figure 6. Typical Transient Thermal Impedance

Package outline dimensions in inches (millimeters)

