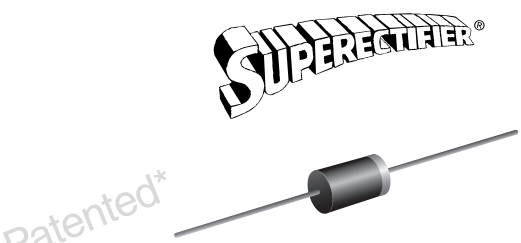
Glass Passivated Ultrafast Rectifier



DO-204AL (DO-41)

* 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
- Ideal for printed circuit boards
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Pb e3 **RoHS** COMPLIANT

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	600 V
I_{FSM}	30 A
t_{rr}	30 ns
V_F	1.3 V
T_J max.	175 °C

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: DO-204AL, molded plastic over glass body
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS compliant, commercial grade
Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

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

PARAMETER	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	600	V
Maximum RMS voltage	V_{RMS}	420	V
Maximum DC blocking voltage	V_{DC}	600	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at T_L = 85 °C (fig. 1)	$I_{F(AV)}$	1.0	A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	30	A
Non repetitive peak reverse energy	E_{RSM} (1)	5.0	mJ
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175	°C

Note
(1) Peak reverse energy measured with 8/20 µs surge

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**VALUE**	**UNIT**
Minimum avalanche breakdown voltage	100 µA		V_{BR}	600	V
Maximum instantaneous forward voltage	1.0 A	T_J = 25 °C	V_F	2.5	V
		T_J = 175 °C		1.3	
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R	5.0	µA
		T_A = 165 °C		150	
Max. reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	30	ns
Maximum junction capacitance	4.0 V, 1 MHz		C_J	45	pF
Maximum reverse recovery current slope	I_F = 1 A, V_R = 30 V, dI_f/dt = - 1 A/µs		dI_r/dt	7.0	A/µs

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	70	°C/W
	$R_{\theta JL}$ (2)	16	

Notes

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, mounted on P.C.B. with 0.5" x 0.5" (12 mm x 12 mm) copper pads

(2) Thermal resistance from junction to lead at 0.375" (9.5 mm) lead length with both leads attached to heatsink

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
SBYV26C-E3/54	0.339	54	5500	13" diameter paper tape and reel
SBYV26C-E3/73	0.339	73	3000	Ammo pack packaging
SBYV26CHE3/54 (1)	0.339	54	5500	13" diameter paper tape and reel
SBYV26CHE3/73 (1)	0.339	73	3000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

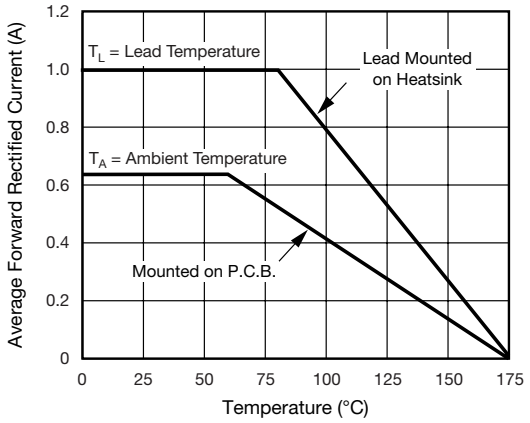


Fig. 1 - Maximum Forward Current Derating Curve

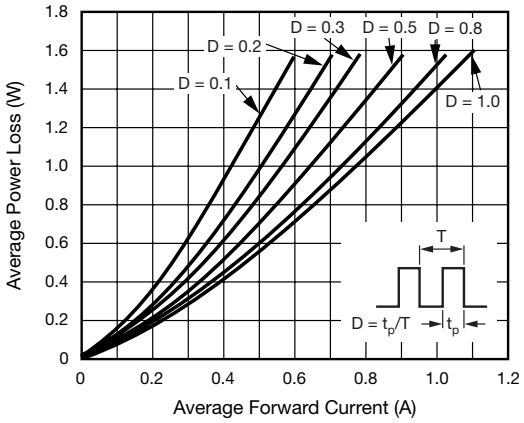


Fig. 2 - Forward Power Loss Characteristics

For technical questions within your region, please contact one of the following:
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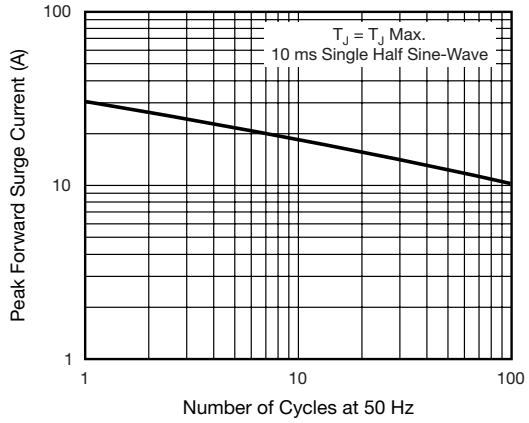

Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

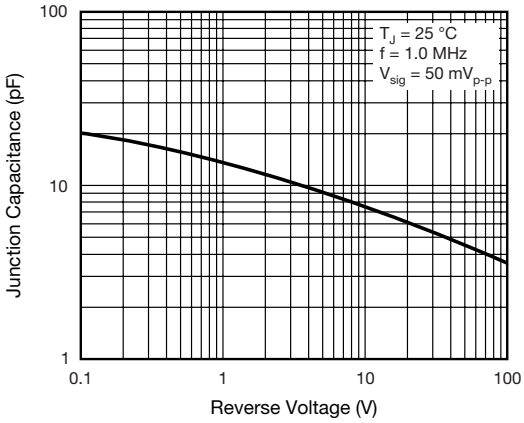

Fig. 6 - Typical Junction Capacitance

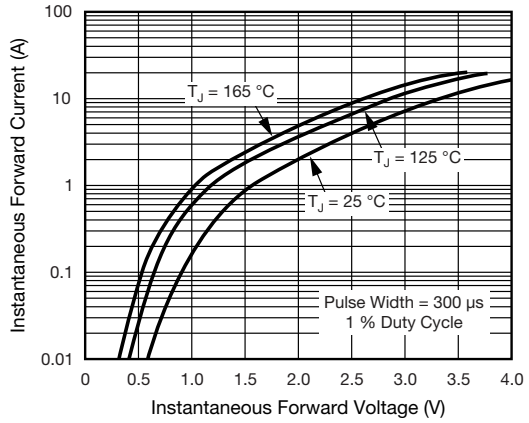

Fig. 4 - Typical Instantaneous Forward Characteristics

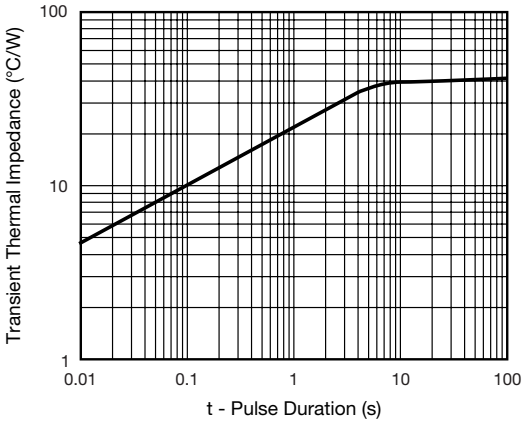

Fig. 7 - Typical Transient Thermal Impedance

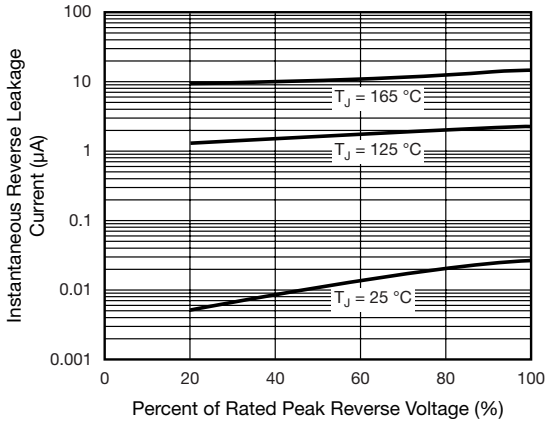

Fig. 5 - Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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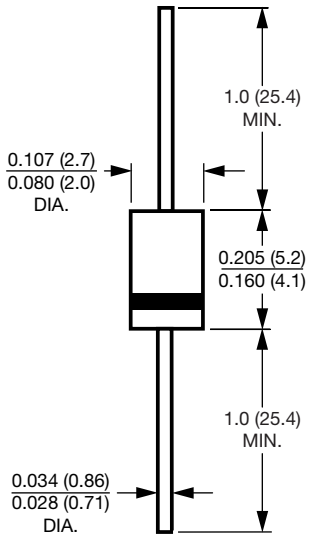

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