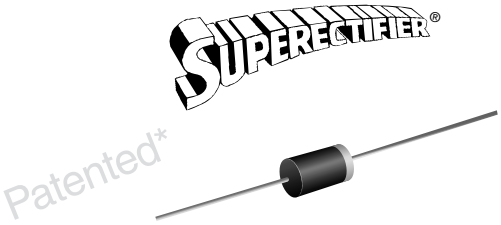
Glass Passivated Ultrafast Rectifier



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

DO-204AL (DO-41)

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 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

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 free-wheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

MECHANICAL DATA

Case: DO-204AL, molded plastic 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 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 (1)	E_{RSM}	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	at 100 µA	V_{BR}	600	V
Maximum instantaneous forward voltage	at 1.0 A T_J = 25 °C T_J = 175 °C	V_F	2.5 1.3	V
Maximum DC reverse current at rated DC blocking voltage	T_A = 25 °C T_A = 165 °C	I_R	5.0 150	µA
Max. reverse recovery time	at I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A	t_{rr}	30	ns
Maximum junction capacitance	at 4.0 V, 1 MHz	C_J	45	pF
Maximum reverse recovery current slope	at 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 (1,2)	$R_{\theta JA}$ $R_{\theta JL}$	70 16	°C/W

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 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) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

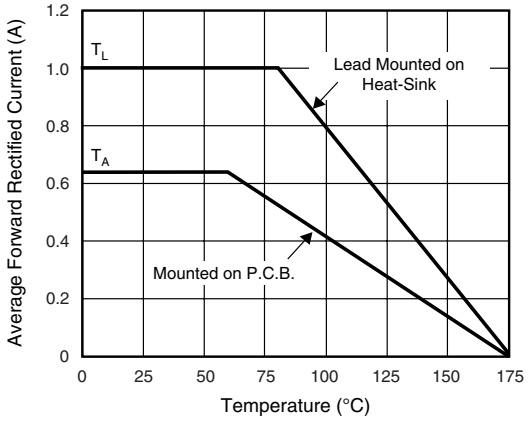


Figure 1. Maximum Forward Current Derating Curve

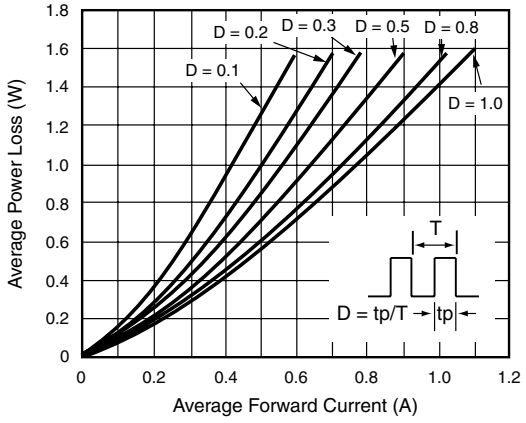


Figure 2. Forward Power Loss Characteristics

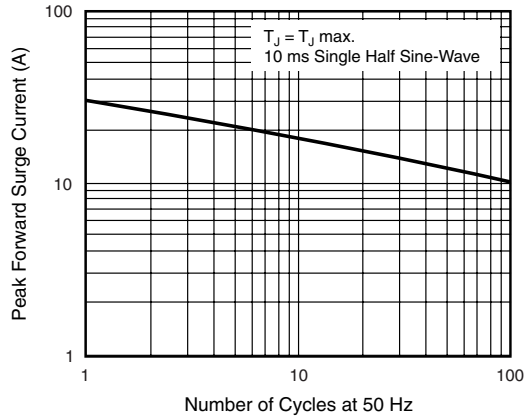


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

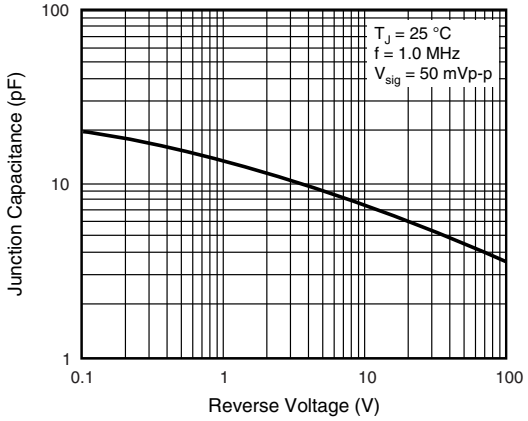


Figure 6. Typical Junction Capacitance

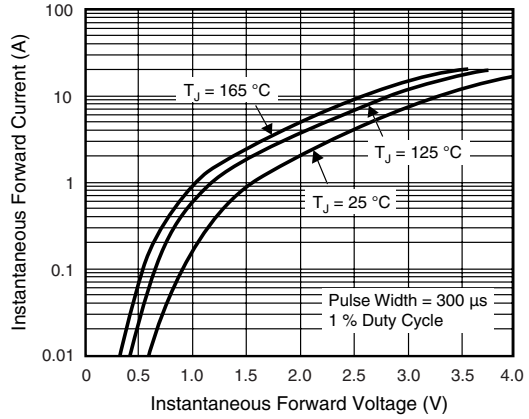


Figure 4. Typical Instantaneous Forward Characteristics

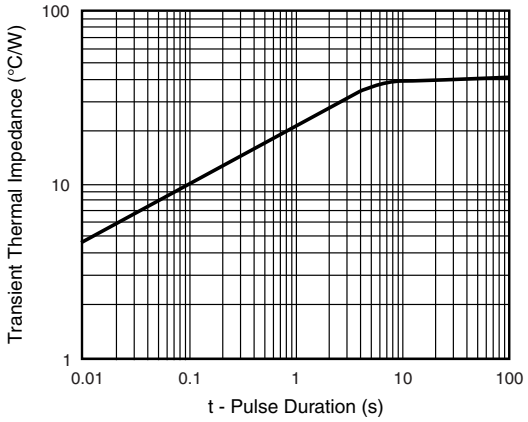


Figure 7. Typical Transient Thermal Impedance

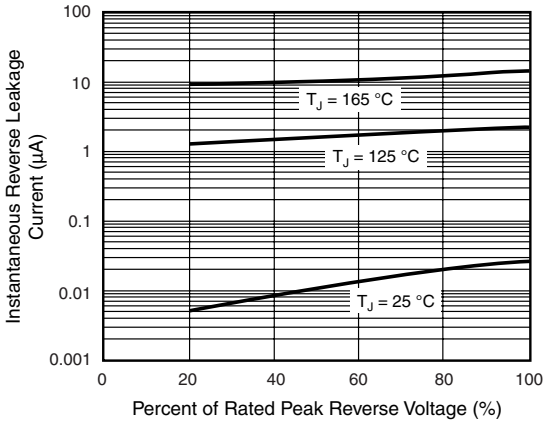
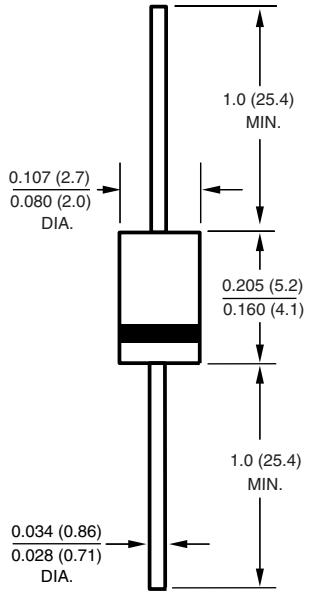


Figure 5. Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



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