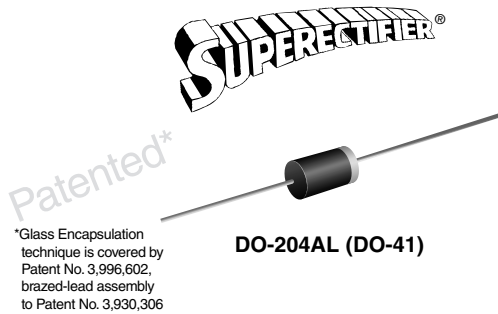


Glass Passivated Ultrafast Rectifier



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 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

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
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

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

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ 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 $T_L = 85 \text{ °C}$ (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 μ s surge

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ 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	$T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 175\text{ }^{\circ}\text{C}$	V_F	2.5 1.3	V
Maximum DC reverse current at rated DC blocking voltage		$T_A = 25\text{ }^{\circ}\text{C}$ $T_A = 165\text{ }^{\circ}\text{C}$	I_R	5.0 150	μA
Max. reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$		t_{rr}	30	ns
Maximum junction capacitance	4.0 V, 1 MHz		C_J	45	pF
Maximum reverse recovery current slope	$I_F = 1\text{ A}$, $V_R = 30\text{ V}$, $di/dt = -1\text{ A}/\mu\text{s}$		di/dt	7.0	A/ μs

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

PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance ⁽¹⁾⁽²⁾	$R_{\theta JA}$ $R_{\theta JL}$	70 16	$^{\circ}\text{C}/\text{W}$

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

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

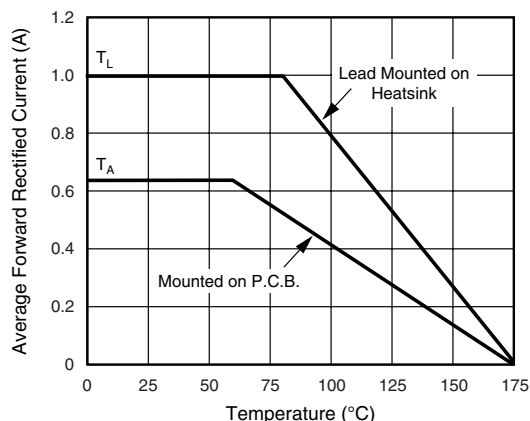


Figure 1. Maximum Forward Current Derating Curve

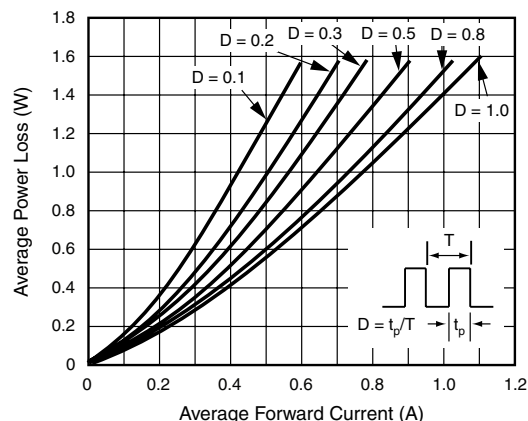


Figure 2. Forward Power Loss Characteristics

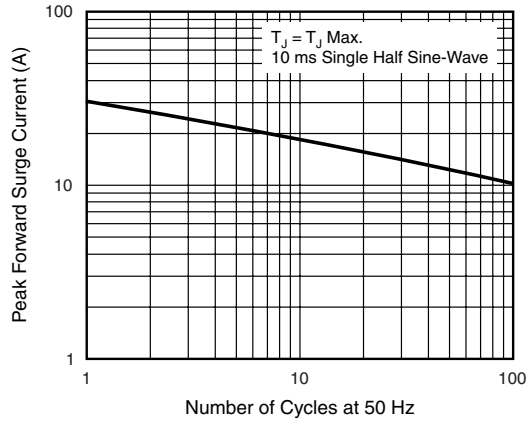


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

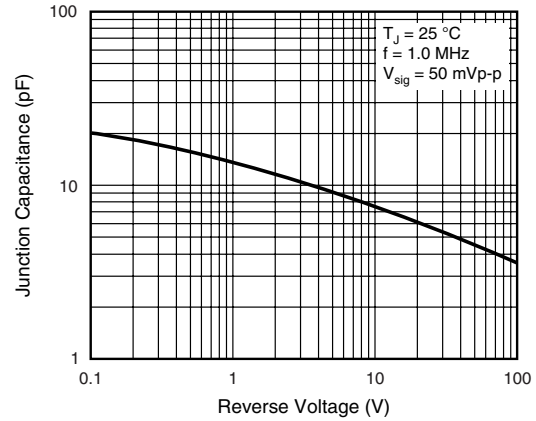


Figure 6. Typical Junction Capacitance

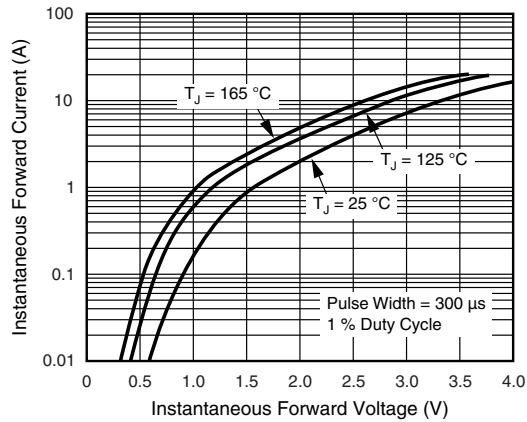


Figure 4. Typical Instantaneous Forward Characteristics

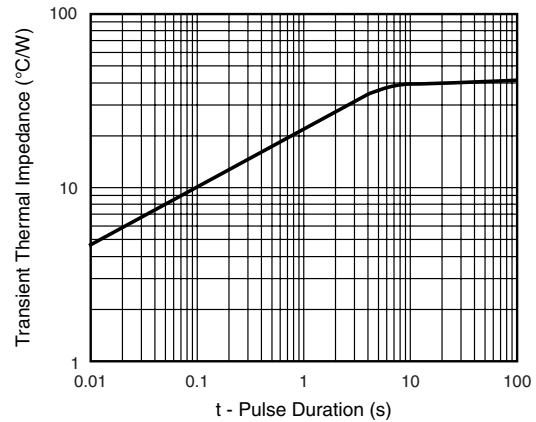


Figure 7. Typical Transient Thermal Impedance

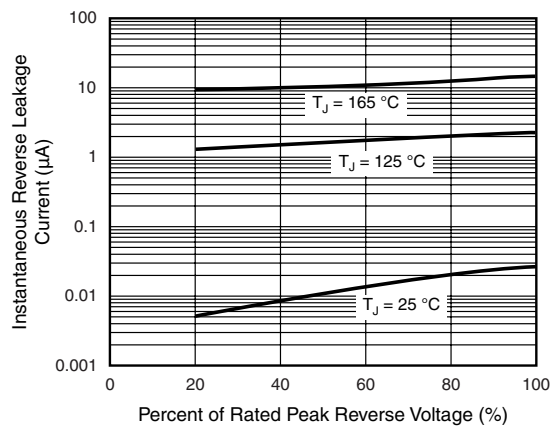
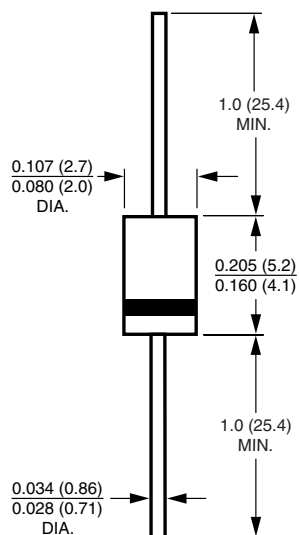


Figure 5. Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)





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