

Soft Recovery Ultrafast Plastic Rectifier



DO-204AC (DO-15)

FEATURES

- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS directive 2002/95/EC and in accordance to 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-204AC (DO-15)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes cathode end

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2.0 A
V_{RRM}	50 V to 200 V
I_{FSM}	50 A
t_{rr}	15 ns
V_F	0.88 V
$T_J \text{ max.}$	150 °C

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

PARAMETER	SYMBOL	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	V
Minimum reverse breakdown voltage at 100 μ A	V_{BR}	55	110	165	220	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_L = 85\text{ °C}$	$I_{F(AV)}$	2.0				A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	50				A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150				°C

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT
Maximum instantaneous forward voltage	3.0 A	T _J = 25 °C	V _F ⁽¹⁾	1.07				V
		T _J = 150 °C		0.88				
Maximum DC reverse current at rated DC blocking voltage		T _A = 25 °C	I _R	5.0				μA
		T _A = 100 °C		200				
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	15				ns
Typical junction capacitance	4.0 V, 1 MHz		C _J	15				pF

Note

(1) Pulse test: 300 μs pulse width, duty cycle $\leq 2\%$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	45				$^{\circ}\text{C/W}$

Note

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SBYV27-200-E3/54	0.404	54	4000	13" diameter paper tape and reel
SBYV27-200-E3/73	0.404	73	2000	Ammo pack packaging

RATINGS AND CHARACTERISTICS CURVES

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

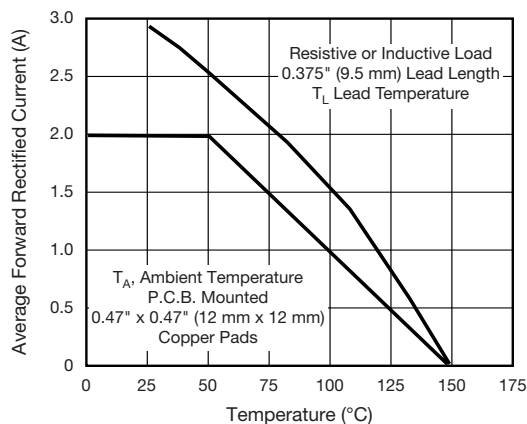


Fig. 1 - Maximum Forward Current Derating Curves

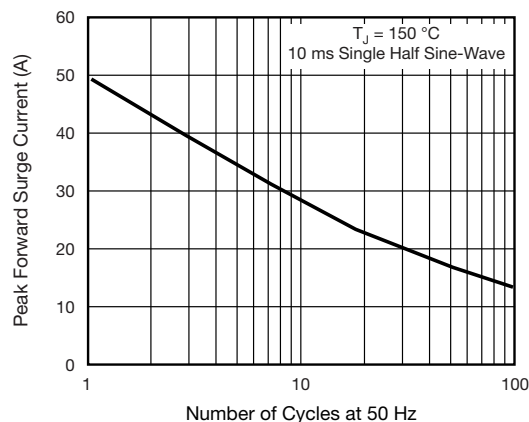


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

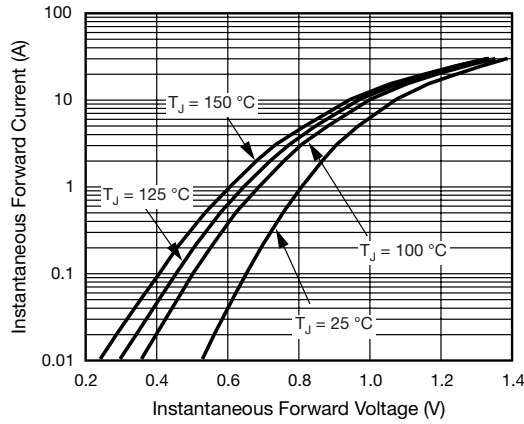


Fig. 3 - Typical Instantaneous Forward Characteristics

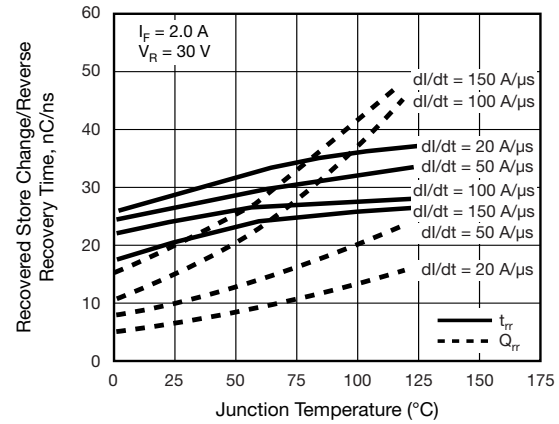


Fig. 5 - Reverse Switching Characteristics

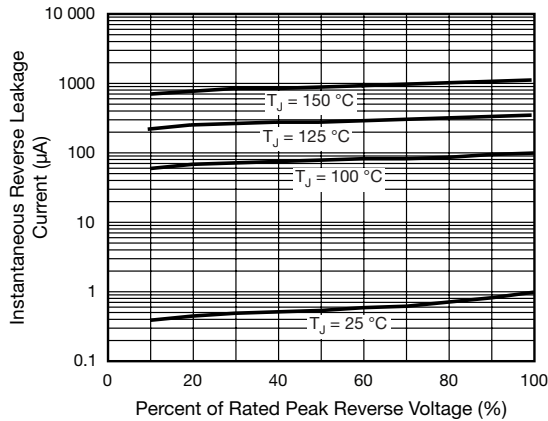


Fig. 4 - Typical Reverse Leakage Characteristics

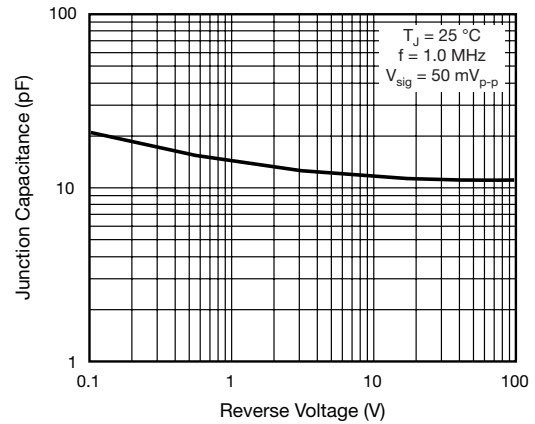
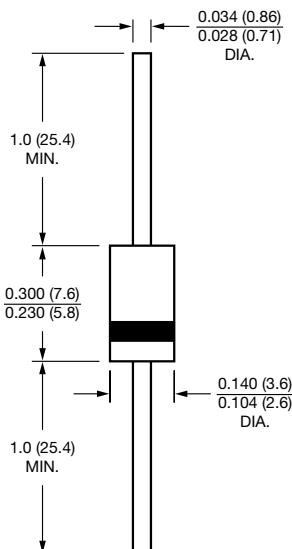


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)





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