

Miniature Ultrafast Plastic Rectifier


DO-201AD

FEATURES

- Glass passivated chip junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- 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-201AD

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

$I_{F(AV)}$	4.0 A
V_{RRM}	50 V to 200 V
I_{FSM}	150 A
t_{rr}	20 ns
V_F	0.95 V
T_J max.	150 °C

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

PARAMETER	SYMBOL	UG4A	UG4B	UG4C	UG4D	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
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	4.0				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	150				A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150				°C

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

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Maximum instantaneous forward voltage	$I_F = 4.0 \text{ A}$	V_F ⁽¹⁾	0.95	V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25^\circ\text{C}$ $T_A = 100^\circ\text{C}$	I_R	5.0	μA
			300	
Maximum reverse recovery time	$I_F = 0.5 \text{ A}$, $I_R = 1.0 \text{ A}$, $I_{rr} = 0.25 \text{ A}$	t_{rr}	20	ns
Typical reverse recovery time	$I_F = 4.0 \text{ A}$, $dI/dt = 50 \text{ A}/\mu\text{s}$, $V_R = 30 \text{ V}$, $I_{rr} = 10\% I_{RM}$	t_{rr}	30	ns
	$T_J = 25^\circ\text{C}$ $T_J = 100^\circ\text{C}$		50	
Typical stored charge	$I_F = 4.0 \text{ A}$, $dI/dt = 50 \text{ A}/\mu\text{s}$, $V_R = 30 \text{ V}$, $I_{rr} = 10\% I_{RM}$	Q_{rr}	15	nC
	$T_J = 25^\circ\text{C}$ $T_J = 100^\circ\text{C}$		30	
Typical junction capacitance	4.0 V, 1 MHz	C_J	20	pF

Note(1) Pulse test: 300 μs pulse width, 1 % duty cycle
 THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	UG4A	UG4B	UG4C	UG4D	UNIT
Typical thermal resistance	$R_{\theta JA}$ ⁽¹⁾			25		$^\circ\text{C}/\text{W}$

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
UG4D-E3/54	1.138	54	1400	13" diameter paper tape and reel
UG4D-E3/73	1.138	73	1000	Ammo pack packaging

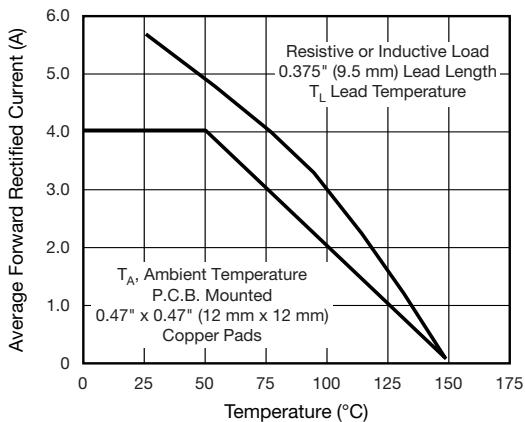
RATINGS AND CHARACTERISTICS CURVES
 $(T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curves

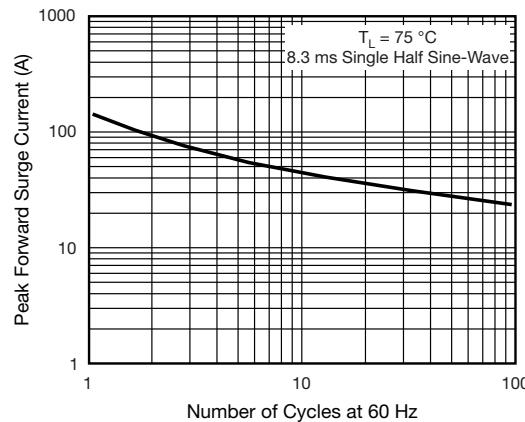


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

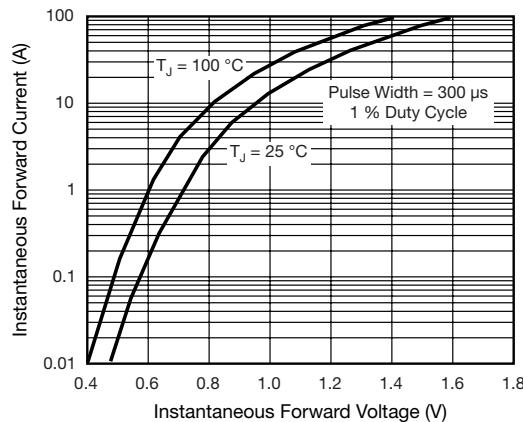


Fig. 3 - Typical Instantaneous Forward Characteristics

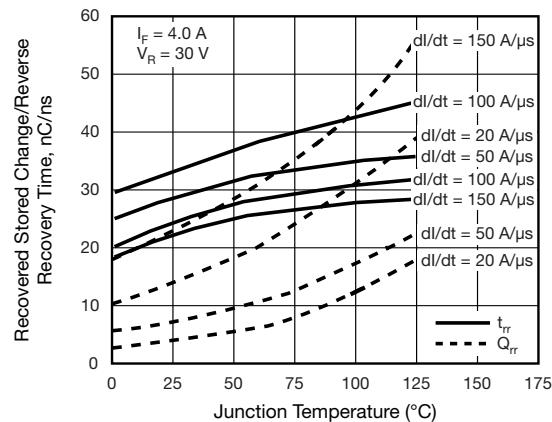


Fig. 5 - Reverse Switching Characteristics

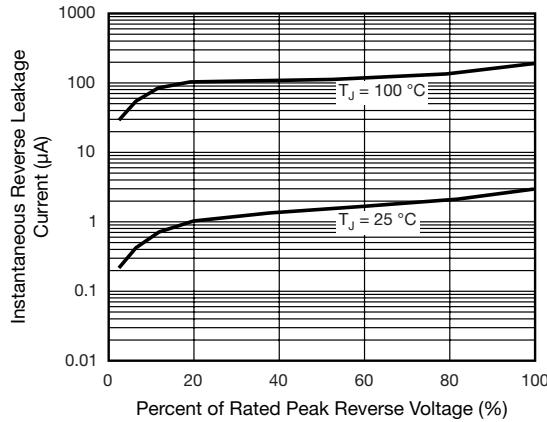


Fig. 4 - Typical Reverse Leakage Characteristics

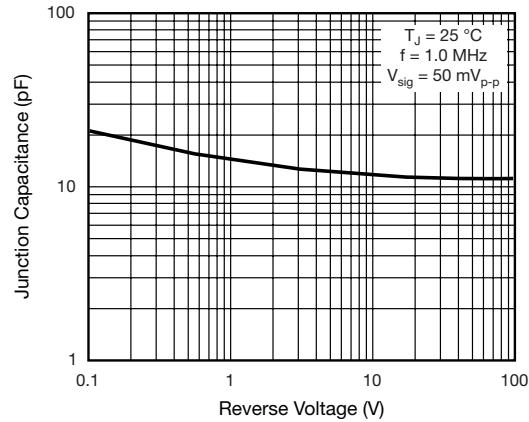
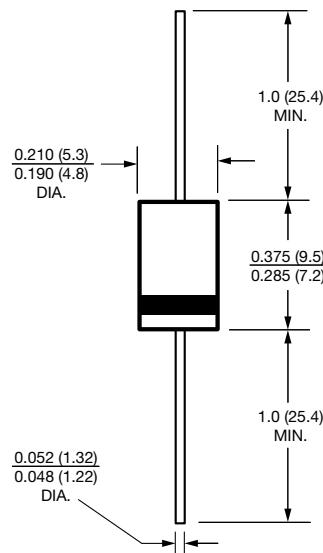


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD



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