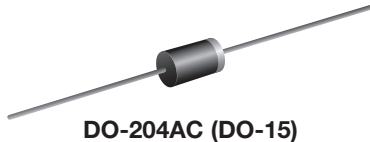




**THE DATASHEET OF  
UG2B-E3/54**



## Miniature Ultrafast Plastic Rectifier



### FEATURES

- Glass passivated chip junction
- Ultrafast reverse recovery time
- Soft recovery characteristics
- 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

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2.0 A
$V_{RRM}$	50 V to 200 V
$I_{FSM}$	80 A
$t_{rr}$	15 ns
$V_F$	0.95 V
$T_J$ max.	150 °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-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

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

PARAMETER	SYMBOL	UG2A	UG2B	UG2C	UG2D	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 at 0.375" (9.5 mm) lead length at $T_L = 75\text{ °C}$ (fig. 1)	$I_{F(AV)}$	2.0				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	80				A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150				°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT	
Maximum instantaneous forward voltage	$I_F = 2.0\text{ A}$	$V_F^{(1)}$	0.95	V	
Maximum DC reverse current at rated DC blocking voltage		$I_R$	$T_A = 25\text{ }^\circ\text{C}$	5.0	$\mu\text{A}$
			$T_A = 100\text{ }^\circ\text{C}$	200	
Maximum reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$	$t_{rr}$	15	ns	
Typical reverse recovery time	$I_F = 2.0\text{ A}, V_R = 30\text{ V}, dI/dt = 50\text{ A}/\mu\text{s}, I_{rr} = 10\% I_{RM}$	$t_{rr}$	$T_J = 25\text{ }^\circ\text{C}$	25	ns
			$T_J = 100\text{ }^\circ\text{C}$	35	
Typical stored charge	$I_F = 2.0\text{ A}, V_R = 30\text{ V}, dI/dt = 50\text{ A}/\mu\text{s}, I_{rr} = 10\% I_{RM}$	$Q_{rr}$	$T_J = 25\text{ }^\circ\text{C}$	10	nC
			$T_J = 100\text{ }^\circ\text{C}$	22	
Typical junction capacitance	4 V, 1 MHz	$C_J$	15	pF	

**Note**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	UG2A	UG2B	UG2C	UG2D	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	45				$^\circ\text{C}/\text{W}$

**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
UG2D-E3/54	0.404	54	4000	13" diameter paper tape and reel
UG2D-E3/73	0.404	73	2000	Ammo pack packaging

## RATINGS AND CHARACTERISTICS CURVES

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

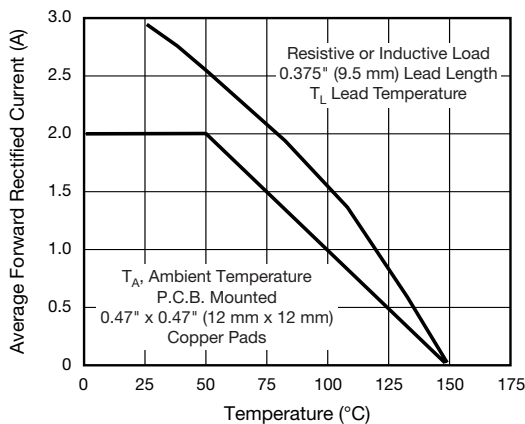


Fig. 1 - Maximum Forward Current Derating Curves

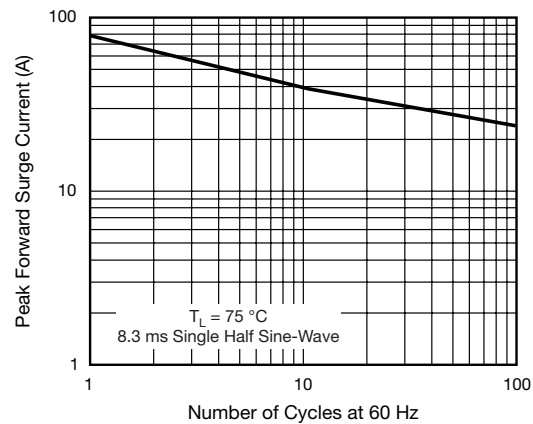


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

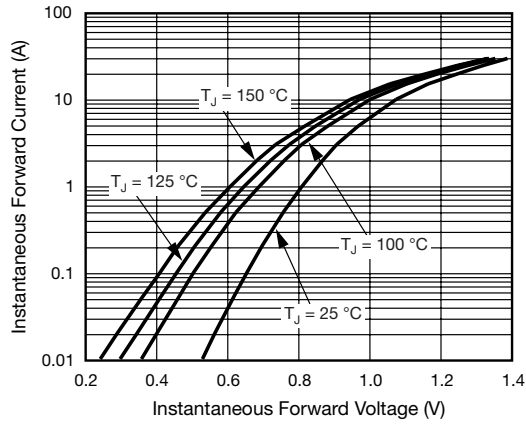


Fig. 3 - Typical Instantaneous Forward Characteristics

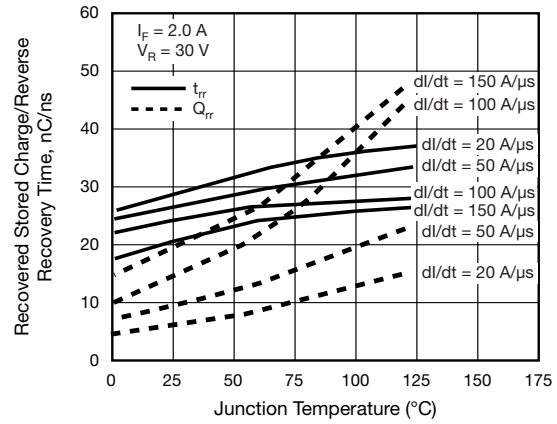


Fig. 5 - Reverse Switching Characteristics

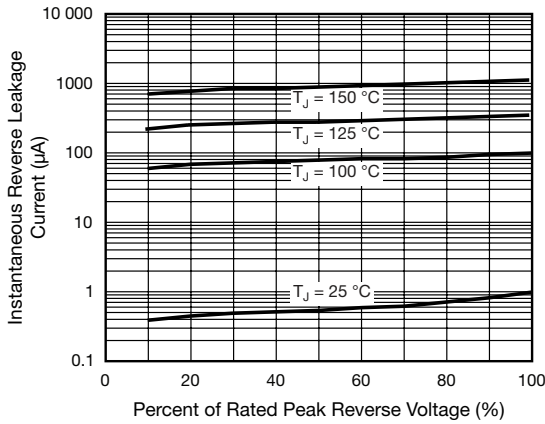


Fig. 4 - Typical Reverse Leakage Characteristics

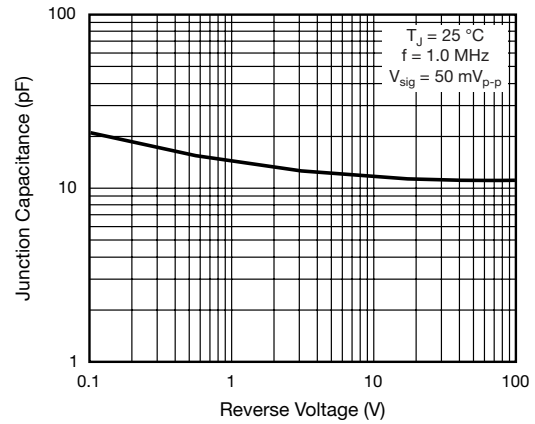
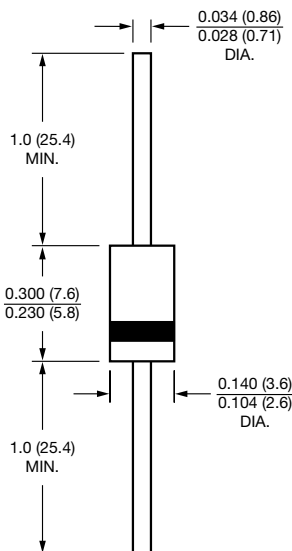


Fig. 6 - Typical Junction Capacitance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-204AC (DO-15)





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