



**THE DATASHEET OF
UG4D-M3/54**



Miniature Ultrafast Plastic Rectifier


DO-201AD

FEATURES

- Glass passivated pellet 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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
 COMPLIANT
 HALOGEN
FREE

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
 Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

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

E3 and M3 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, 100 V, 150 V, 200 V
I_{FSM}	150 A
t_{rr}	20 ns
V_F	0.95 V
$T_J \text{ max.}$	150 °C
Package	DO-201AD
Circuit configuration	Single

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ 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	
Maximum DC blocking voltage	V_{DC}	50	100	150	200	
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				
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150				°C

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ °C}$ 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		I_R	$T_A = 25\text{ °C}$	5.0	
			$T_A = 100\text{ °C}$	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}	$T_J = 25\text{ °C}$		30
			$T_J = 100\text{ °C}$		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}	$T_J = 25\text{ °C}$	15	
			$T_J = 100\text{ °C}$	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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	UG4A	UG4B	UG4C	UG4D	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$			25		$^\circ\text{C/W}$

Note

(2) 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	
UG4D-M3/54	1.138	54	1400	13" diameter paper tape and reel	
UG4D-M3/73	1.138	73	1000	Ammo pack packaging	

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

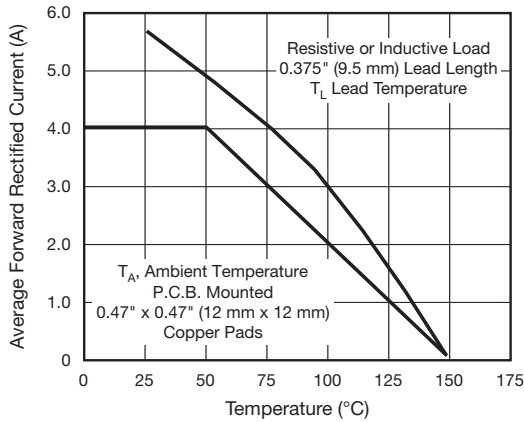


Fig. 1 - Forward Current Derating Curves

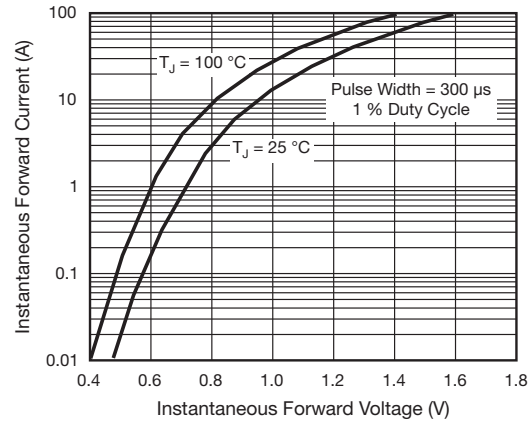


Fig. 3 - Typical Instantaneous Forward Characteristics

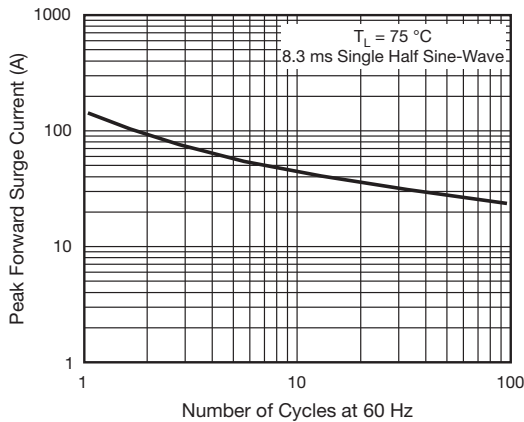


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

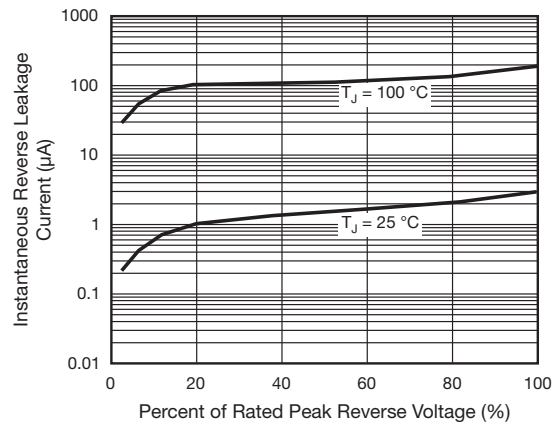


Fig. 4 - Typical Reverse Leakage Characteristics

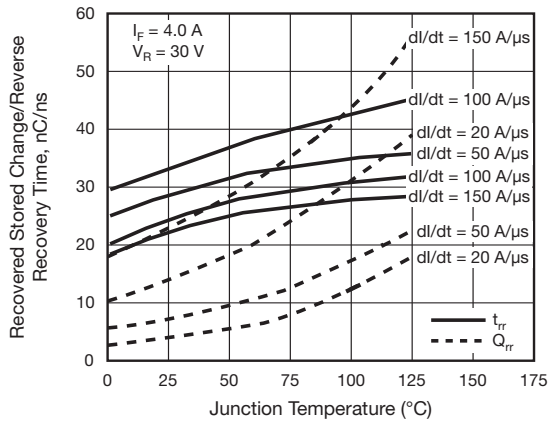


Fig. 5 - Reverse Switching Characteristics

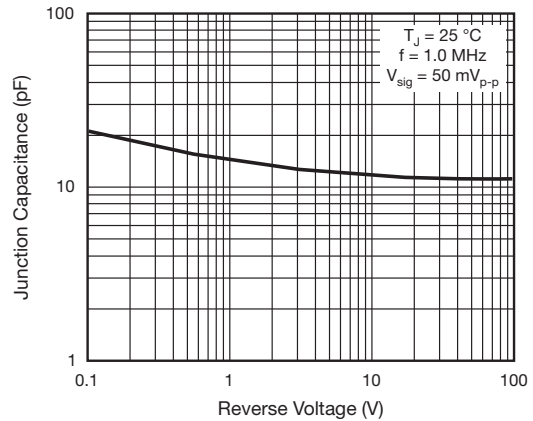
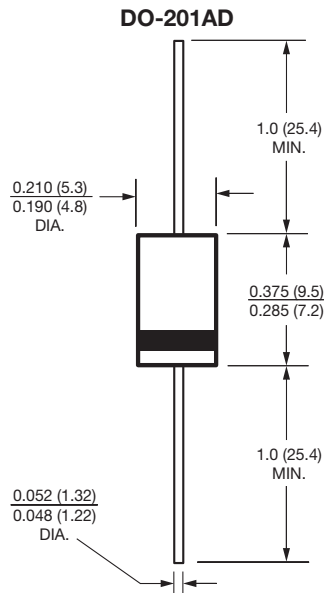


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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