UG1A, UG1B, UG1C, UG1D

Vishay General Semiconductor

COMPLIANT

HALOGEN

FREE

Miniature Ultrafast Plastic Rectifier



PRIMARY CHARACTERISTICS					
I _{F(AV)}	1.0 A				
V_{RRM}	50 V, 100 V, 150 V, 200 V				
I _{FSM}	40 A				
t _{rr}	15 ns				
V _F	0.95 V				
T _J max.	150 °C				
Package	DO-41 (DO-204AL)				
Circuit configuration	Single				

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

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-41 (DO-204AL)

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 meet JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	UG1A	UG1B	UG1C	UG1D	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)}	1.0				Α
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	40				А
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150				°C



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT		
Maximum instantaneous forward voltage	I _F = 1.0 A		V _F ⁽¹⁾	0.95	V		
Maximum DC reverse current	T _A =	25 °C	_	5.0	μΑ		
at rated DC blocking voltage	T _A =	100 °C	I _R	200			
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	15	ns		
Maximum reverse recovery time	$I_F = 1.0 \text{ A}, V_B = 30 \text{ V},$ $T_J = 25 \text{ °C}$		+	25	ne		
	$dI/dt = 50 \text{ A/}\mu\text{s}, I_{rr} = 10 \% I_{RM}$ $T_{J} = 1$	100 °C	t _{rr}	35	ns		
Maximum stored charge	$I_F = 1.0 \text{ A}, V_R = 30 \text{ V},$ $T_J =$	25 °C	0	8.0	nC		
	dI/dt = 50 A/ μ s, I _{rr} = 10 % I _{RM} $T_J = 100$ °		Q_{rr}	12	IIC		
Typical junction capacitance	4.0 V, 1 MHz		CJ	7	pF		

Note

⁽¹⁾ Pulse test: 300 µs pulse width, 1 % duty cycle

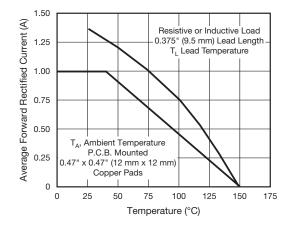
THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	UG1A	UG1B	UG1C	UG1D	UNIT
Typical thermal resistance	R _{0JA} (1)	60				°C/W
Typical thermal resistance	R _{0JL} (1)	20				C/VV

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			
UG1D-E3/54	0.334	54	5500	13" diameter paper tape and reel			
UG1D-E3/73	0.334	73	3000	Ammo pack packaging			
UG1D-M3/54	0.334	54	5500	13" diameter paper tape and reel			
UG1D-M3/73	0.334	73	3000	Ammo pack packaging			

RATINGS AND CHARACTERISTICS CURVES ($T_A = 25$ °C unless otherwise noted)





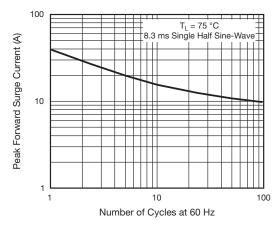


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current



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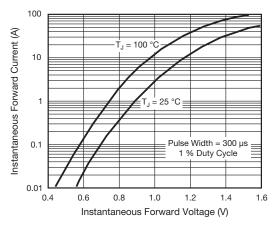


Fig. 3 - Typical Instantaneous Forward Characteristics

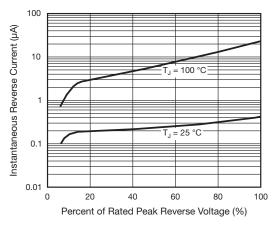


Fig. 4 - Typical Reverse Characteristics

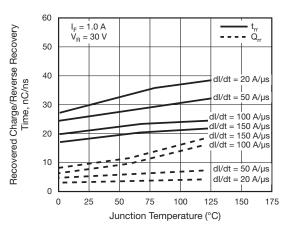


Fig. 5 - Reverse Switching Charateristics

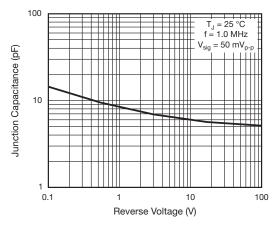
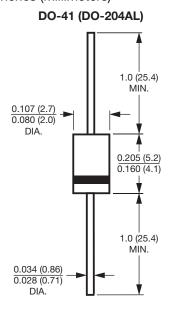


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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