5A, 200V - 600V Ultra Fast Rectifier

FEATURES

- AEC-Q101 qualified available
- High current capability
- High reliability
- High surge current capability
- Low power loss
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- Freewheeling application

MECHANICAL DATA

- Case: DO-201AD
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 1.10g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	5	A
V_{RRM}	200 - 600	V
I_{FSM}	65	A
$T_{J\,MAX}$	150, 175	°C
Package	DO-201AD	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

DO-201AD

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)					
PARAMETER	**SYMBOL**	**UG54G**	**UG56G**	**UG58G**	**UNIT**
Marking code on the device		UG54G	UG56G	UG58G	
Repetitive peak reverse voltage	V_{RRM}	200	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	V
Forward current	I_F	5			A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	65			A
Junction temperature	T_J	-55 to +175		-55 to +150	°C
Storage temperature	T_{STG}	-55 to +175		-55 to +150	°C

THERMAL PERFORMANCE

PARAMETER		SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	UG54G UG56G	$R_{\Theta JL}$	11	°C/W
	UG58G		15	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	UG54G	I_F = 5A, T_J = 25°C	V_F	-	1.05	V
	UG56G			-	1.55	V
	UG58G			-	2.10	V
	UG54G	I_F = 5A, T_J = 125°C		-	-	V
	UG56G			-	-	V
	UG58G			-	1.70	V
Reverse current @ rated V_R[2]	UG54G UG56G	T_J = 25°C	I_R	-	10	μA
	UG58G			-	30	μA
	UG54G UG56G	T_J = 125°C		-	100	μA
	UG58G			-	200	μA
Reverse recovery time		I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A	t_{rr}	-	20	ns

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
UG5xG	DO-201AD	1,250 / Tape & Reel
UG5xG A0G	DO-201AD	500 / Ammo box
UG5xGH	DO-201AD	1,250 / Tape & Reel
UG5xGHA0G	DO-201AD	500 / Ammo box

Notes:

1. "x" defines voltage from 200V (UG54G) to 600V (UG58G)
2. “H” means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

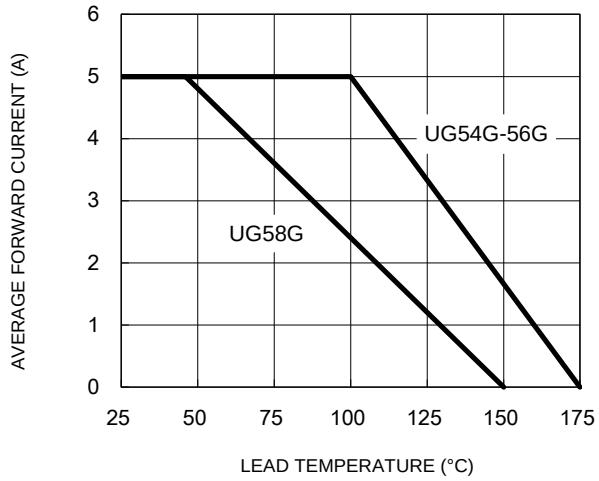


Fig.2 Typical Junction Capacitance

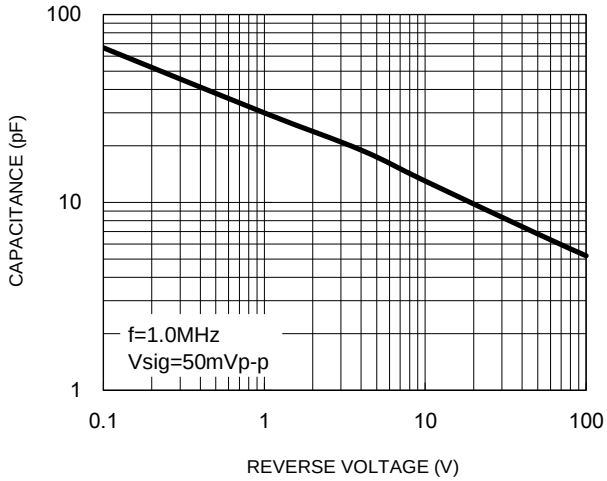


Fig.3 Typical Reverse Characteristics

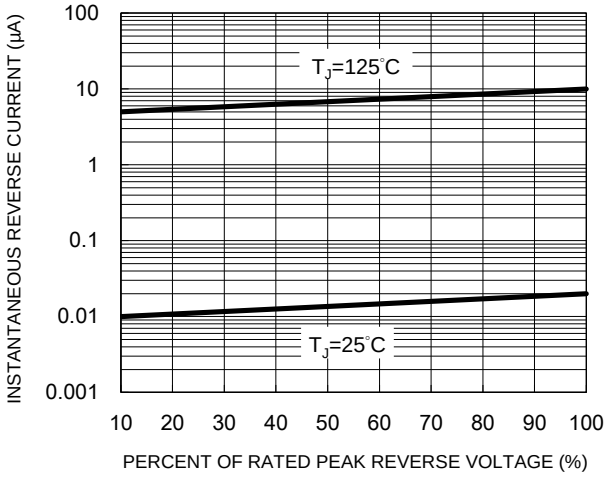


Fig.4 Typical Forward Characteristics

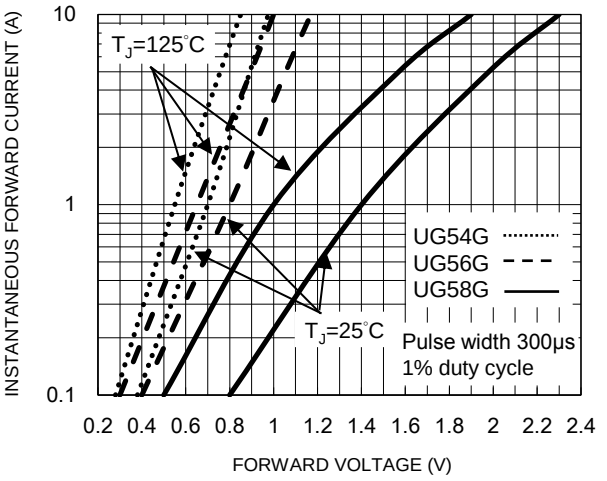
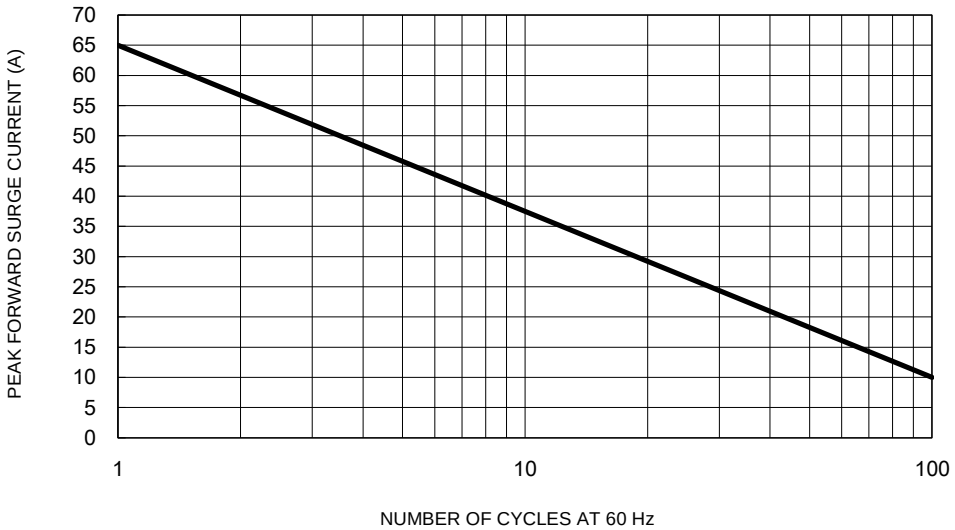


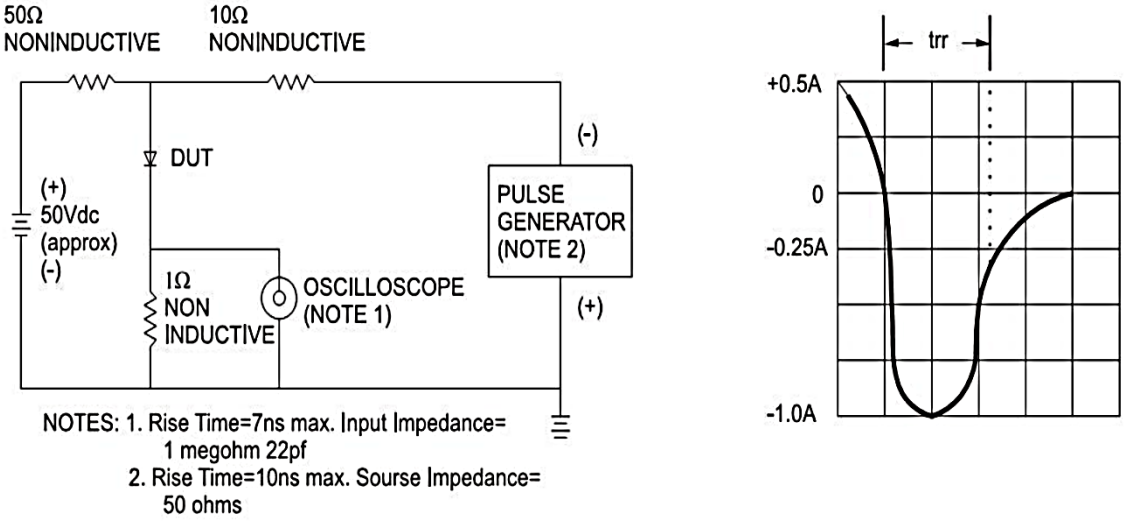
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

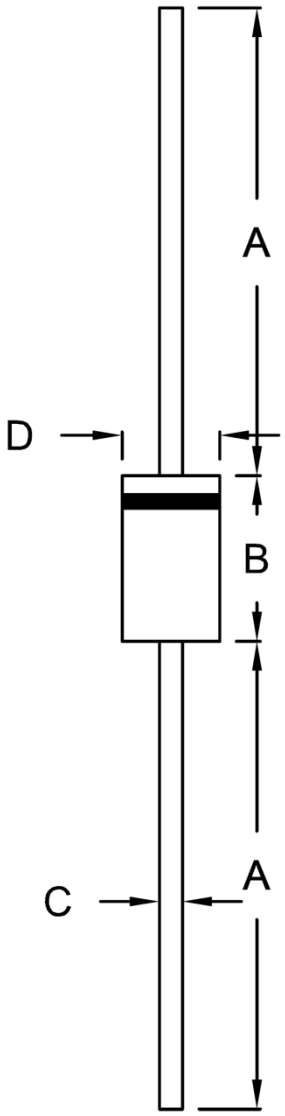
(T_A = 25°C unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



PACKAGE OUTLINE DIMENSIONS

DO-201AD



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	8.50	9.50	0.335	0.374
C	1.20	1.30	0.047	0.051
D	5.00	5.60	0.197	0.220

MARKING DIAGRAM

P/N = Marking Code
G = Green Compound
YWW = Date Code
F = Factory Code

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.