

10A, 200V - 600V Ultra Fast Rectifier

FEATURES

- AEC-Q101 qualified available
- High efficiency, low V_F
- High current capability
- High reliability
- High surge current capability
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

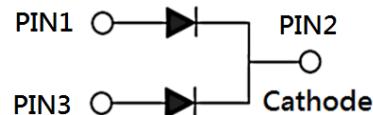
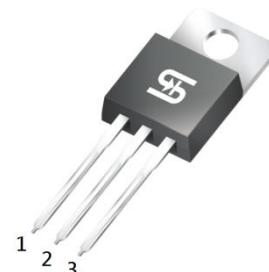
APPLICATIONS

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

MECHANICAL DATA

- Case: TO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.70g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	10	A
V_{RRM}	200 - 600	V
I_{FSM}	60	A
$T_{J MAX}$	150, 175	°C
Package	TO-220AB	
Configuration	Dual dies	



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C unless otherwise noted)							
PARAMETER	SYMBOL	UG 1004G	UG 1005G	UG 1006G	UG 1007G	UG 1008G	UNIT
Marking code on the device		UG 1004G	UG 1005G	UG 1006G	UG 1007G	UG 1008G	
Repetitive peak reverse voltage	V_{RRM}	200	300	400	500	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	210	280	350	420	V
Forward current	I_F	10					A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	60					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-case thermal resistance	$R_{\Theta JC}$	4	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ C$ unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 5A, T_J = 25^\circ C$	V_F	-	0.95	V
			-	1.25	V
			-	1.70	V
			-	10	µA
Reverse current @ rated V_R per diode ⁽²⁾	$T_J = 25^\circ C$	I_R	-	100	µA
	$T_J = 125^\circ C$		-	22	ns
Reverse recovery time	$I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A$	t_{rr}	-	30	ns
			-	50	ns

Notes:

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

ORDERING INFORMATION

ORDERING CODE ⁽¹⁾⁽²⁾	PACKAGE	PACKING
UG10xG	TO-220AB	50 / Tube
UG10xGH	TO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 200V(UG1004G) to 600V(UG1008G)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

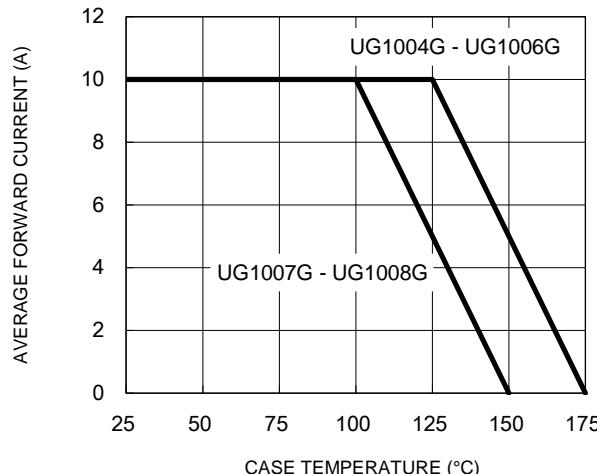


Fig.2 Typical Junction Capacitance

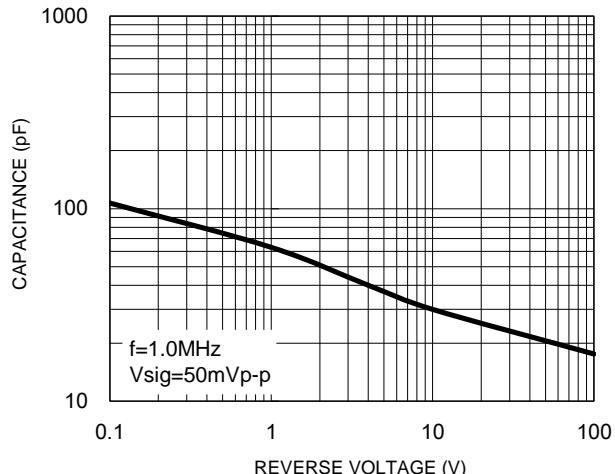


Fig.3 Typical Reverse Characteristics

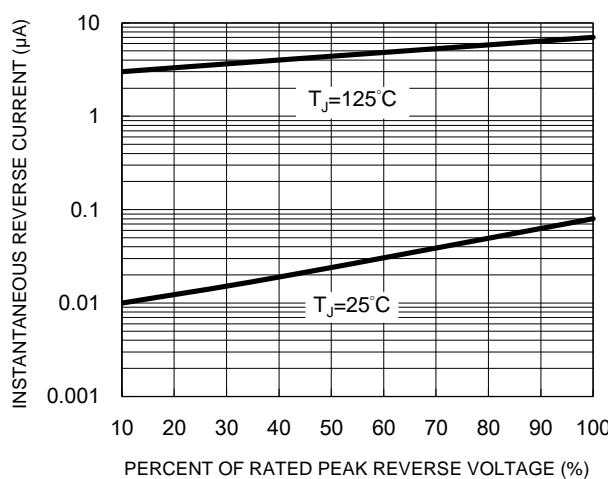


Fig.4 Typical Forward Characteristics

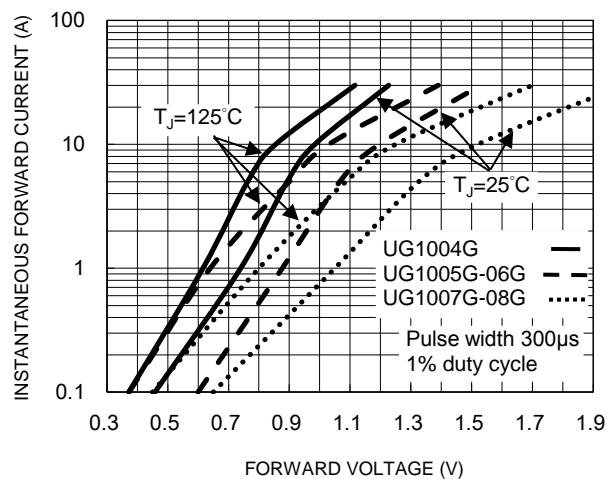
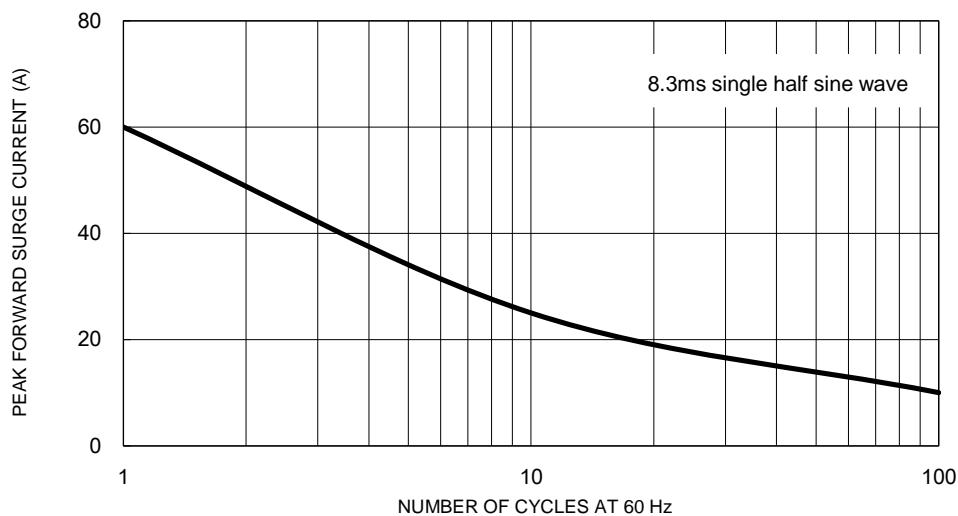
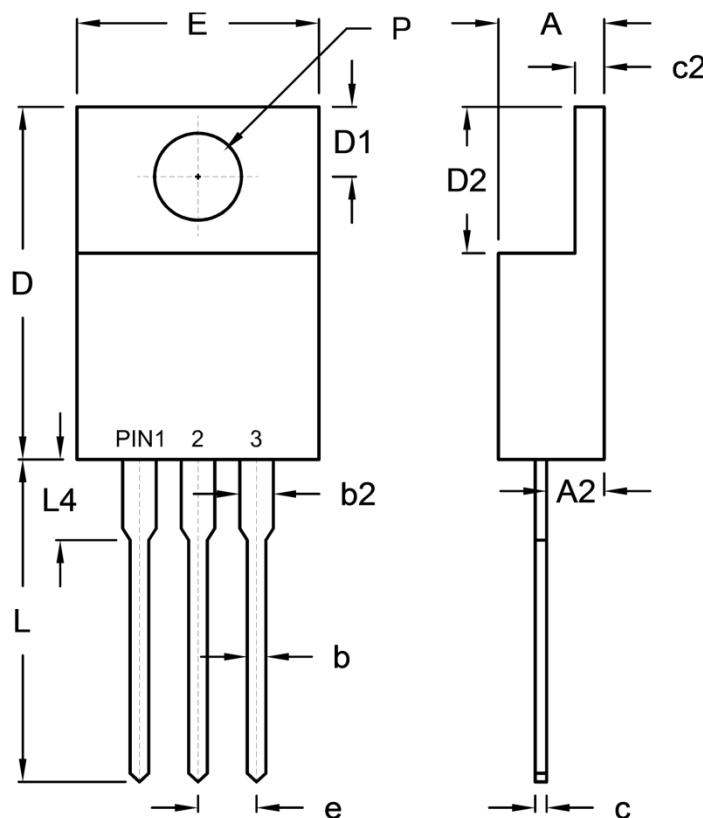


Fig.5 Maximum Non-Repetitive Forward Surge Current



PACKAGE OUTLINE DIMENSIONS
TO-220AB


DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.42	4.76	0.174	0.187
A2	2.20	2.80	0.087	0.110
b	0.68	0.94	0.027	0.037
b2	1.14	1.77	0.045	0.070
c	0.35	0.64	0.014	0.025
c2	1.14	1.40	0.045	0.055
D	14.60	16.00	0.575	0.630
D1	2.62	3.44	0.103	0.135
D2	5.84	6.86	0.230	0.270
E	-	10.50	-	0.413
e	2.41	2.67	0.095	0.105
L	13.19	14.79	0.519	0.582
L4	2.80	4.20	0.110	0.165
P	3.54	4.00	0.139	0.157

MARKING DIAGRAM


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

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