

10A, 200V - 400V 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

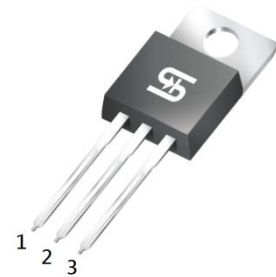
APPLICATIONS

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

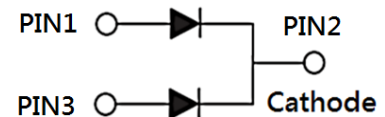
MECHANICAL DATA

- 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)
- Base P/N_X ("X" denotes revision code e.g. A, B, ...)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	10	A
V_{RRM}	200 - 400	V
I_{FSM}	60	A
$T_J \text{ MAX}$	175	°C
Package	TO-220AB	
Configuration	Dual dies	



TO-220AB



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	UG1004G	UG1005G	UG1006G	UNIT
Repetitive peak reverse voltage	V_{RRM}	200	300	400	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	210	280	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			°C
Storage temperature	T_{STG}	-55 to +175			°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	$R_{\theta JC}$	4	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	UG1004G	V_F	-	0.95	V
	UG1005G		-	1.25	V
	UG1006G		-	1.25	V
Reverse current @ rated V_R per diode ⁽²⁾	$T_J = 25^\circ\text{C}$	I_R	-	10	μA
	$T_J = 125^\circ\text{C}$		-	100	μA
Reverse recovery time	$I_F = 0.5\text{A}$, $I_R = 1.0\text{A}$, $t_{rr} = 0.25\text{A}$	t_{rr}	-	22	ns

Notes:

- Pulse test with $PW = 0.3\text{ms}$
- Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION

ORDERING CODE ⁽¹⁾	PACKAGE	PACKING	DEVICE MARKING
UG1004G	TO-220AB	50 / Tube	UG1004G
UG1005G	TO-220AB	50 / Tube	UG1005G
UG1006G	TO-220AB	50 / Tube	UG1006G
UG1004GH	TO-220AB	50 / Tube	UG1004G
UG1005GH_A	TO-220AB	50 / Tube	UG1005G
UG1006GH_A	TO-220AB	50 / Tube	UG1006G

Notes:

- "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

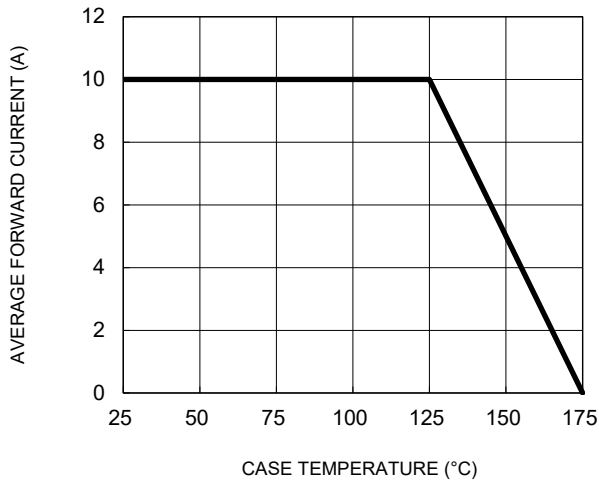


Fig.2 Typical Junction Capacitance

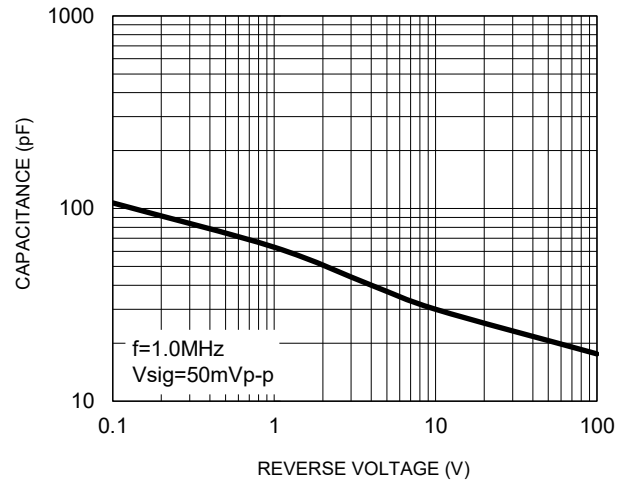


Fig.3 Typical Reverse Characteristics

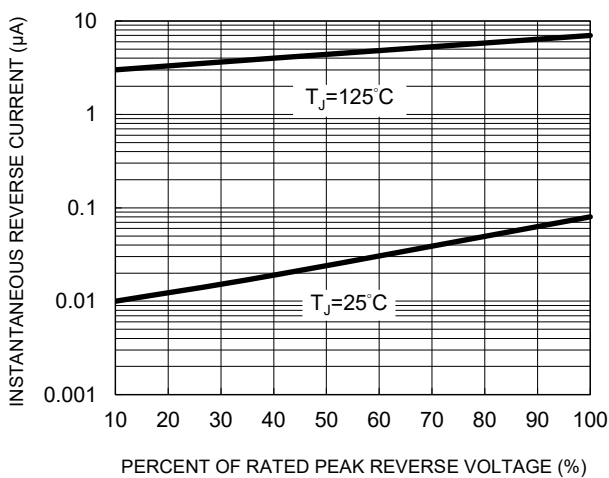


Fig.4 Typical Forward Characteristics

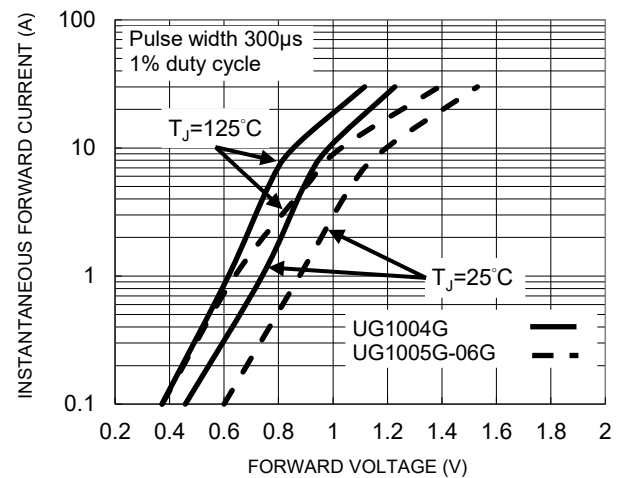
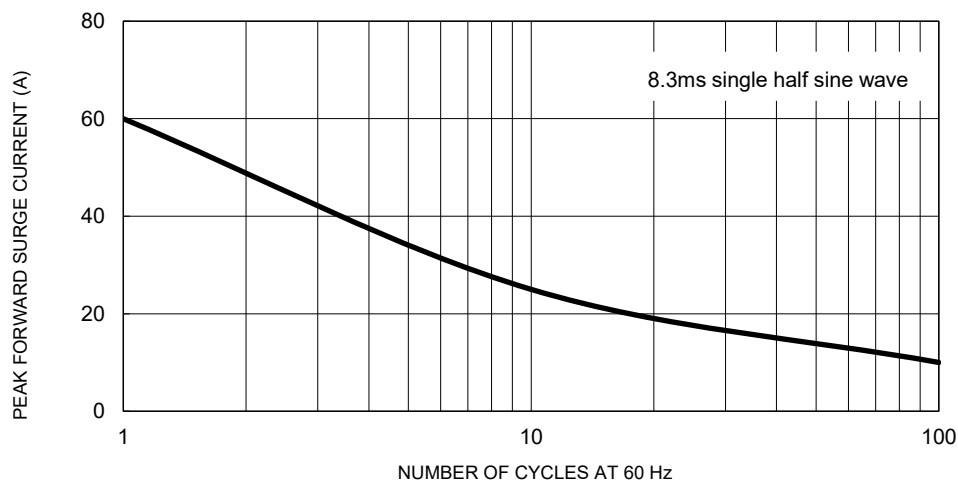
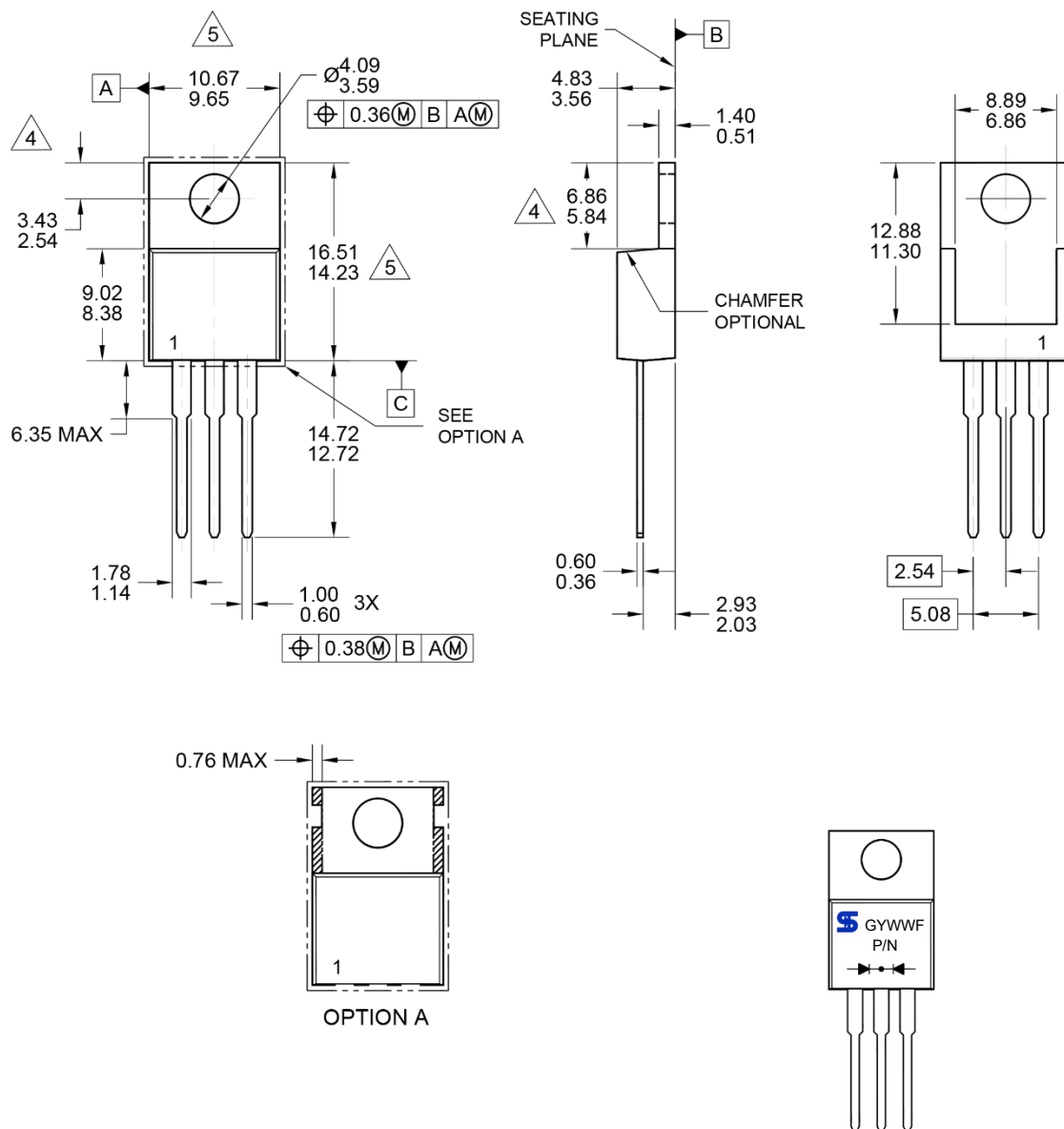


Fig.5 Maximum Non-Repetitive Forward Surge Current



PACKAGE OUTLINE DIMENSIONS

TO-220AB



NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC TO-220, VARIATION AB, ISSUE K.
4. THE DEFINED ZONE WHERE STAMPING AND SINGULATION IRREGULARITIES ARE ALLOWED. SLOT AND NOTCH MAY APPEAR IN THIS ZONE.
5. THIS DO NOT INCLUDE MOLD FLASH. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREME OF THE PLASTIC BODY.
6. DWG NO REF: HQ2SD07-TO220AB-011 REV A.

MARKING DIAGRAM

P/N = Device marking
G = Green compound
YWW = Date code
F = Factory code

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