10A, 400V - 600V Ultra Fast Rectifier

FEATURES

- AEC-Q101 qualified available
- High forward surge capability
- High reliability
- Ultra fast recovery time
- Low power loss
- RoHS Compliant
- Halogen-free

APPLICATIONS

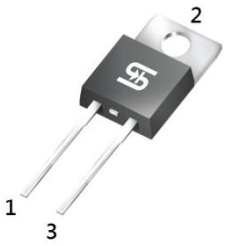
- DC to DC converter
- Switching mode converters and inverters
- Freewheeling application

MECHANICAL DATA

- Case: TO-220AC
- 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: 1.80g (approximately)
- Base P/N_X (_"X" denotes revision code e.g. A, B, ...)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	10	A
V_{RRM}	400 - 600	V
I_{FSM}	90	A
$T_{J\ MAX}$	150, 175	°C
Package	TO-220AC	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE



TO-220AC

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER	**SYMBOL**	**UG10G**	**UG10J**	**UNIT**
Marking code on the device		UG10G	UG10J	
Repetitive peak reverse voltage	V_{RRM}	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	280	420	V
Forward current	I_F	10		A
Surge peak forward current 8.3ms single half sine wave superimposed on rated load	I_{FSM}	90		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 resistance	$R_{\Theta JC}$	3	°C/W

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage(1)	UG10G	I_F = 10A, T_J = 25°C	V_F	-	1.25	V
	UG10J			-	2.00	V
Reverse current @ rated V_R(2)	UG10G	T_J = 25°C	I_R	-	10	μA
	UG10J			-	30	μA
	UG10G	T_J = 125°C		-	100	μA
	UG10J			-	200	μA
Reverse recovery time		I_F = 0.5A, I_R = 1.0A I_{rr} = 0.25A	t_{rr}	-	25	ns

Notes:

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

ORDERING INFORMATION

ORDERING CODE(1)	PACKAGE	PACKING	DEVICE MARKING
UG10G	TO-220AC	50 / Tube	UG10G
UG10J	TO-220AC	50 / Tube	UG10J
UG10GH_A	TO-220AC	50 / Tube	UG10G
UG10JH_A	TO-220AC	50 / Tube	UG10J

Notes:

1. “H” means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

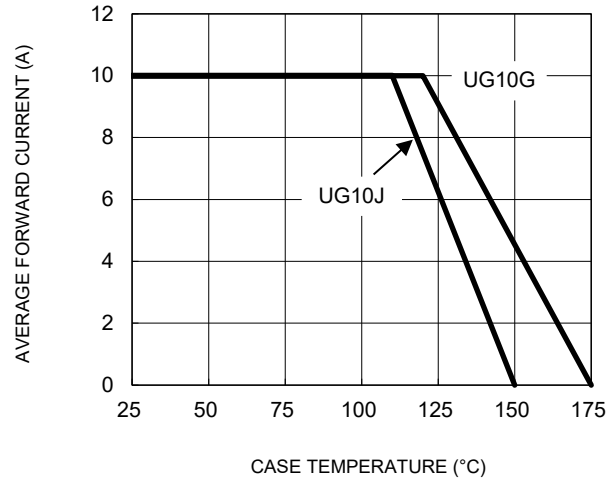


Fig.2 Typical Junction Capacitance

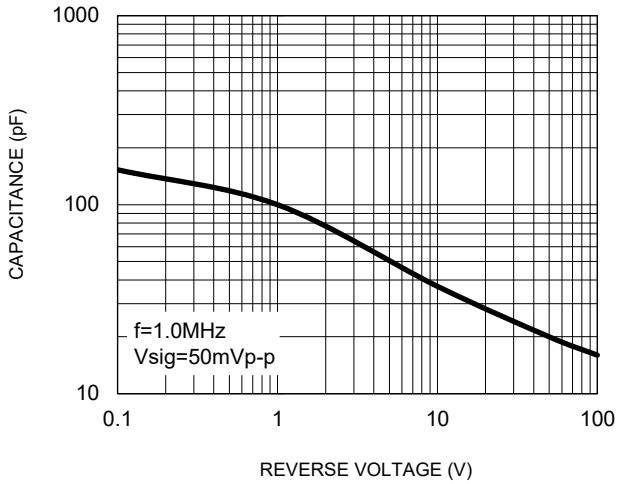


Fig.3 Typical Reverse Characteristics

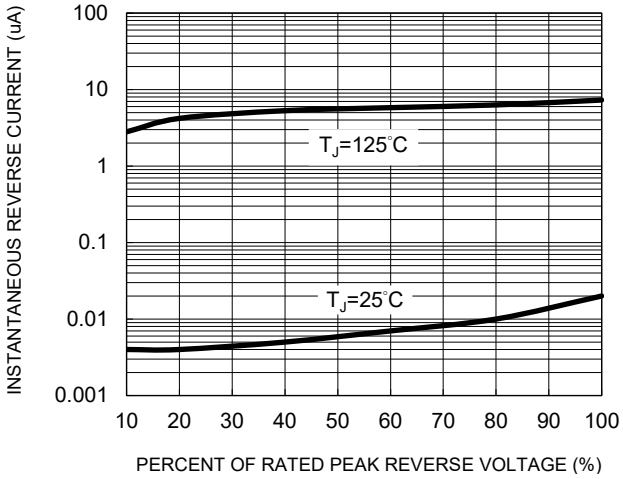


Fig.4 Typical Forward Characteristics

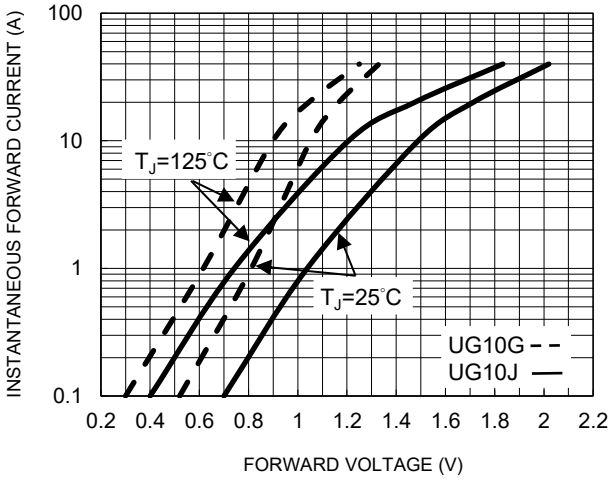
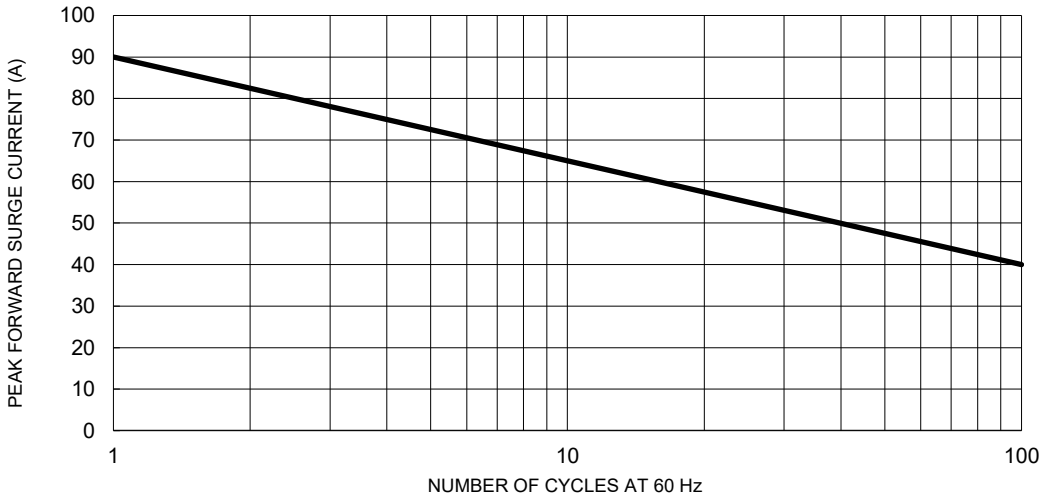
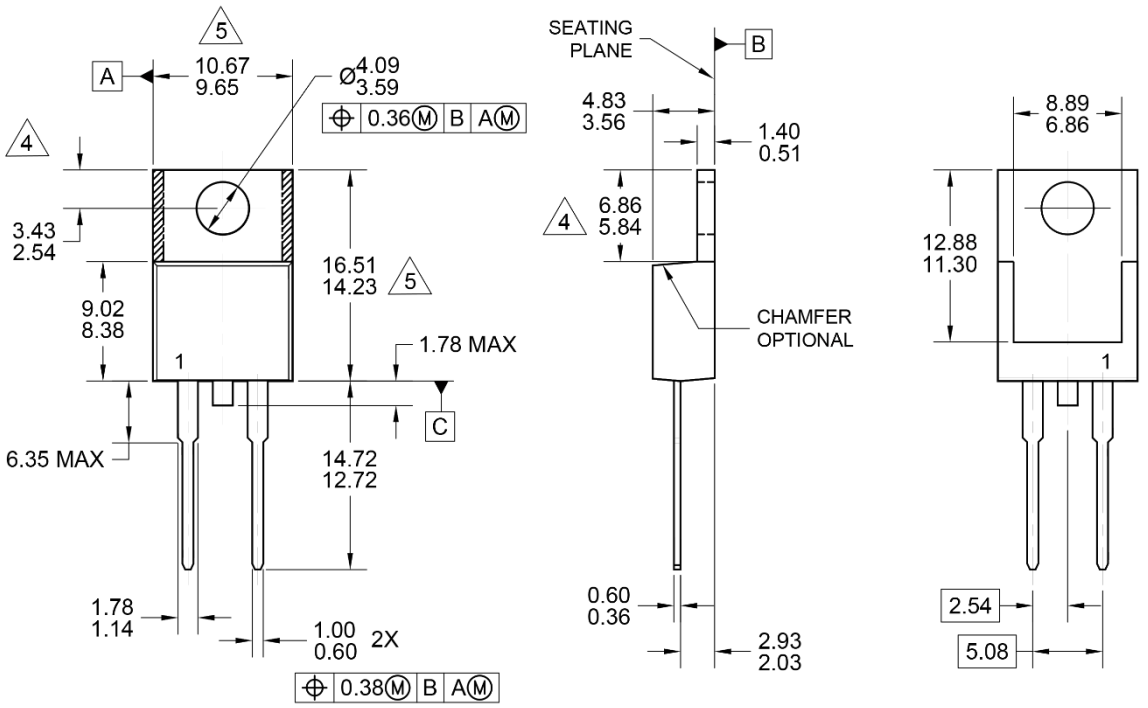


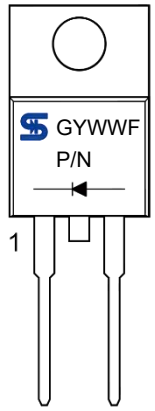
Fig.5 Maximum Non-Repetitive Forward Surge Current



PACKAGE OUTLINE DIMENSIONS

TO-220AC





MARKING DIAGRAM

P/N = MARKING CODE
G = GREEN COMPOUND
YWW = DATE CODE
F = FACTORY CODE

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 AC, 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-TO220AC-012 REV A.

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