

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 according to IEC 61249-2-21

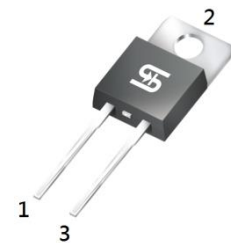
APPLICATIONS

- 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)

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



TO-220AC



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	UG10G	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$	V_F	-	1.25	V
	UG10J			-	2.00	V
Reverse current @ rated V_R ⁽²⁾	UG10G	$T_J = 25^\circ\text{C}$	I_R	-	10	μA
	UG10J			-	30	μA
	UG10G	$T_J = 125^\circ\text{C}$		-	100	μA
	UG10J			-	200	μA
Reverse recovery time		$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$	t_{rr}	-	25	ns

Notes:

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

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾⁽²⁾	PACKAGE	PACKING
UG10x	TO-220AC	50 / Tube
UG10xH	TO-220AC	50 / Tube

Notes:

1. "x" defines voltage from 400V(UG10G) to 600V(UG10J)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

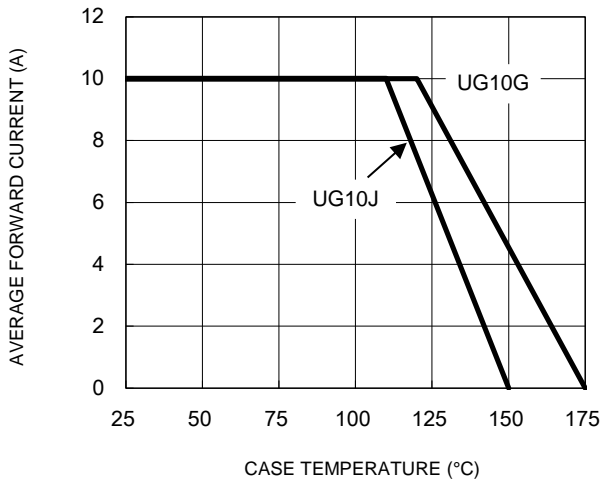


Fig.2 Typical Junction Capacitance

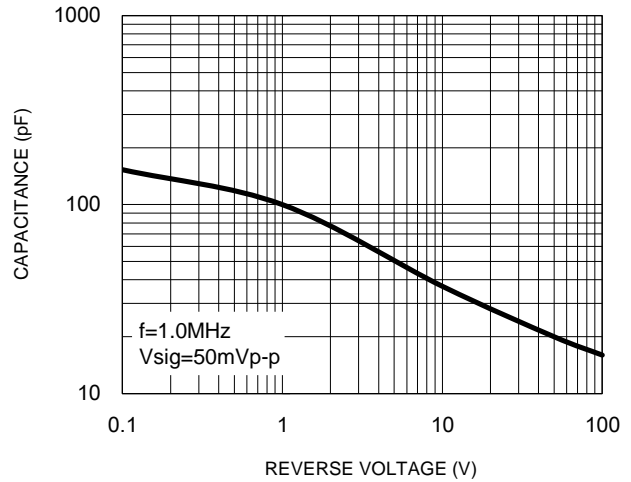


Fig.3 Typical Reverse Characteristics

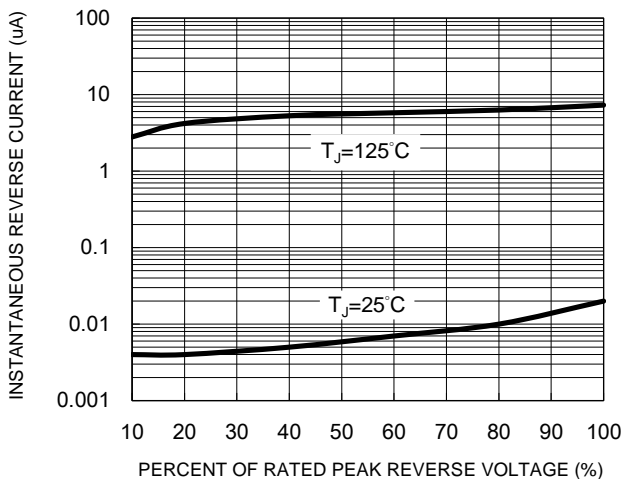


Fig.4 Typical Forward Characteristics

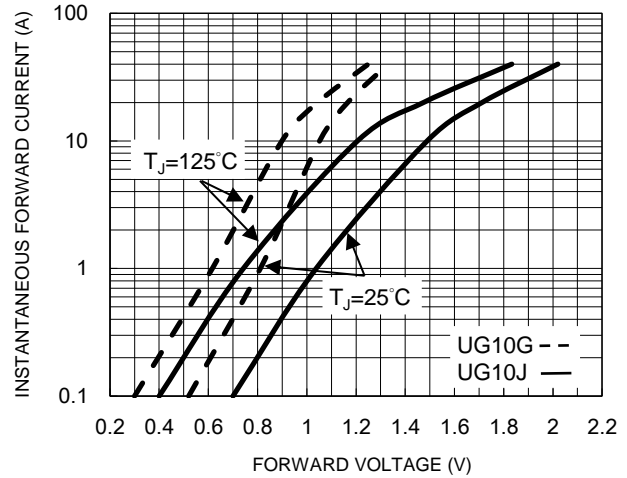
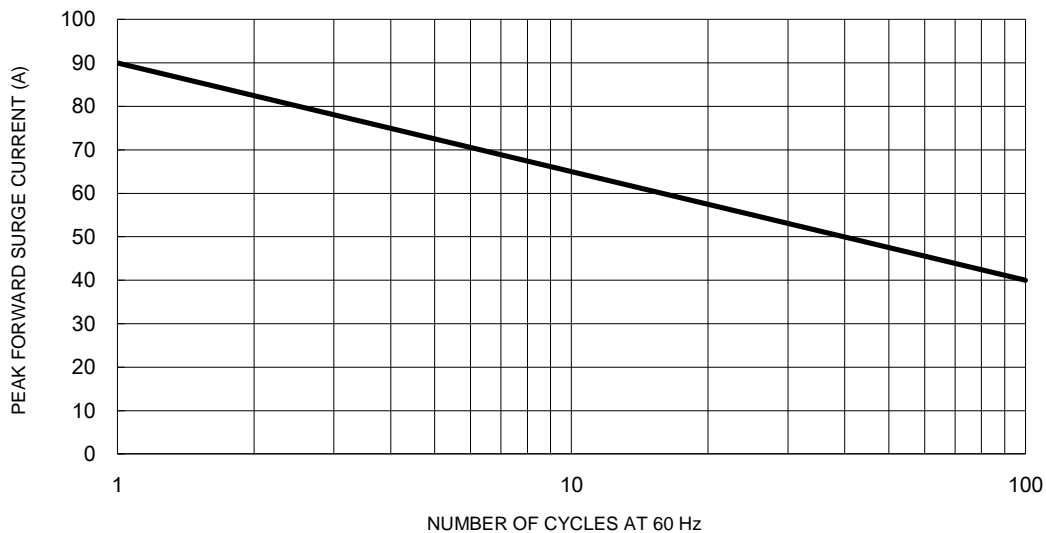
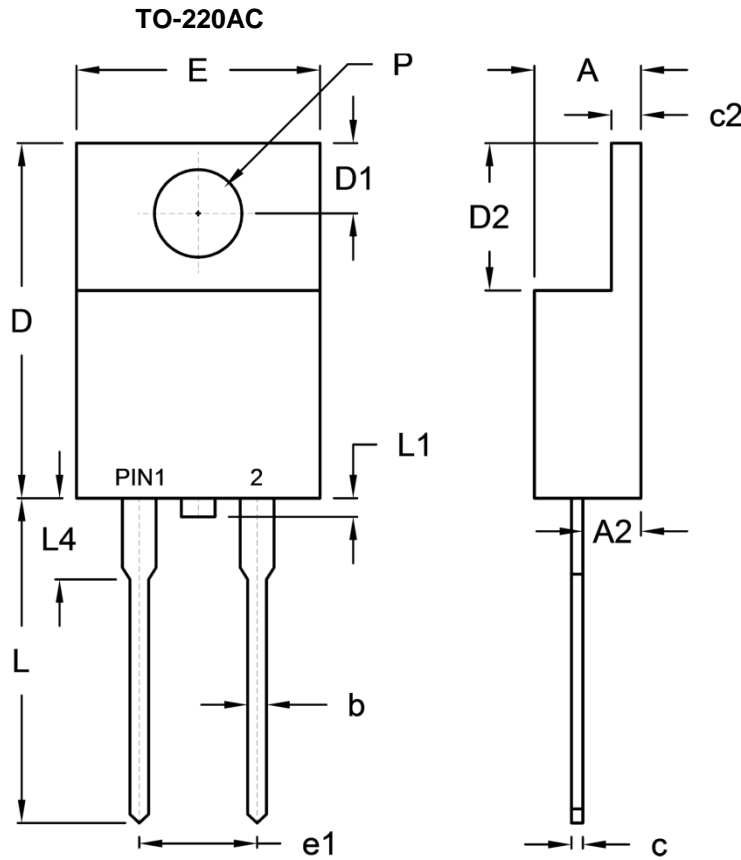


Fig.5 Maximum Non-Repetitive Forward Surge Current



PACKAGE OUTLINE DIMENSIONS



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
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
e1	4.95	5.20	0.195	0.205
L	13.19	14.79	0.519	0.582
L1	0.00	1.60	0.000	0.063
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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