8A, 1200V High Efficient Rectifier

FEATURES

- AEC-Q101 qualified available
- High junction temperature up to 175°C
- Negligible leakage sustain the high operation temperature
- Very low stored charge and its soft recovery minimize ringing and electrical noise to reduce power loss in associated MOSFET or IGBT
- High capability for high di/dt operation.
- High surge current capability
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

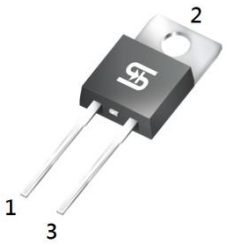
- DC to DC converter
- Switching mode converters and inverters
- Freewheeling application

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: 1.85g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	8	A
V_{RRM}	1200	V
I_{FSM}	80	A
$T_{J\,MAX}$	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**	**UGA8120**	**UNIT**
Marking code on the device		UGA8120	
Repetitive peak reverse voltage	V_{RRM}	1200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	840	V
Forward current	I_F	8	A
Surge peak forward current 8.3ms single half sine wave superimposed on rated load	I_{FSM}	80	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 resistance	$R_{\Theta JC}$	2.3	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	I_F = 8A, T_J = 25°C	V_F	-	2.8	V
Reverse current @ rated V_R[2]	T_J = 25°C	I_R	1	5	μA
	T_J = 125°C		5	100	μA
Reverse recovery time	I_F = 0.5A, I_R = 1.0A I_{rr} = 0.25A	t_{rr}	35	50	ns
	I_F = 1A, dI_F/dt = -100A/μs, V_R = 30V, T_J = 25°C	t_{rr}	50	70	ns
Reverse recovery charges	I_F = 8A, dI_F/dt = -200A/μs, V_R = 400V, T_J = 25°C	Q_{rr}	165	-	nC
	I_F = 8A, dI_F/dt = -200A/μs, V_R = 400V, T_J = 125°C	I_{RM}	11	16	A

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1]	PACKAGE	PACKING
UGA8120	TO-220AC	50 / Tube
UGA8120H	TO-220AC	50 / Tube

Notes:

1. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

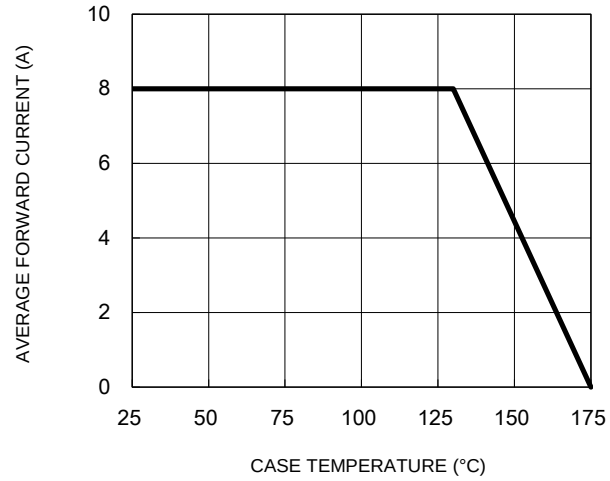


Fig.2 Typical Junction Capacitance

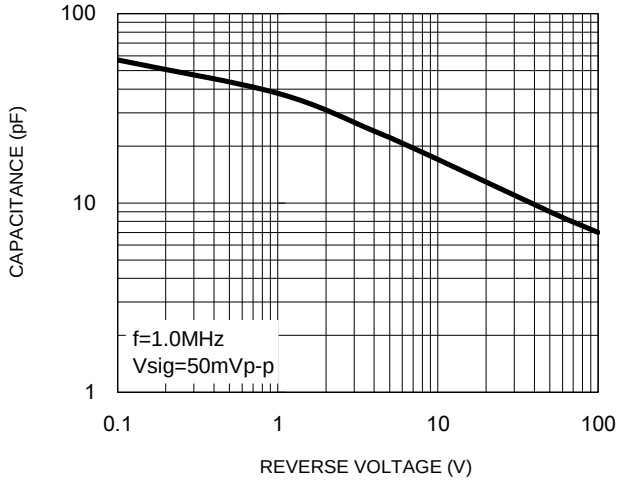


Fig.3 Typical Reverse Characteristics

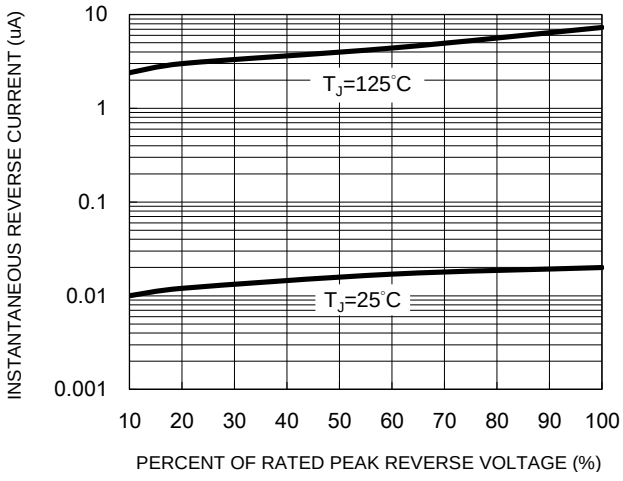


Fig.4 Typical Forward Characteristics

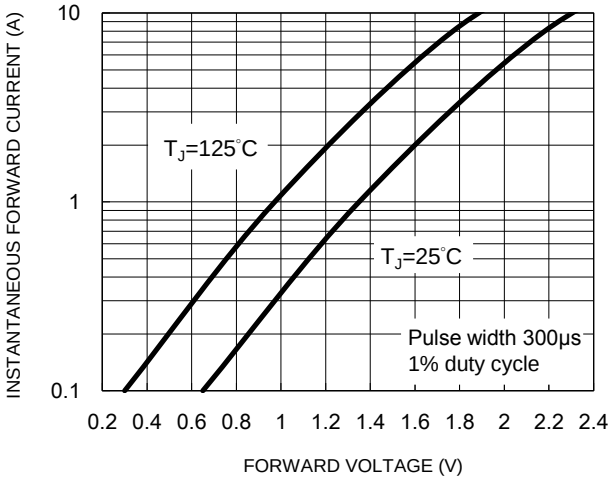
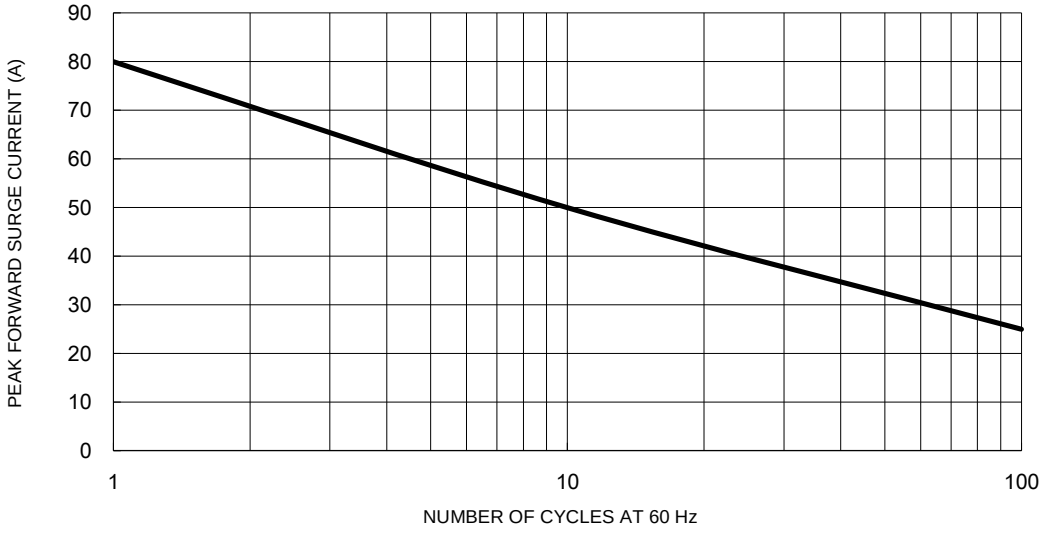
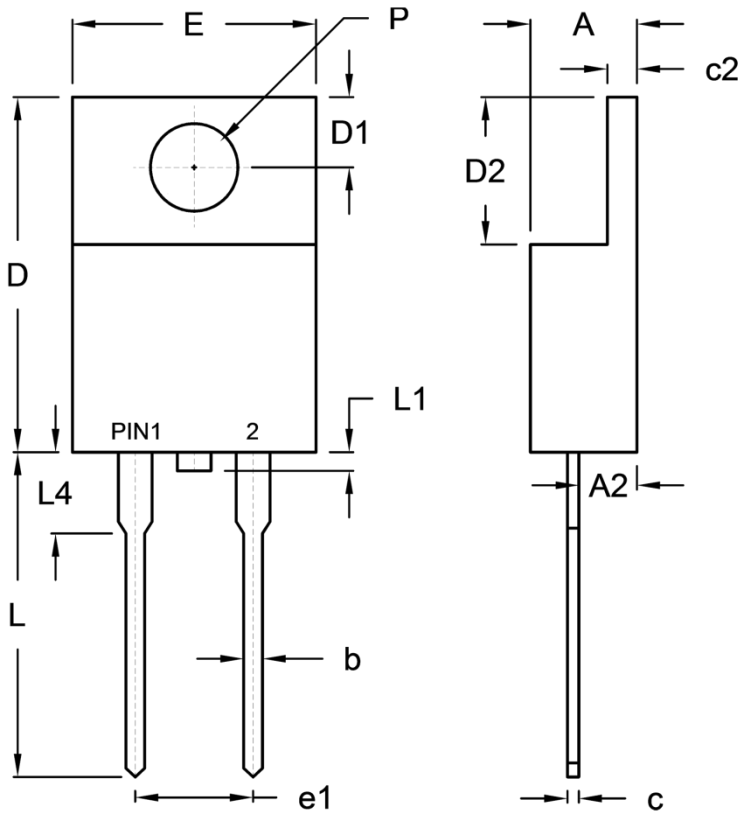


Fig.5 Maximum Non-Repetitive Forward Surge Current



PACKAGE OUTLINE DIMENSIONS

TO-220AC



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

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.