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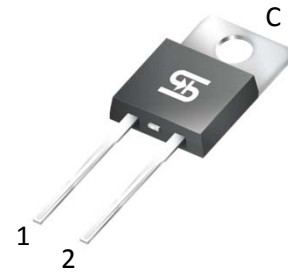
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## 8A, 1200V Super Fast Power Rectifier

### FEATURES

- Super Fast, Soft Recovery characteristics
- 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
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21



TO-220AC



### TYPICAL APPLICATIONS

The UGA8120 is an ideal solution for being used as freewheeling diodes, featuring extremely low peak recovery current to significantly reduce snubbing, and lowering switching losses in IGBT / MOSFET.

It is especially suited for heavy duty applications with demanding long term reliability such as inverters, uninterrupted power supplies, motor drives and other mission-critical systems, where high frequency and high efficiency is being needed.

Another competitive advantage of this device is the negligible leakage for use in high temperature environment.

### MECHANICAL DATA

**Case:** TO-220AC

Molding compound, UL flammability classification rating 94V-0

Part no. with suffix "H" means AEC-Q101 qualified

Packing code with suffix "G" means green compound (halogen-free)

**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting torque:** 0.56 Nm maximum

**Weight:** 1.85g (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	UGA8120		UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	1200		V
Maximum average forward rectified current	$I_{F(AV)}$	8		A
Non-repetitive peak forward surge current 8.3ms single sine-wave	$I_{FSM}$	80		A
Maximum instantaneous forward voltage (Note 1) $I_F=8\text{ A}$	$V_F$	2.8		V
Maximum reverse current @ Rated VR $T_J=25^\circ\text{C}$ $T_J=125^\circ\text{C}$	$I_R$	TYP	MAX	$\mu\text{A}$
		1	5	
		5	100	
Reverse Recovery Time $T_J=25^\circ\text{C}$ , $I_F=0.5\text{A}$ , $I_R=1\text{A}$ , $I_{RR}=0.25\text{A}$ $T_J=25^\circ\text{C}$ , $I_F=1\text{A}$ , $di_F/dt=-100\text{A}/\mu\text{s}$ , $V_R=30\text{V}$	$t_{rr}$	TYP	MAX	ns
		35	50	
		50	70	
Reverse Recovery Charges $T_J=25^\circ\text{C}$ , $I_F=8\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $V_R=400\text{V}$ $T_J=125^\circ\text{C}$ , $I_F=8\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $V_R=400\text{V}$	$Q_{rr}$	TYP	MAX	nC
		165	-	
		$I_{RM}$	11	16
Typical thermal resistance	$R_{\theta JC}$	2.3		$^\circ\text{C}/\text{W}$
Operating junction temperature range	$T_J$	- 55 to +175		$^\circ\text{C}$
Storage temperature range	$T_{STG}$	- 55 to +175		$^\circ\text{C}$

Note 1: Pulse test with  $PW=300\mu\text{s}$ , 1% duty cycle

ORDERING INFORMATION					
PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX (*)	PACKAGE	PACKING
UGA8120	H	C0	G	TO-220AC	50 / Tube

\*: Optional available

EXAMPLE					
EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
UGA8120HC0G	UGA8120	H	C0	G	AEC-Q101 qualified Green compound

## RATINGS AND CHARACTERISTICS CURVES

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

FIG.1 FORWARD CURRENT DERATING CURVE

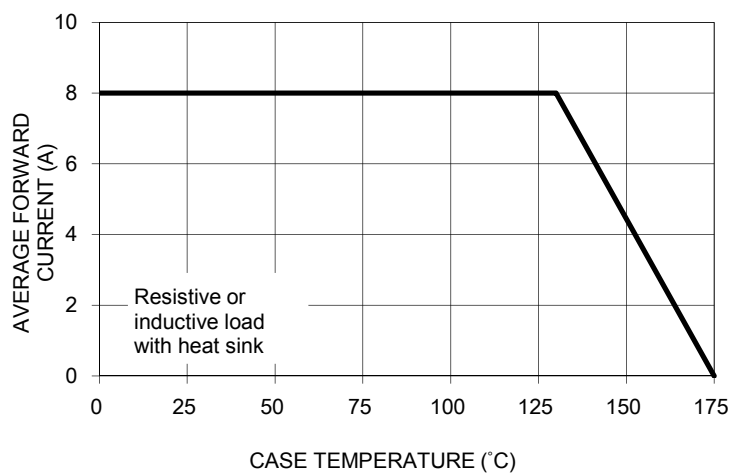


FIG. 2 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

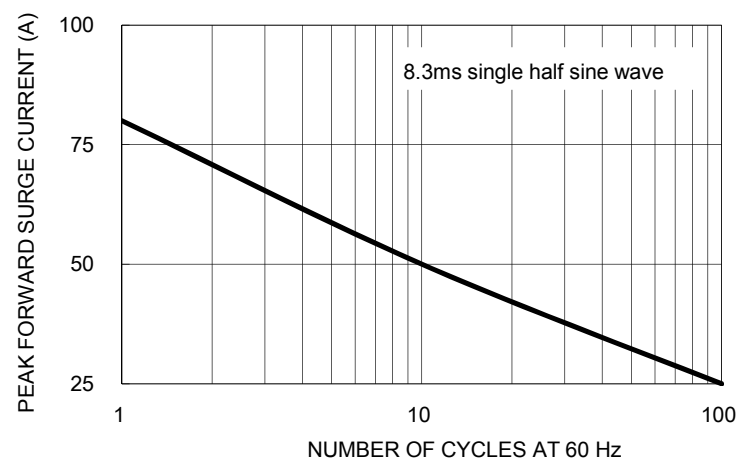


FIG. 3 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

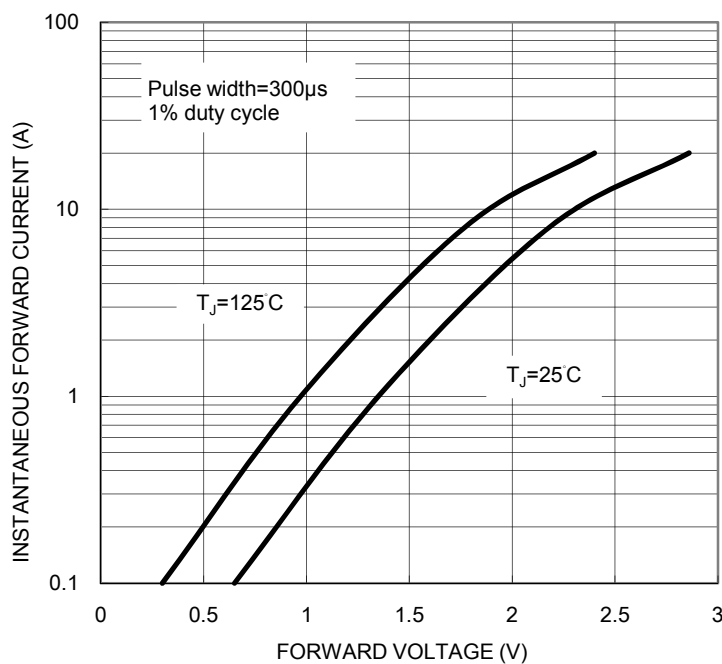


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

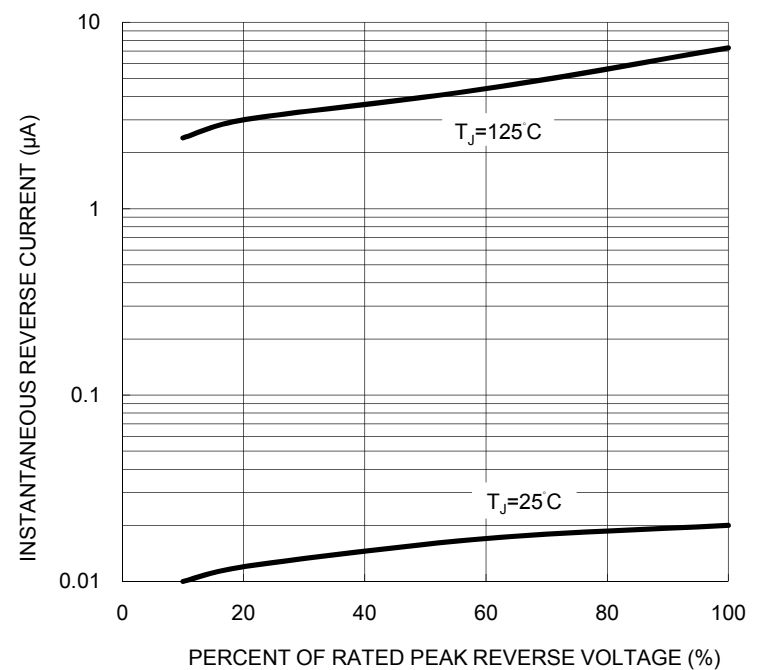
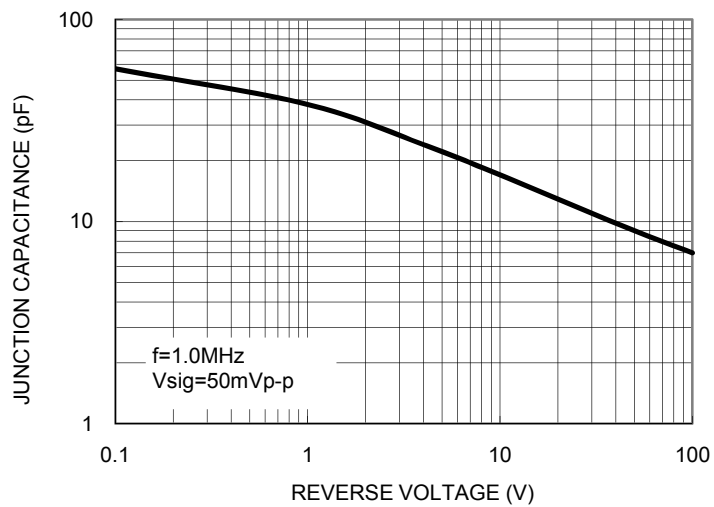
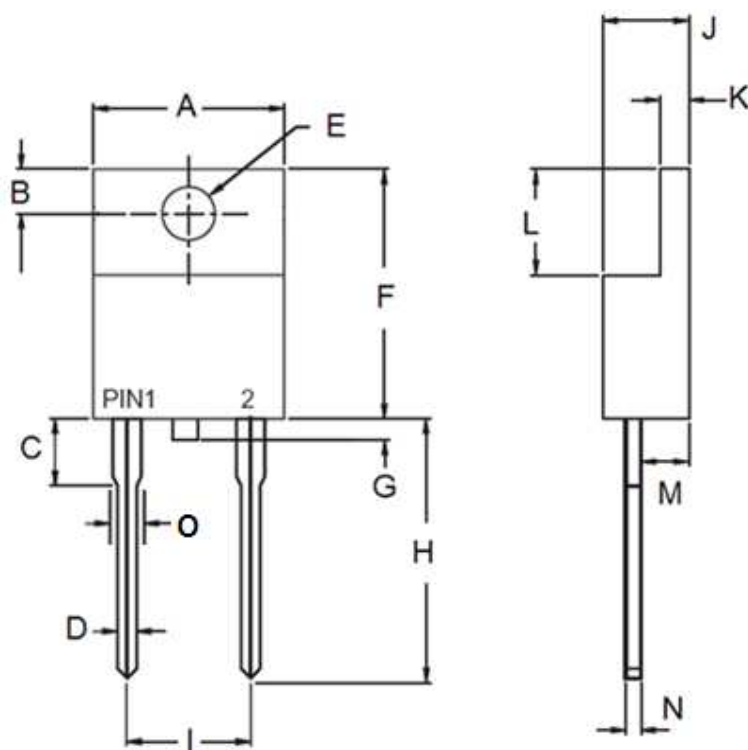




FIG. 5 TYPICAL JUNCTION CAPACITANCE

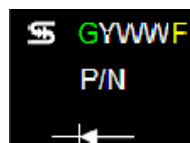


## PACKAGE OUTLINE DIMENSIONS TO-220AC



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	-	10.50	-	0.413
B	2.62	3.44	0.103	0.135
C	2.80	4.20	0.110	0.165
D	0.68	0.94	0.027	0.037
E	3.54	4.00	0.139	0.157
F	14.60	16.00	0.575	0.630
G	0.00	1.60	0.000	0.063
H	13.19	14.79	0.519	0.582
I	4.95	5.20	0.195	0.205
J	4.42	4.76	0.174	0.187
K	1.14	1.40	0.045	0.055
L	5.84	6.86	0.230	0.270
M	2.20	2.80	0.087	0.110
N	0.35	0.64	0.014	0.025
O	1.14	1.77	0.045	0.070

## MARKING DIAGRAM



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

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