

## 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

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	

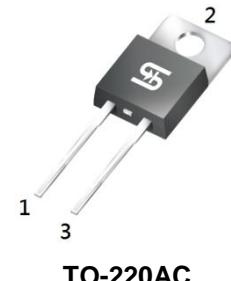


### APPLICATIONS

- 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)



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ 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	$V_{R(\text{RMS})}$	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** ( $T_A = 25^\circ C$  unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage <sup>(1)</sup>	$I_F = 8A, T_J = 25^\circ C$	$V_F$	-	2.8	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ C$	$I_R$	1	5	μA
	$T_J = 125^\circ C$		5	100	μA
Reverse recovery time	$I_F = 0.5A, I_R = 1.0A$ $I_{rr} = 0.25A$	$t_{rr}$	35	50	ns
	$I_F = 1A, dI_F/dt = -100A/\mu s$ , $V_R = 30V, T_J = 25^\circ C$	$t_{rr}$	50	70	ns
Reverse recovery charges	$I_F = 8A, dI_F/dt = -200A/\mu s$ , $V_R = 400V, T_J = 25^\circ C$	$Q_{rr}$	165	-	nC
	$I_F = 8A, dI_F/dt = -200A/\mu s$ , $V_R = 400V, T_J = 125^\circ C$	$I_{RM}$	11	16	A

**Notes:**

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

**ORDERING INFORMATION**

ORDERING CODE <sup>(1)</sup>	PACKAGE	PACKING
UGA8120	TO-220AC	50 / Tube
UGA8120H	TO-220AC	50 / Tube

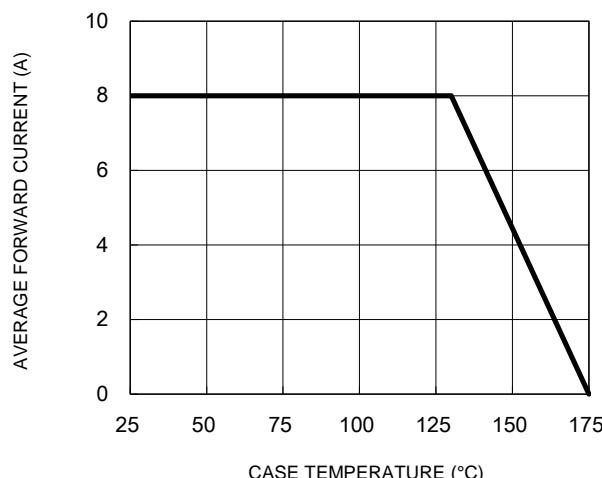
**Notes:**

1. "H" means AEC-Q101 qualified

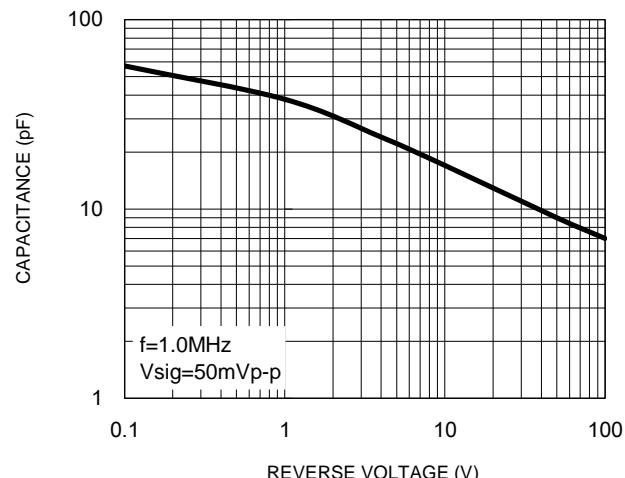
## CHARACTERISTICS CURVES

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

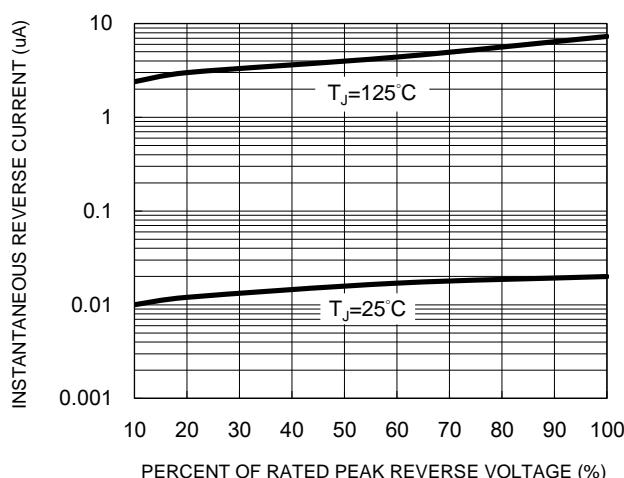
**Fig.1 Forward Current Derating Curve**



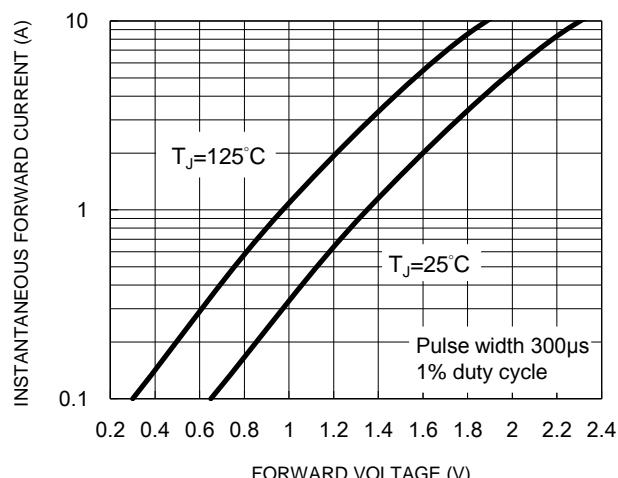
**Fig.2 Typical Junction Capacitance**



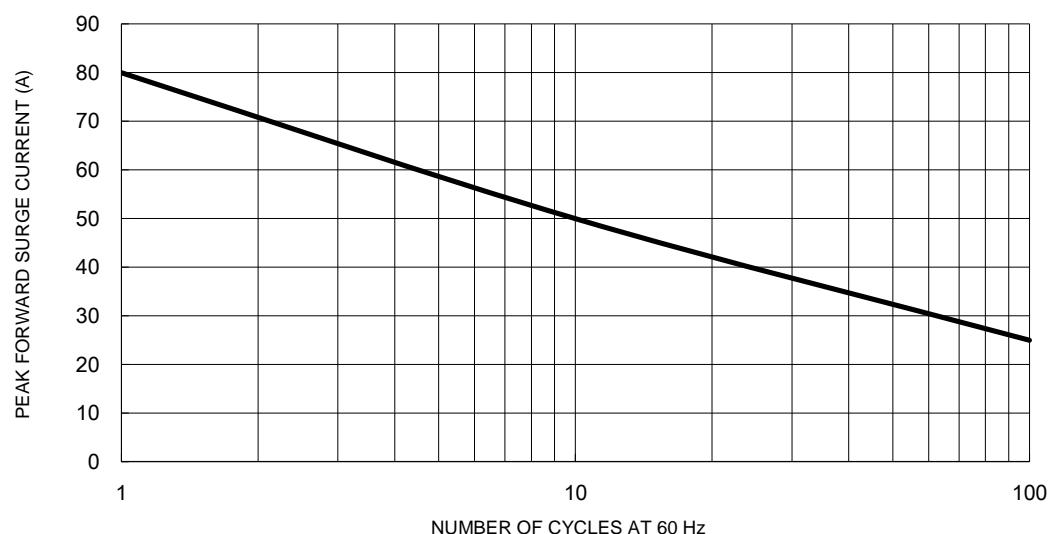
**Fig.3 Typical Reverse Characteristics**

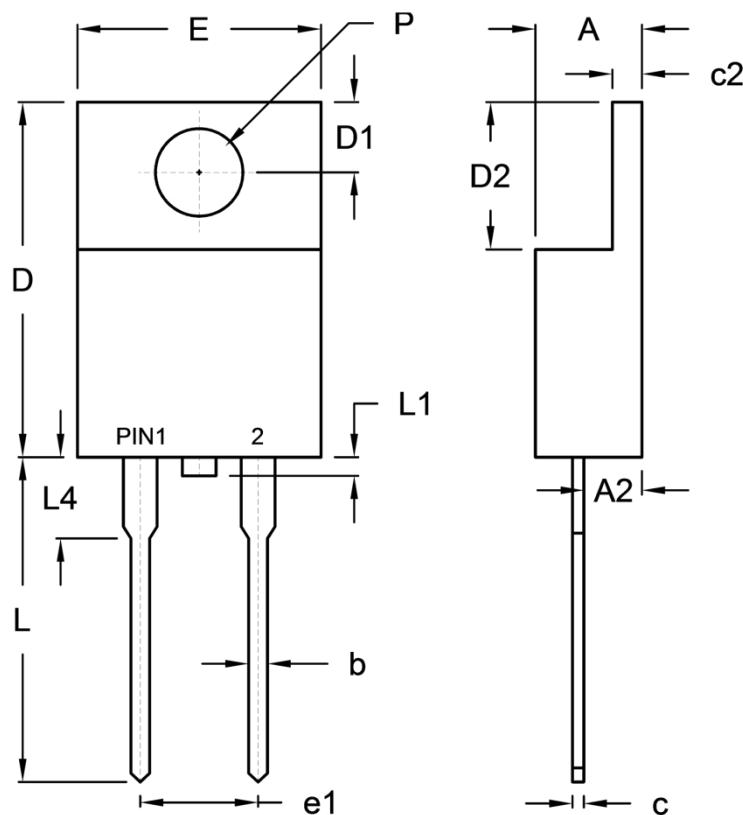


**Fig.4 Typical Forward Characteristics**



**Fig.5 Maximum Non-Repetitive Forward Surge Current**



**PACKAGE OUTLINE DIMENSIONS**
**TO-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

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