

## 20A, 200V Ultra Fast Rectifier

### FEATURES

- AEC-Q101 qualified available
- Dual rectifier construction, positive center-tap
- Ultrafast recovery time
- Low reverse recovery current
- Low forward voltage
- Reduces switching losses
- Reduces conduction losses
- Low thermal resistance ideal solution for high operation temperature
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

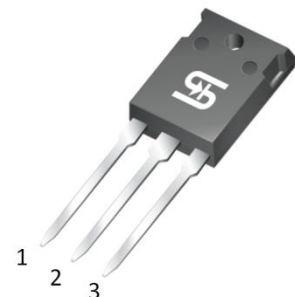
### APPLICATIONS

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

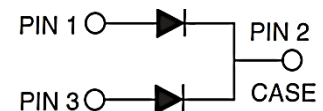
### MECHANICAL DATA

- Case: TO-247AD (TO-3P)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Mounting torque: 1.13 N·m maximum
- Polarity: As marked
- Weight: 6.10g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	20	A
$V_{RRM}$	200	V
$I_{FSM}$	200	A
$T_{JMAX}$	175	°C
Package	TO-247AD (TO-3P)	
Configuration	Dual dies	



**TO-247AD (TO-3P)**



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	UG2004PT	UNIT
Marking code on the device		UG2004PT	
Repetitive peak reverse voltage	$V_{RRM}$	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	V
Forward current	$I_F$	20	A
Surge peak forward current 8.3ms single half sine wave superimposed on rated load	$I_{FSM}$	200	A
Junction temperature	$T_J$	-55 to +175	°C
Storage temperature	$T_{STG}$	-55 to +175	°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-case thermal resistance	$R_{\theta JC}$	1.5	°C/W

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
<b>PARAMETER</b>	<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage per diode <sup>(1)</sup>	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	0.93	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	200	$\mu\text{A}$
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  $PW = 0.3\text{ms}$
2. Pulse test with  $PW = 30\text{ms}$

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
UG2004PT	TO-247AD (TO-3P)	30 / Tube
UG2004PTH	TO-247AD (TO-3P)	30 / Tube

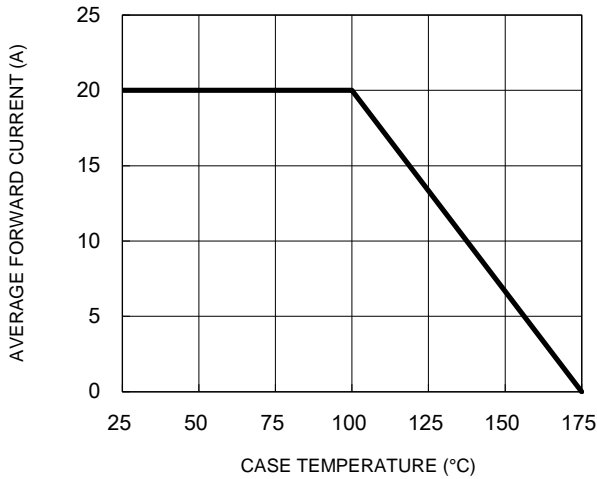
**Notes:**

1. "H" means ACE-Q101 qualified

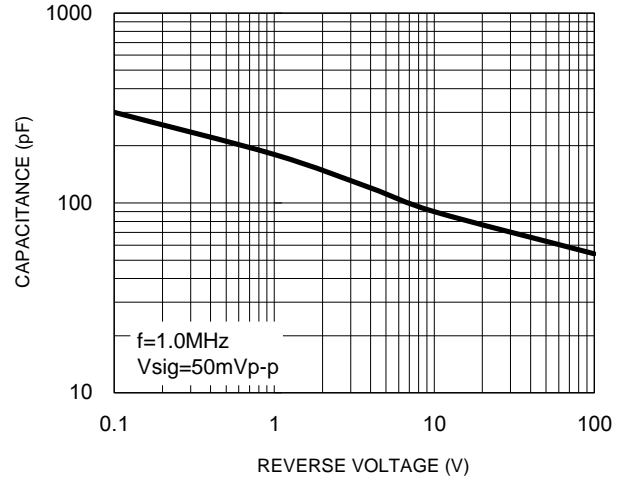
**CHARACTERISTICS CURVES**

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

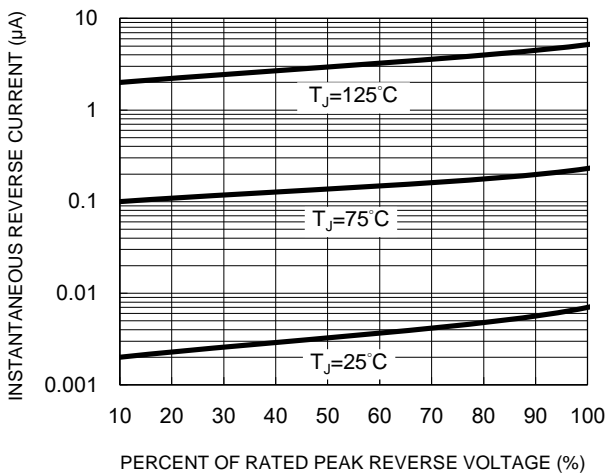
**Fig.1 Forward Current Derating Curve**



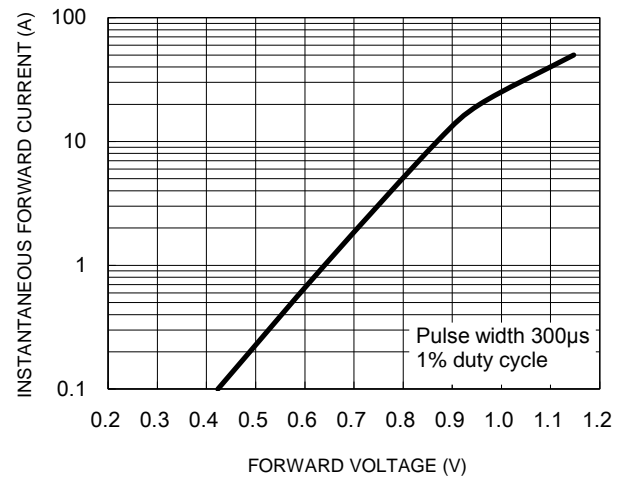
**Fig.2 Typical Junction Capacitance**



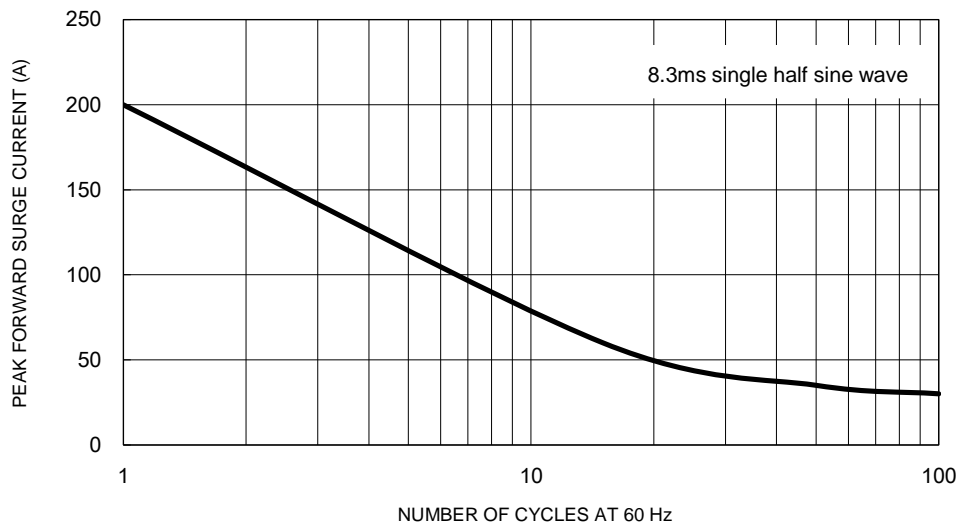
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



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



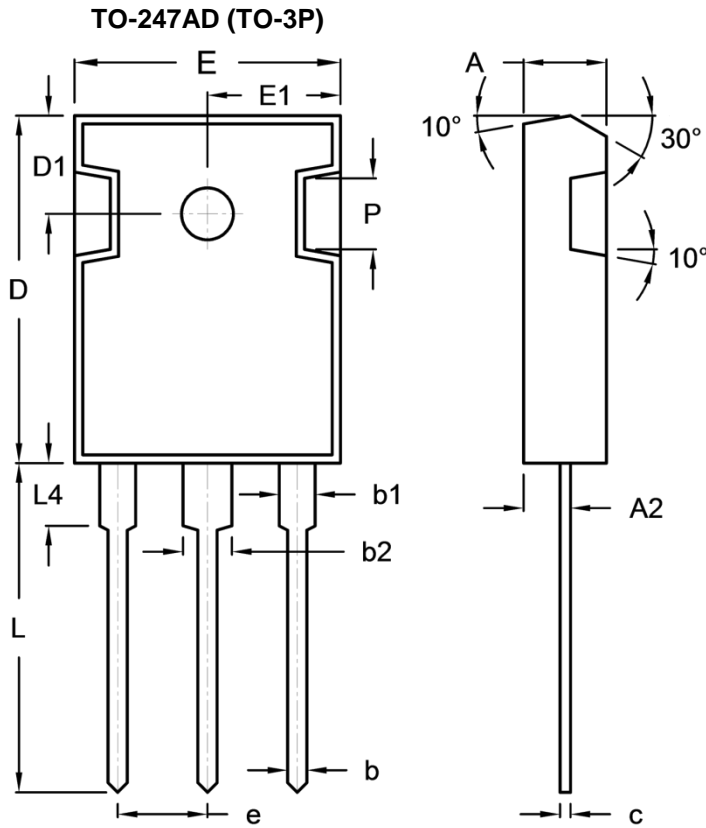
**CHARACTERISTICS CURVES**

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

**Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram**



**PACKAGE OUTLINE DIMENSIONS**



DIM	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	4.90	5.16	0.193	0.203
A2	2.70	3.00	0.106	0.118
b	1.12	1.22	0.044	0.048
b1	1.93	2.18	0.076	0.086
b2	2.97	3.22	0.117	0.127
c	0.51	0.76	0.020	0.030
D	20.80	21.30	0.819	0.839
D1	5.70	6.20	0.224	0.244
E	15.90	16.40	0.626	0.646
E1	7.90	8.20	0.311	0.323
e	5.20	5.70	0.205	0.224
H	2.90	3.40	0.114	0.134
L	19.70	20.20	0.776	0.795
L4	3.50	4.10	0.138	0.161
P	-	4.30	-	0.169

**MARKING DIAGRAM**



- P/N = Marking Code
- G = Green Compound
- YWW = Date Code
- F = Factory Code

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