

## 30A, 50V - 600V High Efficient Rectifier

### FEATURES

- AEC-Q101 qualified available
- Low forward voltage, high current capability
- Low thermal resistance
- Low power loss, high efficiency
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

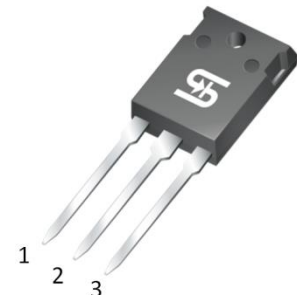
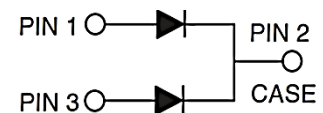
### APPLICATIONS

- 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: 5.60g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	30	A
$V_{RRM}$	50 - 600	V
$I_{FSM}$	300	A
$T_{JMAX}$	150	°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	HER 3001 PT	HER 3002 PT	HER 3003 PT	HER 3004 PT	HER 3005 PT	HER 3006 PT	UNIT
Marking code on the device		HER 3001 PT	HER 3002 PT	HER 3003 PT	HER 3004 PT	HER 3005 PT	HER 3006 PT	
Repetitive peak reverse voltage	$V_{RRM}$	50	100	200	300	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	140	210	280	420	V
Forward current	$I_F$	30						A
Surge peak forward current 8.3ms single half sine wave superimposed on rated load	$I_{FSM}$	300						A
Junction temperature	$T_J$	-55 to +150						°C
Storage temperature	$T_{STG}$	-55 to +150						°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-case thermal resistance	$R_{\theta JC}$	1.4	°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>	HER3001PT	$I_F = 15\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	1.0	V
	HER3002PT					
	HER3003PT					
	HER3004PT					
	HER3005PT					
	HER3006PT					
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>		$T_J = 25^\circ\text{C}$	$I_R$	-	10	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$		-	500	$\mu\text{A}$
Junction capacitance per diode	HER3001PT	1MHz, $V_R = 4.0\text{V}$	$C_J$	175	-	$\text{pF}$
	HER3002PT					
	HER3003PT					
	HER3004PT					
	HER3005PT					
	HER3006PT			145	-	$\text{pF}$
Reverse recovery time	HER3001PT	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$	$t_{rr}$	-	50	ns
	HER3002PT					
	HER3003PT					
	HER3004PT					
	HER3005PT					
	HER3006PT			-	80	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</b> <sup>(1)(2)</sup>	<b>PACKAGE</b>	<b>PACKING</b>
HER30xPT	TO-247AD (TO-3P)	30 / Tube
HER30xPTH	TO-247AD (TO-3P)	30 / Tube

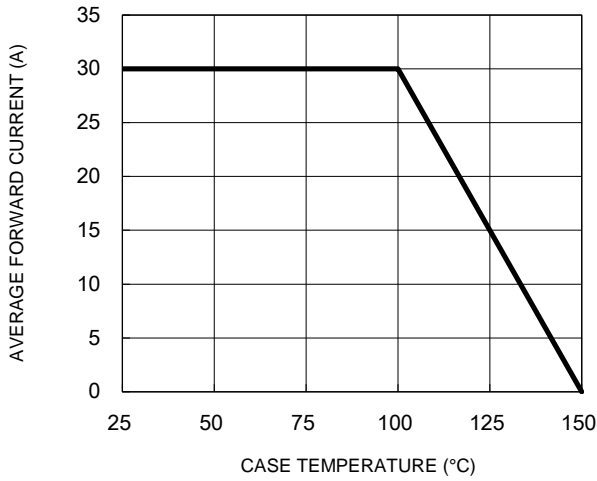
**Notes:**

1. "x" defines voltage from 50V(HER3001PT) to 600V(HER3006PT)
2. "H" means AEC-Q101 qualified

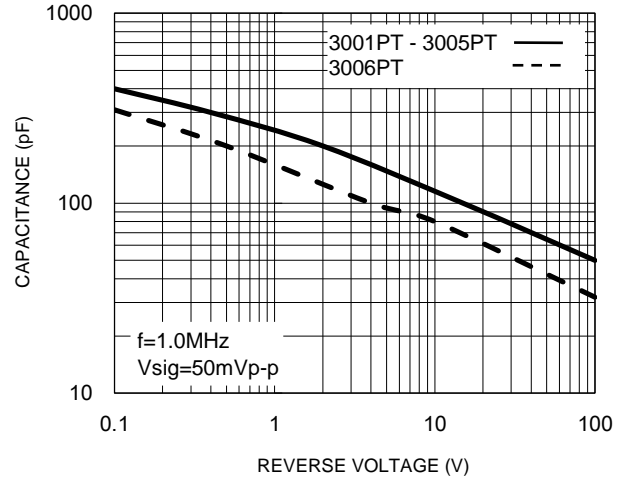
**CHARACTERISTICS CURVES**

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

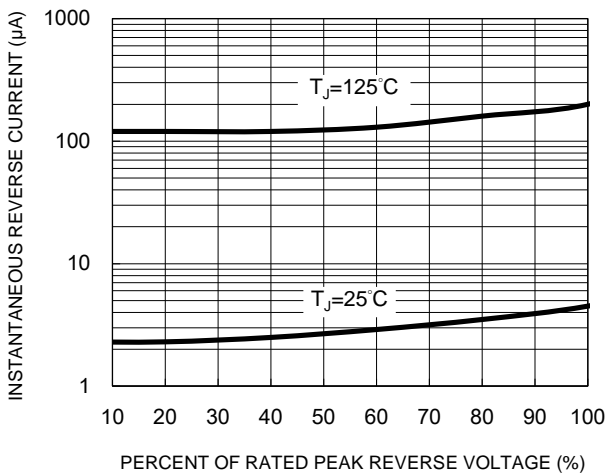
**Fig.1 Forward Current Derating Curve**



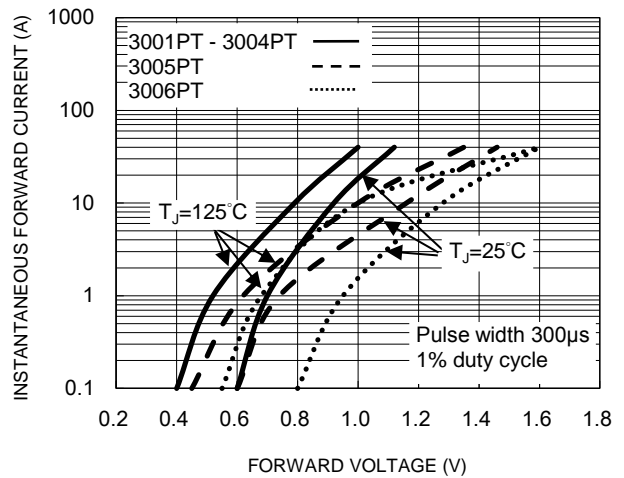
**Fig.2 Typical Junction Capacitance**



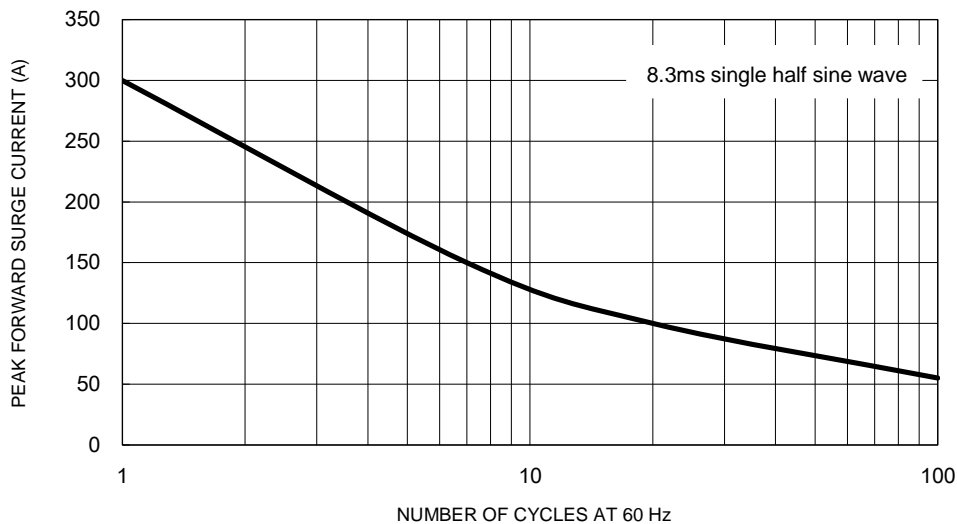
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



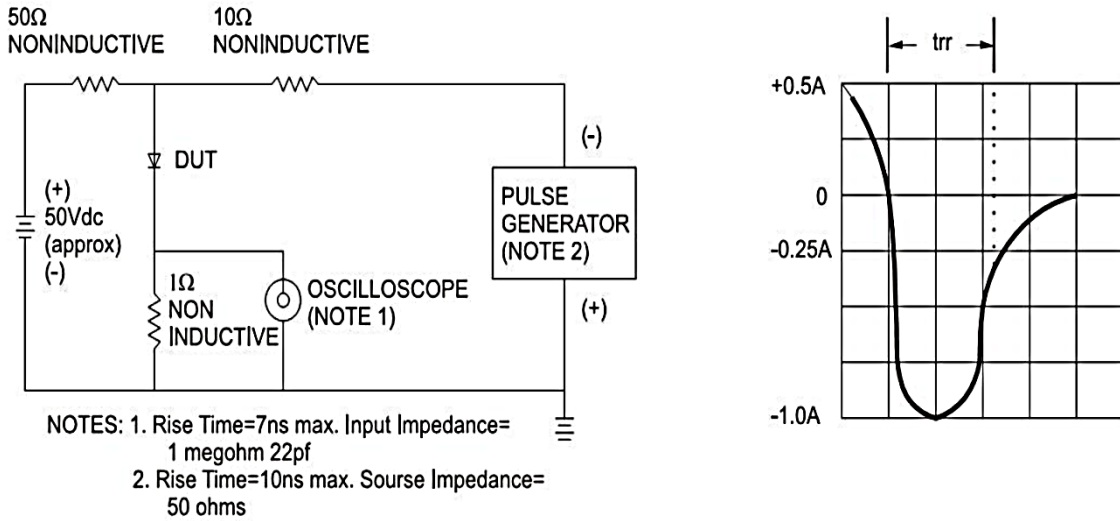
**Fig.5 Maximum Non-Repetitive Forward Surge Current**



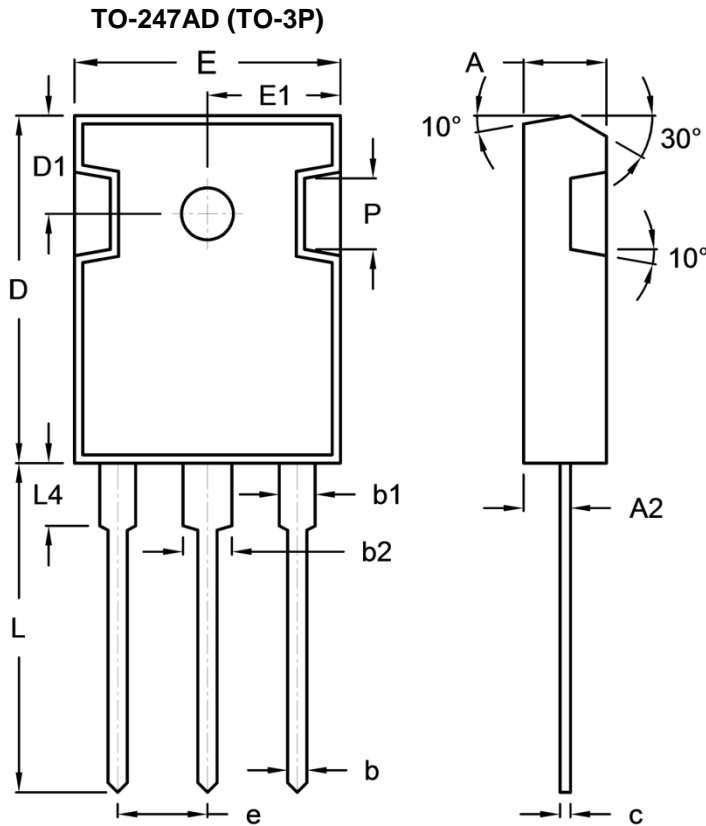
**CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25°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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