

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

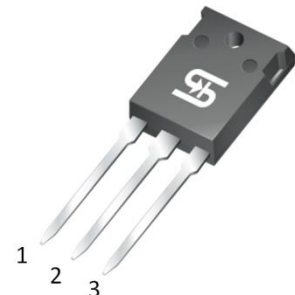
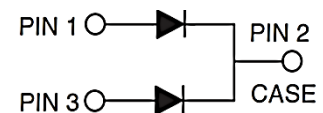
APPLICATIONS

- 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

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	$R_{\theta JC}$	1.4	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	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 ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	10	μA
		$T_J = 125^\circ\text{C}$		-	500	μA
Junction capacitance per diode	HER3001PT	1MHz, $V_R = 4.0\text{V}$	C_J	175	-	pF
	HER3002PT					
	HER3003PT					
	HER3004PT					
	HER3005PT					
	HER3006PT			145	-	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 $PW = 30\text{ms}$

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾⁽²⁾	PACKAGE	PACKING
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

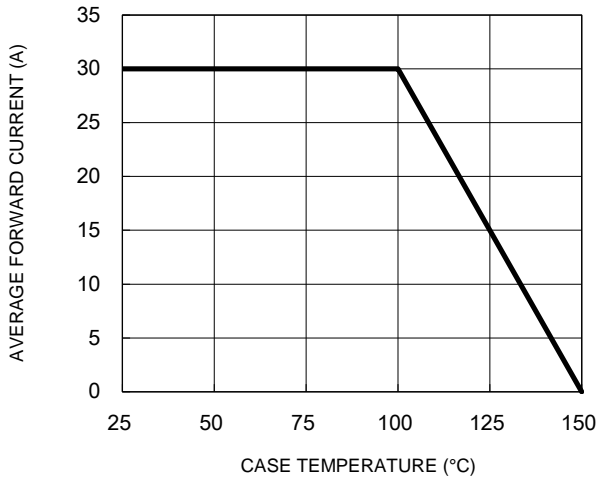


Fig.2 Typical Junction Capacitance

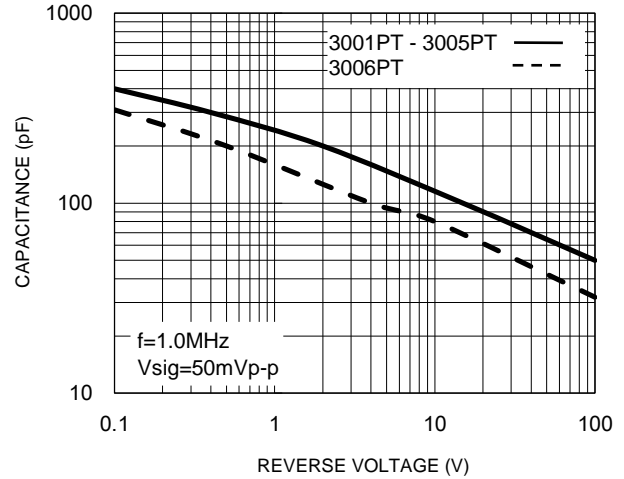


Fig.3 Typical Reverse Characteristics

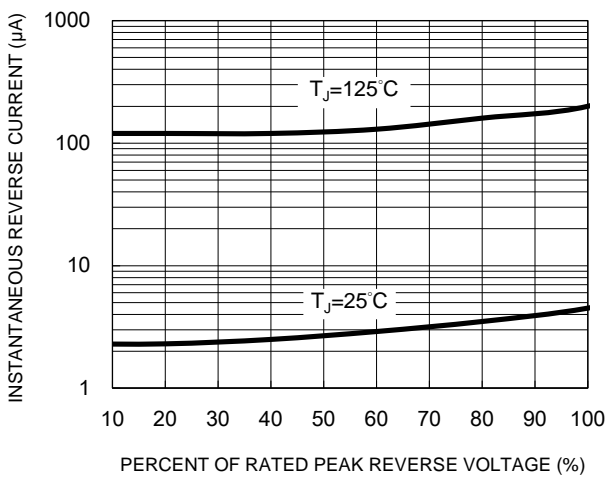


Fig.4 Typical Forward Characteristics

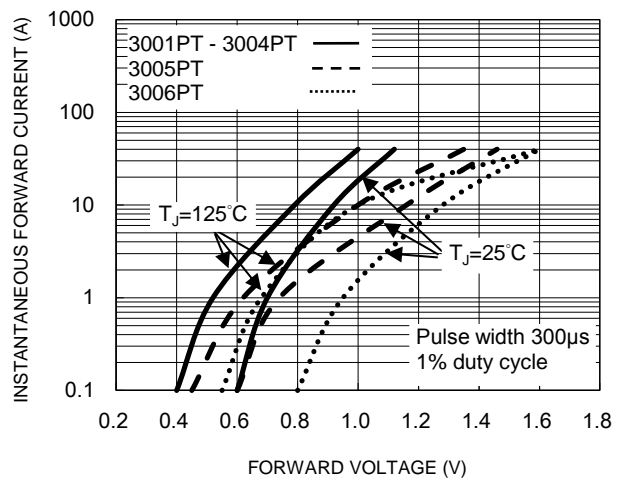
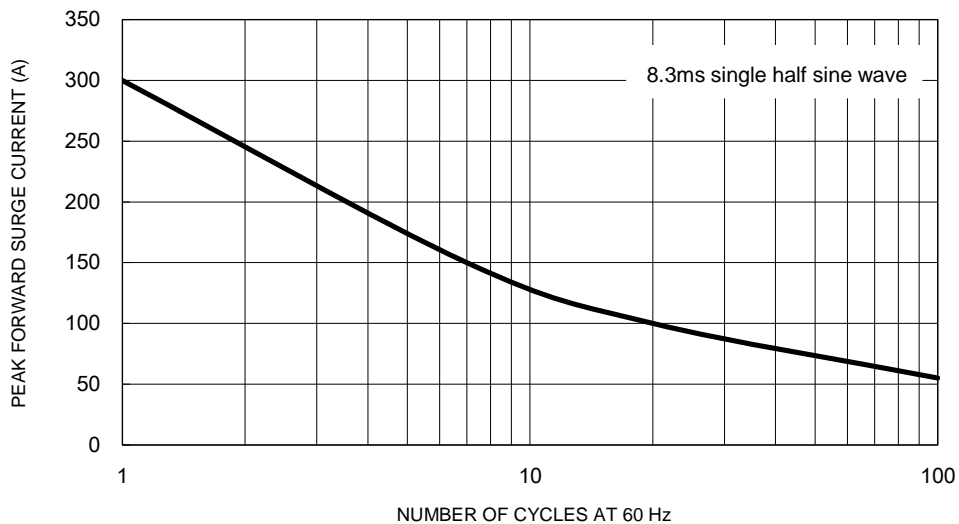


Fig.5 Maximum Non-Repetitive Forward Surge Current



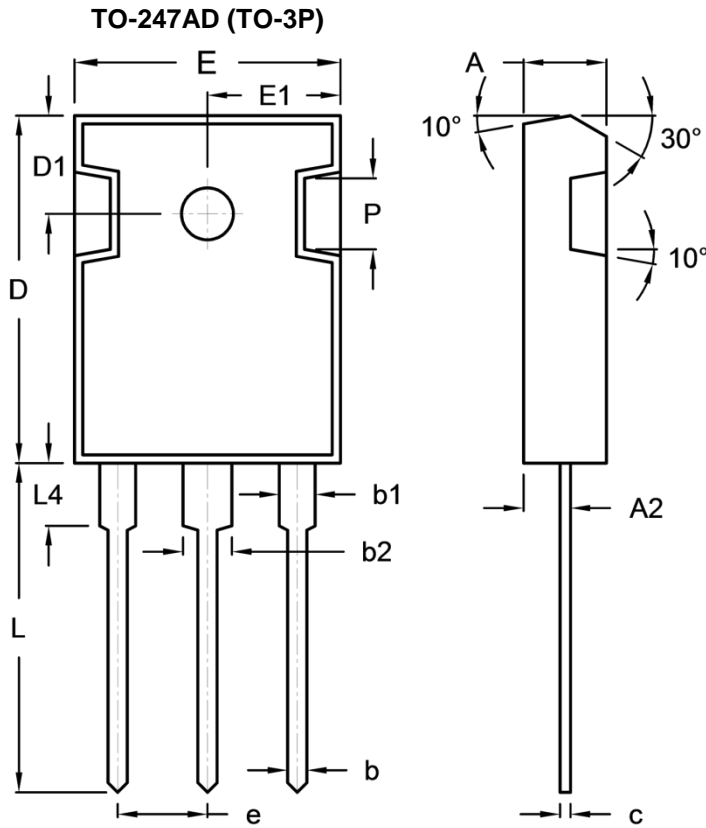
CHARACTERISTICS CURVES

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

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram

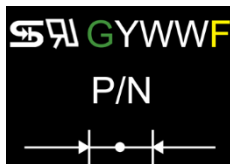


PACKAGE OUTLINE DIMENSIONS



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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