30A, 35V - 200V Schottky Barrier Rectifier

FEATURES

- AEC-Q101 qualified available
- Low power loss, high efficiency
- Guard ring for overvoltage protection
- High surge current capability
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

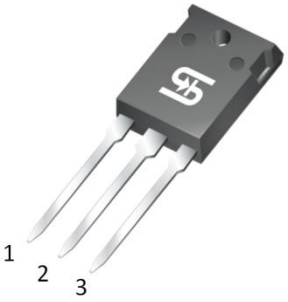
- Switching mode power supply (SMPS)
- Adapters
- Monitor
- DC to DC converters
- TV

MECHANICAL DATA

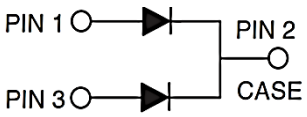
- Case: TO-247AD (TO-3P)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Mounting torque: 1.13 N·m maximum
- Polarity: As marked
- Weight: 6.10g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	30	A
V_{RRM}	35 - 200	V
I_{FSM}	200	A
$T_{J\ MAX}$	150	°C
Package	TO-247AD (TO-3P)	
Configuration	Dual dies	

Pb-Free RoHS COMPLIANT HALOGEN FREE



TO-247AD (TO-3P)



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)										
PARAMETER	**SYMBOL**	**MBR 3035 PT**	**MBR 3045 PT**	**MBR 3050 PT**	**MBR 3060 PT**	**MBR 3090 PT**	**MBR 30100 PT**	**MBR 30150 PT**	**MBR 30200 PT**	**UNIT**
Marking code on the device		MBR 3035 PT	MBR 3045 PT	MBR 3050 PT	MBR 3060 PT	MBR 3090 PT	MBR 30100 PT	MBR 30150 PT	MBR 30200 PT	
Repetitive peak reverse voltage	V_{RRM}	35	45	50	60	90	100	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	24	31	35	42	63	70	105	140	V
Forward current	I_F	30								A
Surge peak forward current 8.3ms single half sine wave superimposed on rated load	I_{FSM}	200								A
Peak repetitive reverse surge current[(1)]	I_{RRM}	2		1						A
Peak repetitive forward current (Rated V_R, Square wave, 20KHz)	I_{FRM}	30								A

Notes:

1. tp = 2.0μs, 1.0KHz

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)										
PARAMETER	SYMBOL	MBR 3035 PT	MBR 3045 PT	MBR 3050 PT	MBR 3060 PT	MBR 3090 PT	MBR 30100 PT	MBR 30150 PT	MBR 30200 PT	UNIT
Critical rate of rise of off-state voltage	dV/dt	10,000								V/μs
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°C unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode[1]	MBR3035PT MBR3045PT	I_F = 15A, T_J = 25°C	V_F	-	-	V
	MBR3050PT MBR3060PT			-	0.75	V
	MBR3090PT MBR30100PT			-	0.85	V
	MBR30150PT			-	0.95	V
	MBR30200PT			-	1.05	V
	MBR3035PT MBR3045PT	I_F = 30A, T_J = 25°C		-	0.82	V
	MBR3050PT MBR3060PT			-	-	V
	MBR3090PT MBR30100PT			-	-	V
	MBR30150PT			-	1.02	V
	MBR30200PT			-	1.10	V
	MBR3035PT MBR3045PT	I_F = 15A, T_J = 125°C		-	0.60	V
	MBR3050PT MBR3060PT			-	0.65	V
	MBR3090PT MBR30100PT			-	0.75	V
	MBR30150PT			-	0.92	V
	MBR30200PT			-	-	V
	MBR3035PT MBR3045PT	I_F = 30A, T_J = 125°C		-	0.73	V
	MBR3050PT MBR3060PT			-	-	V
	MBR3090PT MBR30100PT			-	-	V
	MBR30150PT			-	0.98	V
	MBR30200PT			-	-	V

Notes:

1. Pulse test with PW = 0.3ms

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER		**CONDITIONS**	**SYMBOL**	**TYP**	**MAX**	**UNIT**
Reverse current @ rated V_R per diode[2]	MBR3035PT MBR3045PT MBR3050PT MBR3060PT	T_J = 25°C	I_R	-	1000	μA
	MBR3090PT MBR30100PT MBR30150PT			-	500	μA
	MBR30200PT			-	100	μA
	MBR3035PT MBR3045PT	T_J = 125°C		-	20	mA
	MBR3050PT MBR3060PT			-	15	mA
	MBR3090PT MBR30100PT MBR30150PT MBR30200PT			-	10	mA

Notes:

2. Pulse test with PW = 30ms

ORDERING INFORMATION		
ORDERING CODE[1][2]	**PACKAGE**	**PACKING**
MBR30xPT	TO-247AD (TO-3P)	30 / Tube
MBR30xPTH	TO-247AD (TO-3P)	30 / Tube

Notes:

1. "x" defines voltage from 35V(MBR3035PT) to 200V(MBR30200PT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

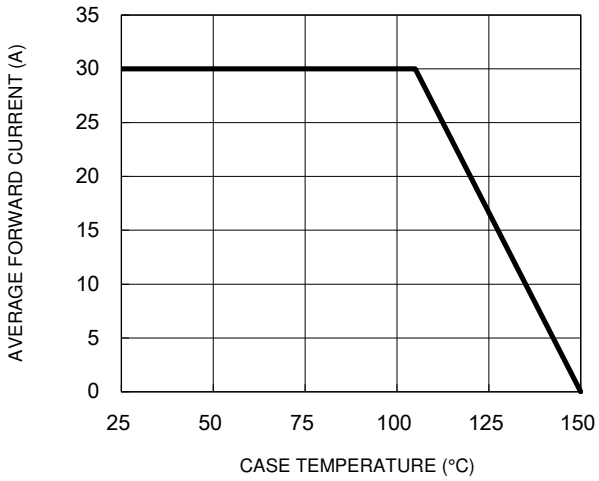


Fig.2 Typical Junction Capacitance

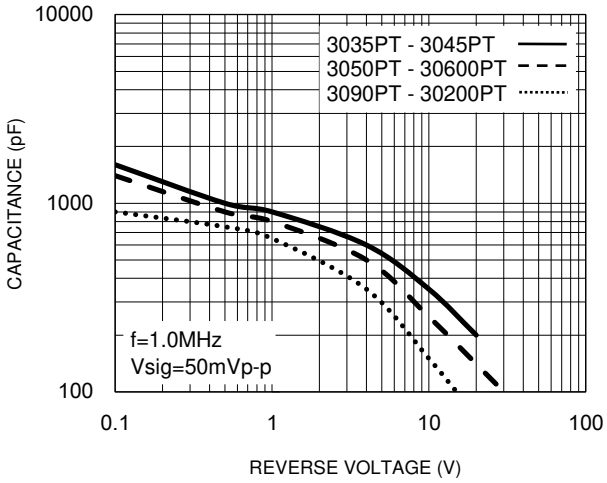


Fig.3 Typical Reverse Characteristics

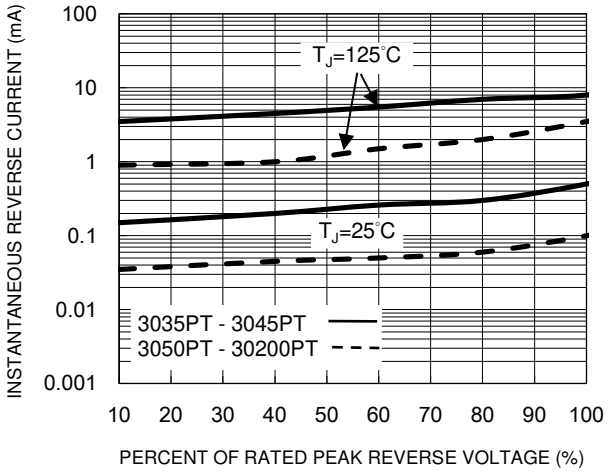


Fig.4 Typical Forward Characteristics

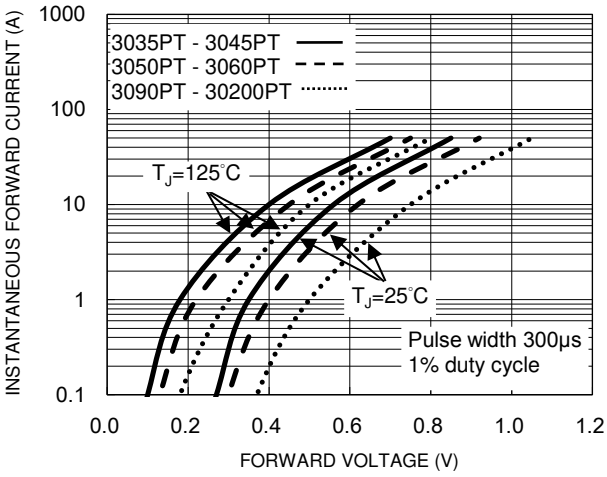
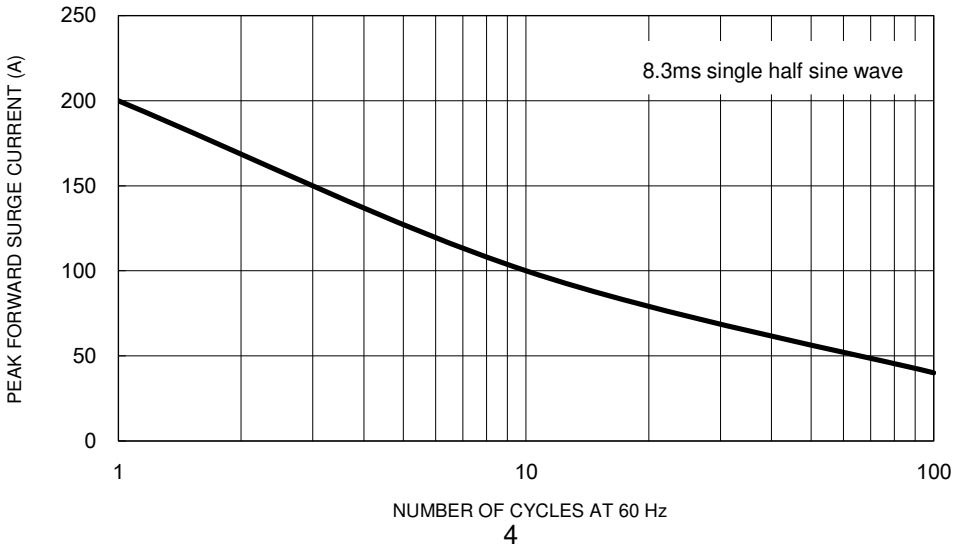


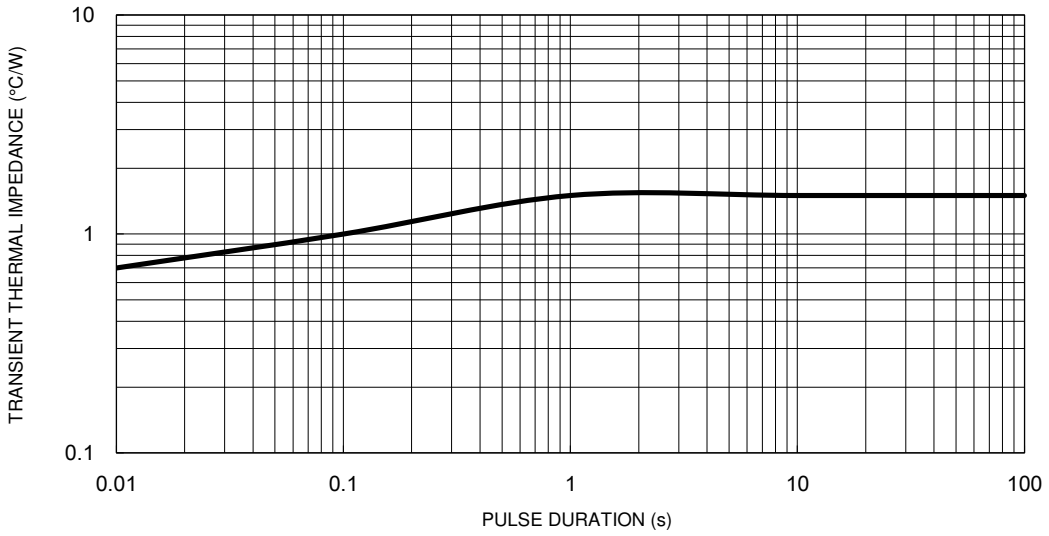
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

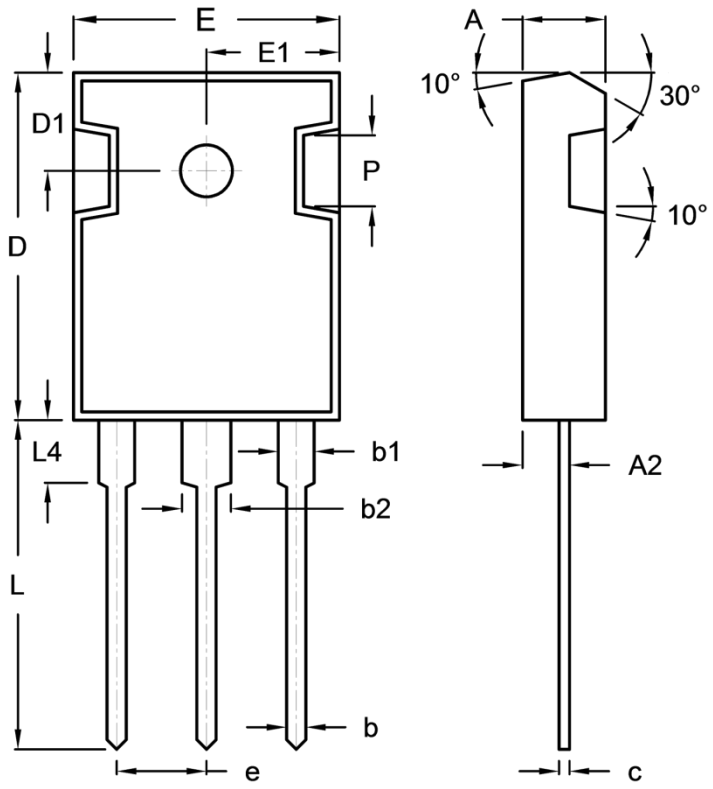
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance



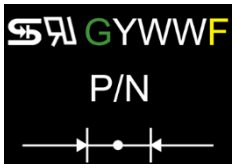
PACKAGE OUTLINE DIMENSIONS

TO-247AD (TO-3P)



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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