60A, 35V - 100V 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

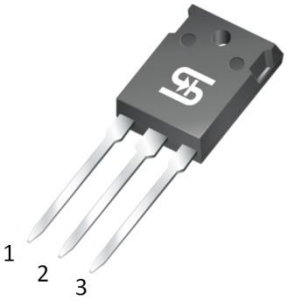
- Switching mode power supply (SMPS)
- Adapters
- Monitor
- DC to DC converters
- TV

MECHANICAL DATA

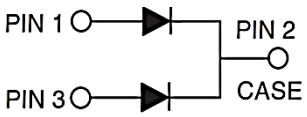
- Case: TO-247AD (TO-3P)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Mounting torque: 1.13 N·m maximum
- Polarity: As marked
- Weight: 6.10g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	60	A
V_{RRM}	35 - 100	V
I_{FSM}	420	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 6035 PT**	**MBR 6045 PT**	**MBR 6050 PT**	**MBR 6060 PT**	**MBR 6090 PT**	**MBR 60100 PT**	**UNIT**
Marking code on the device		MBR 6035PT	MBR 6045PT	MBR 6050PT	MBR 6060PT	MBR 6090PT	MBR 60100PT	
Repetitive peak reverse voltage	V_{RRM}	35	45	50	60	90	100	V
Reverse voltage, total rms value	$V_{R(RMS)}$	24	31	35	42	63	70	V
Forward current	I_F	60						A
Surge peak forward current 8.3ms single half sine wave superimposed on rated load	I_{FSM}	420						A
Peak repetitive reverse surge current(1)	I_{RRM}	1						A
Peak repetitive forward current (Rated V_R, Square wave, 20KHz)	I_{FRM}	60						A
Critical rate of rise of off-state voltage	dV/dt	10,000						V/μs

Notes:

1. tp = 2.0μs, 1.0KHz

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)								
PARAMETER	**SYMBOL**	**MBR 6035 PT**	**MBR 6045 PT**	**MBR 6050 PT**	**MBR 6060 PT**	**MBR 6090 PT**	**MBR 60100 PT**	**UNIT**
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	$R_{\Theta JC}$	1.2	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER		**CONDITIONS**	**SYMBOL**	**TYP**	**MAX**	**UNIT**
Forward voltage per diode[1]	MBR6035PT MBR6045PT	I_F = 30A, T_J = 25°C	V_F	-	0.70	V
	MBR6050PT MBR6060PT			-	0.75	V
	MBR6090PT MBR60100PT			-	0.84	V
	MBR6035PT MBR6045PT	I_F = 60A, T_J = 25°C		-	0.82	V
	MBR6050PT MBR6060PT			-	0.93	V
	MBR6090PT MBR60100PT			-	0.98	V
	MBR6035PT MBR6045PT	I_F = 30A, T_J = 125°C		-	0.60	V
	MBR6050PT MBR6060PT			-	0.65	V
	MBR6090PT MBR60100PT			-	-	V
Reverse current @ rated V_R per diode[2]	MBR6035PT MBR6045PT MBR6050PT MBR6060PT MBR6090PT MBR60100PT	T_J = 25°C	I_R	-	1000	µA
	MBR6035PT MBR6045PT	T_J = 125°C		-	30	mA
	MBR6050PT MBR6060PT			-	20	mA
	MBR6090PT MBR60100PT			-	10	mA

Notes:

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

ORDERING INFORMATION		
ORDERING CODE[1][2]	**PACKAGE**	**PACKING**
MBR60xPT	TO-247AD (TO-3P)	30 / Tube
MBR60xPTH	TO-247AD (TO-3P)	30 / Tube

Notes:

1. "x" defines voltage from 35V(MBR6035PT) to 100V(MBR60100PT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

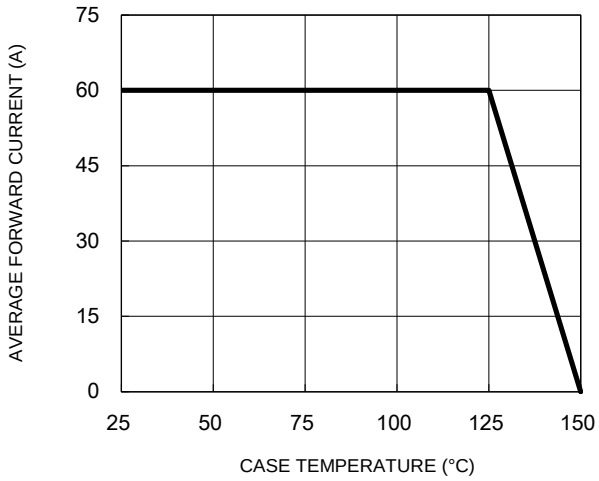


Fig.2 Typical Junction Capacitance

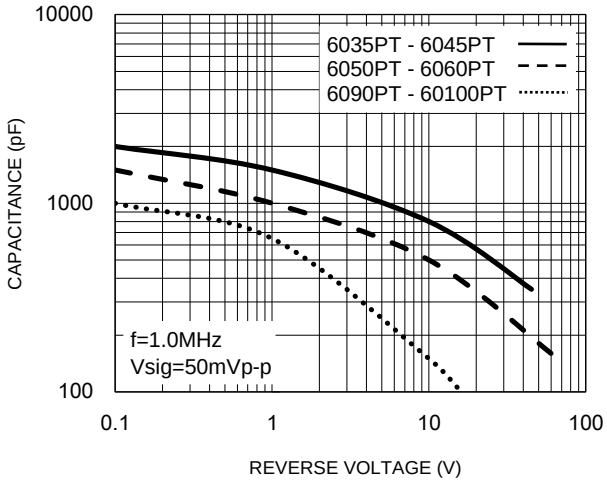


Fig.3 Typical Reverse Characteristics

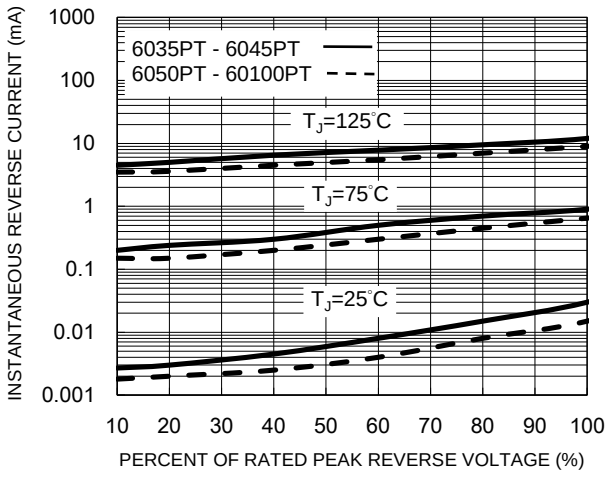


Fig.4 Typical Forward Characteristics

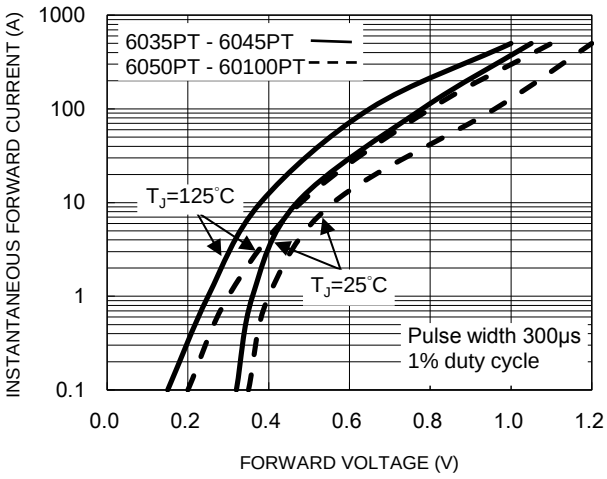
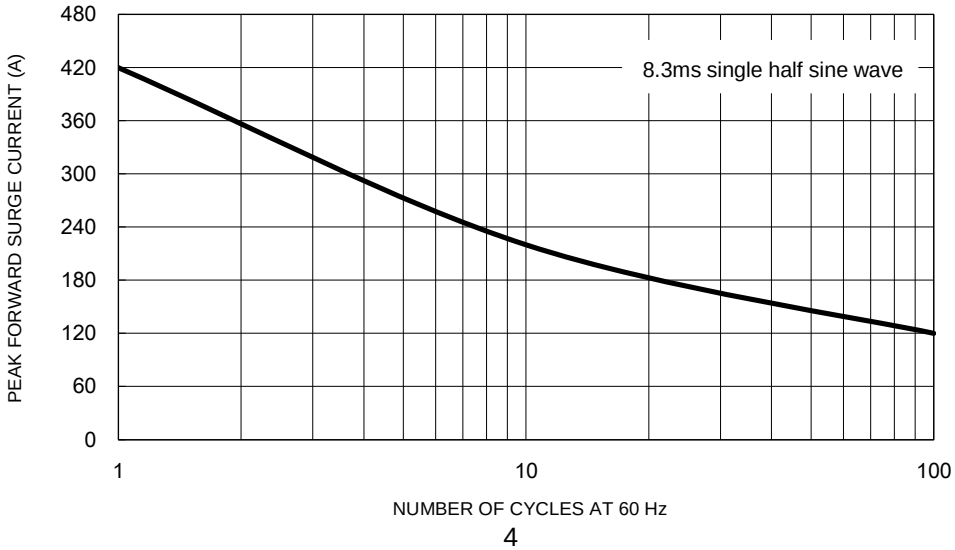


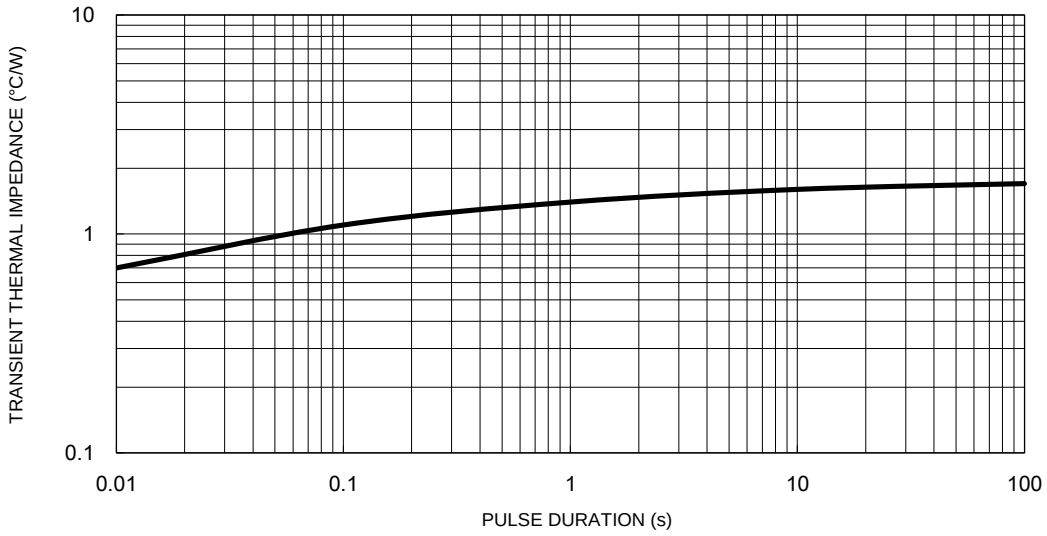
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

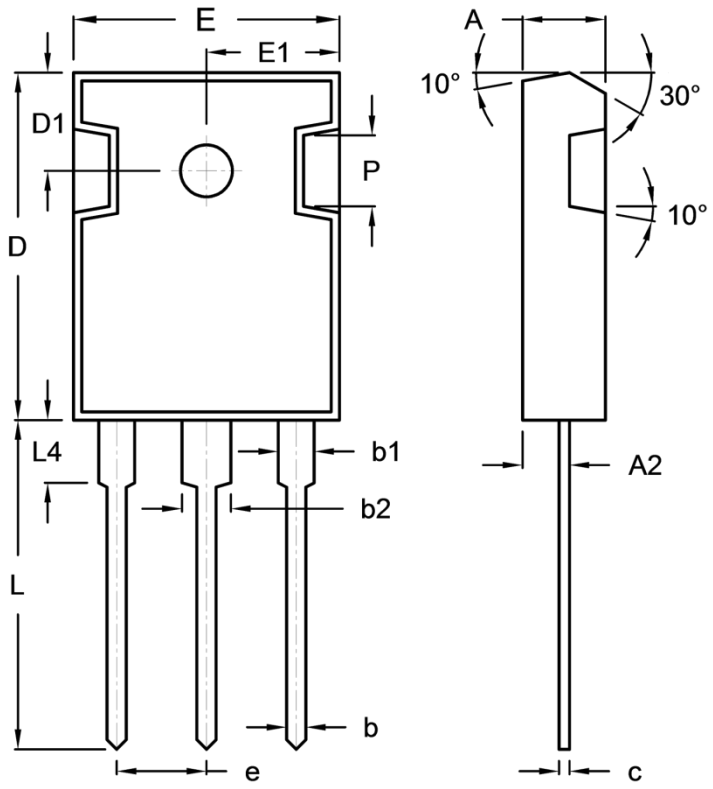
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance



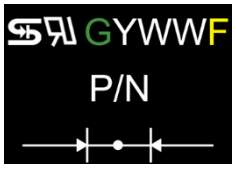
PACKAGE OUTLINE DIMENSIONS

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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