

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

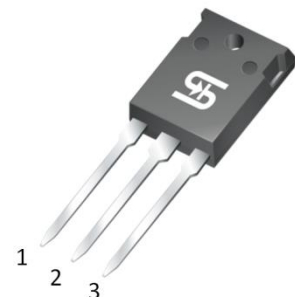
APPLICATIONS

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

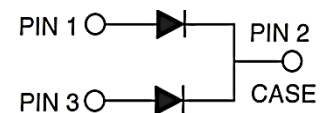
MECHANICAL DATA

- 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_{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	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. $t_p = 2.0\mu\text{s}$, 1.0KHz

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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						$^\circ\text{C}$
Storage temperature	T_{STG}	-55 to +150						$^\circ\text{C}$

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	$R_{\theta\text{JC}}$	1.2	$^\circ\text{C/W}$

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT	
Forward voltage per diode ⁽¹⁾	MBR6035PT MBR6045PT	$I_F = 30\text{A}, T_J = 25^\circ\text{C}$	V_F	-	0.70	V
	MBR6050PT MBR6060PT			-	0.75	V
	MBR6090PT MBR60100PT			-	0.84	V
	MBR6035PT MBR6045PT	$I_F = 60\text{A}, T_J = 25^\circ\text{C}$		-	0.82	V
	MBR6050PT MBR6060PT			-	0.93	V
	MBR6090PT MBR60100PT			-	0.98	V
	MBR6035PT MBR6045PT	$I_F = 30\text{A}, T_J = 125^\circ\text{C}$		-	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	$T_J = 25^\circ\text{C}$	I_R	-	1000	μA
	MBR6035PT MBR6045PT	$T_J = 125^\circ\text{C}$		-	30	mA
	MBR6050PT MBR6060PT			-	20	mA
	MBR6090PT MBR60100PT			-	10	mA

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
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

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

Fig.1 Forward Current Derating Curve

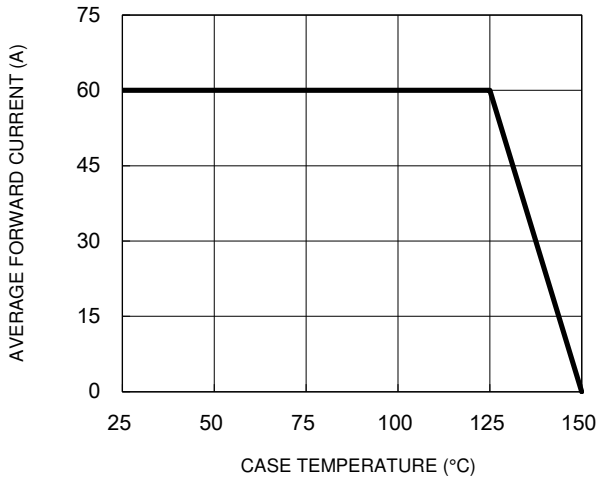


Fig.2 Typical Junction Capacitance

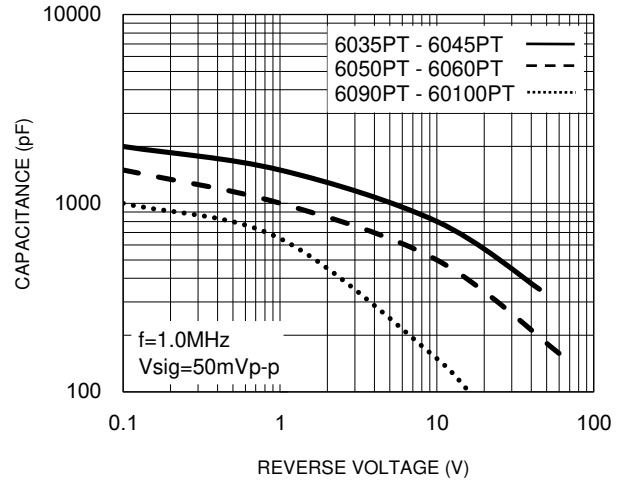


Fig.3 Typical Reverse Characteristics

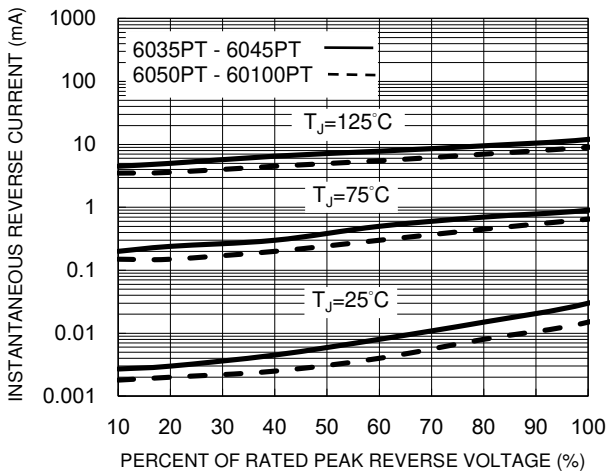


Fig.4 Typical Forward Characteristics

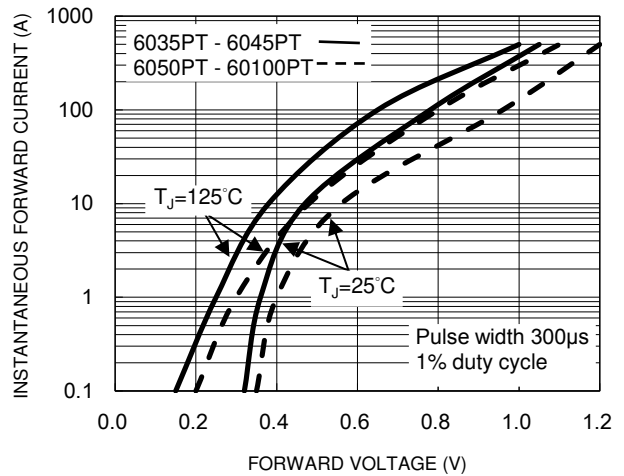
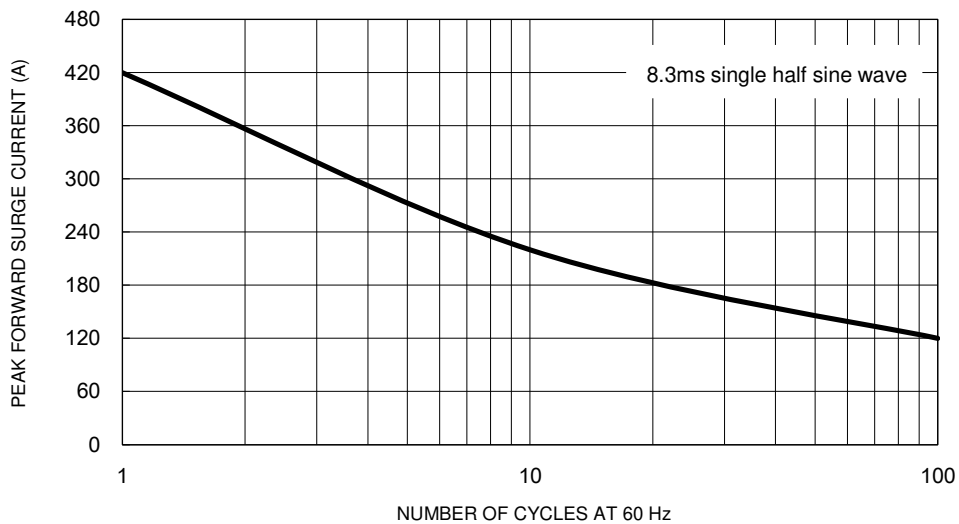


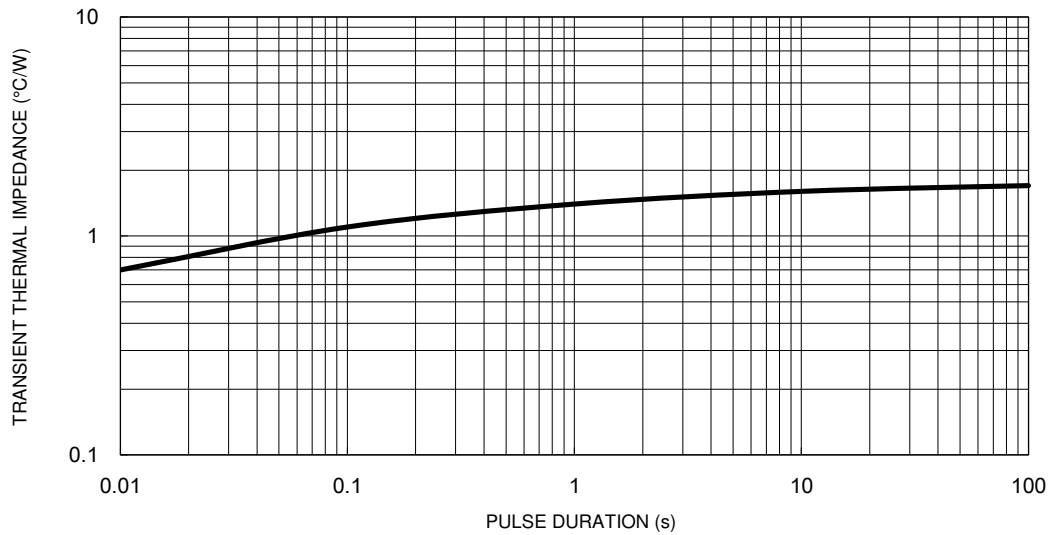
Fig.5 Maximum Non-Repetitive Forward Surge Current



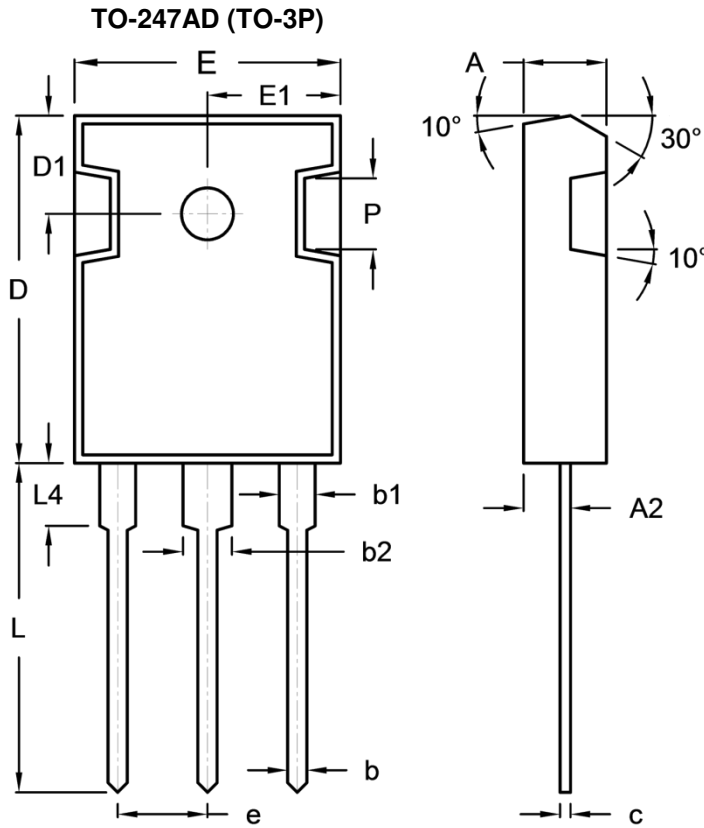
CHARACTERISTICS CURVES

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

Fig.6 Typical Transient Thermal Impedance



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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