30A, 35V - 150V Schottky Barrier Rectifier

FEATURES

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

APPLICATIONS

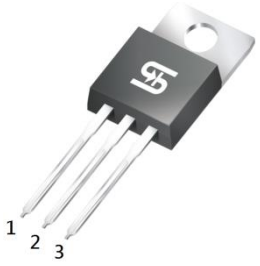
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

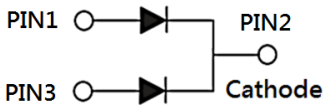
- Case: TO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.90g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	30	A
V_{RRM}	35 - 150	V
I_{FSM}	200	A
$T_{J\ MAX}$	150	°C
Package	TO-220AB	
Configuration	Dual dies	

Pb-Free RoHS COMPLIANT HALOGEN FREE



TO-220AB



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER	SYMBOL	MBR 3035 CT	MBR 3045 CT	MBR 3050 CT	MBR 3060 CT	MBR 3090 CT	MBR 30100 CT	MBR 30150 CT	UNIT
Marking code on the device		MBR 3035 CT	MBR 3045 CT	MBR 3050 CT	MBR 3060 CT	MBR 3090 CT	MBR 30100 CT	MBR 30150 CT	
Repetitive peak reverse voltage	V_{RRM}	35	45	50	60	90	100	150	V
Reverse voltage, total rms value	$V_{R(RMS)}$	24	31	35	42	63	70	105	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}	1			0.5				A
Peak repetitive forward current (Rated V_R, Square wave, 20KHz)	I_{FRM}	30							A
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

Notes:

1. tp = 2.0μs, 1.0KHz

THERMAL PERFORMANCE

PARAMETER		SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	MBR3035CT MBR3045CT MBR3050CT MBR3060CT	$R_{\Theta JC}$	1.0	°C/W
Junction-to-case thermal resistance	MBR3090CT MBR30100CT MBR30150CT	$R_{\Theta JC}$	1.5	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode[1]	MBR3035CT MBR3045CT	I_F = 15A, T_J = 25°C	V_F	-	0.70	V
	MBR3050CT MBR3060CT			-	0.77	V
	MBR3090CT MBR30100CT			-	0.84	V
	MBR30150CT			-	0.95	V
	MBR3035CT MBR3045CT	I_F = 30A, T_J = 25°C		-	0.82	V
	MBR3050CT MBR3060CT			-	-	V
	MBR3090CT MBR30100CT			-	0.94	V
	MBR30150CT			-	1.02	V
	MBR3035CT MBR3045CT	I_F = 15A, T_J = 125°C		-	0.60	V
	MBR3050CT MBR3060CT			-	0.67	V
	MBR3090CT MBR30100CT			-	0.70	V
	MBR30150CT			-	0.92	V
	MBR3035CT MBR3045CT	I_F = 30A, T_J = 125°C		-	0.73	V
	MBR3050CT MBR3060CT			-	-	V
	MBR3090CT MBR30100CT			-	0.82	V
	MBR30150CT			-	0.98	V
Reverse current @ rated V_R per diode[2]	MBR3035CT MBR3045CT MBR3050CT MBR3060CT MBR3090CT MBR30100CT	T_J = 25°C	I_R	-	200	μA
	MBR30150CT			-	100	μA
	MBR3035CT MBR3045CT	T_J = 125°C		-	15	mA
	MBR3050CT MBR3060CT			-	10	mA
	MBR3090CT MBR30100CT			-	7.5	mA
	MBR30150CT			-	5	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
MBR30xCT	TO-220AB	50 / Tube
MBR30xCTH	TO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 35V(MBR3035CT) to 150V(MBR30150CT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

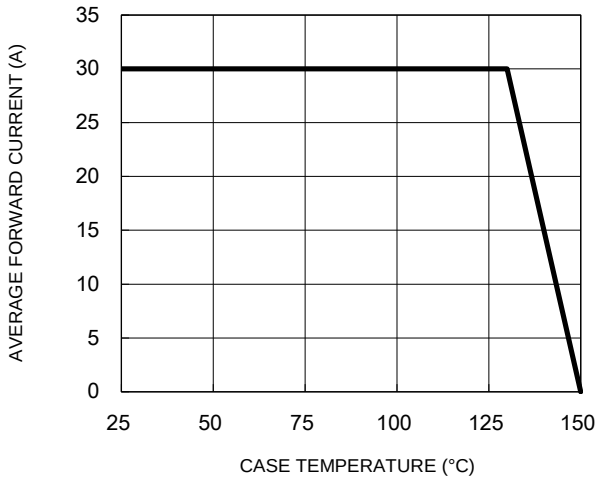


Fig.2 Typical Junction Capacitance

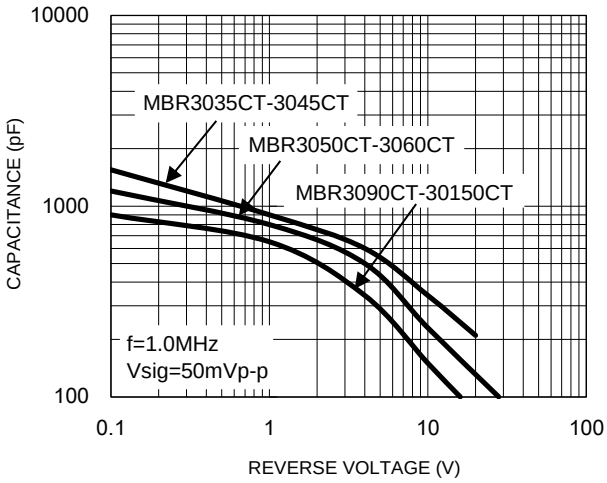


Fig.3 Typical Reverse Characteristics

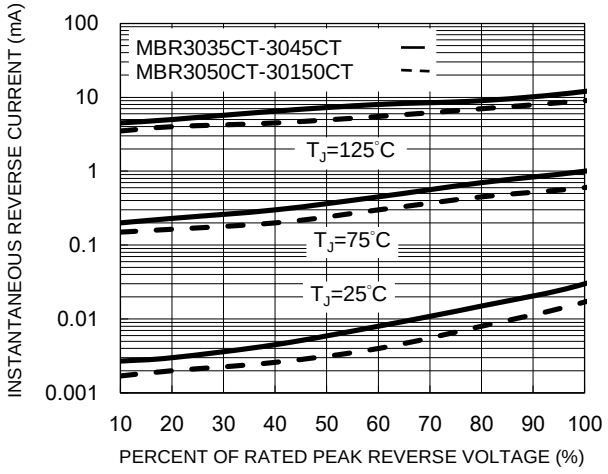


Fig.4 Typical Forward Characteristics

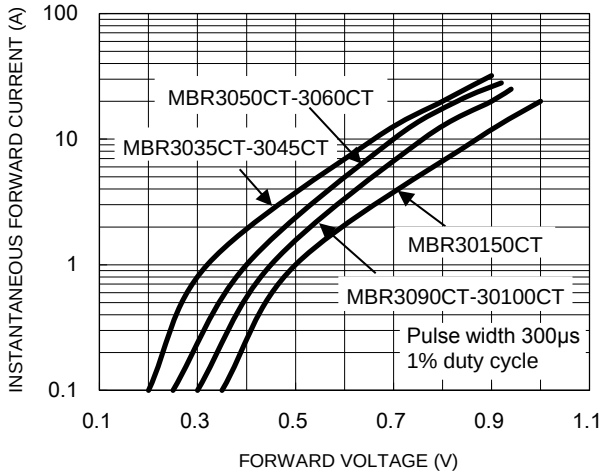
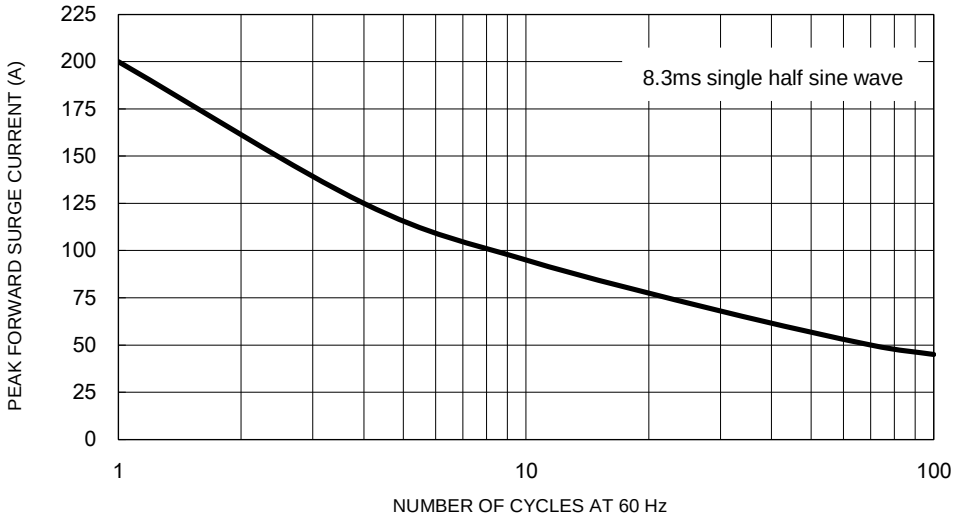


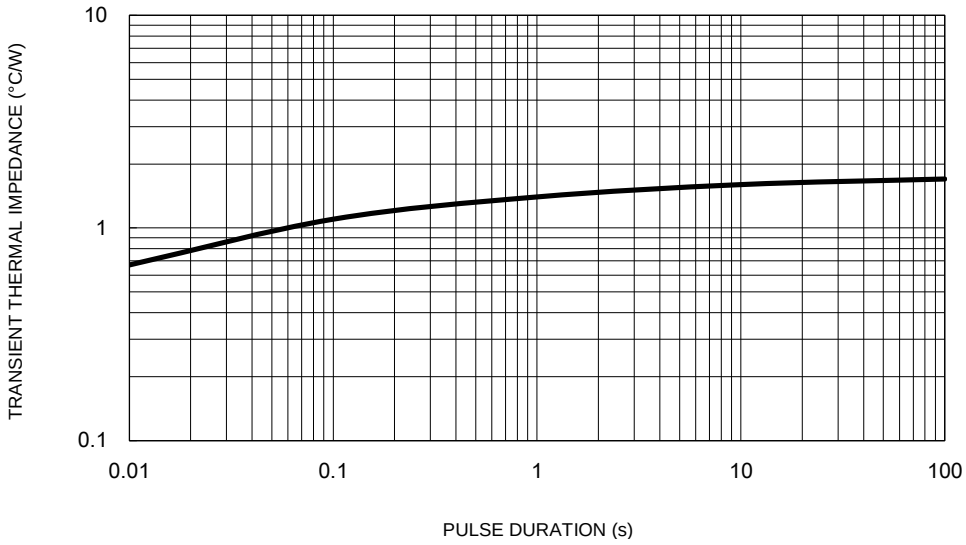
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

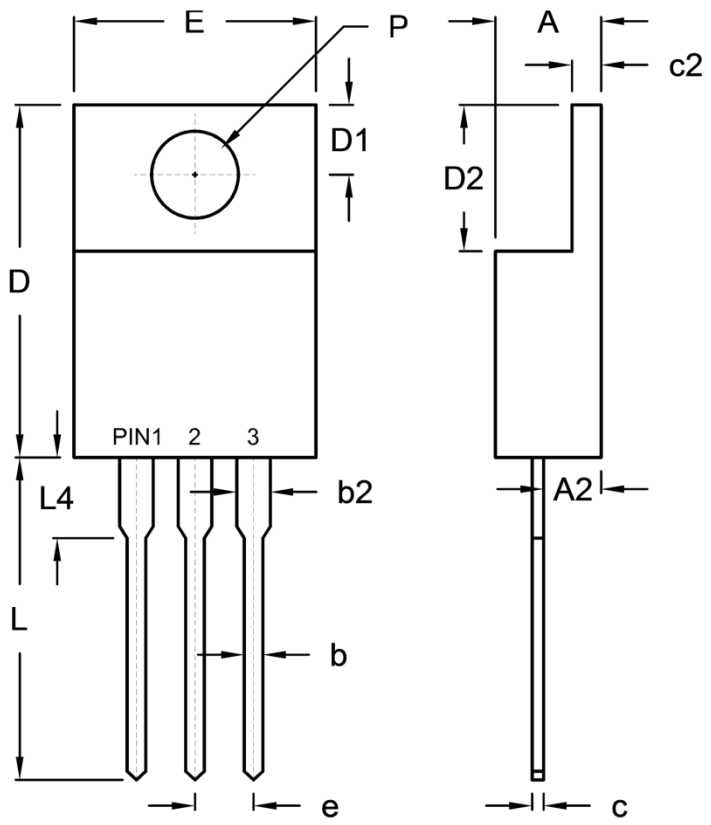
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS

TO-220AB



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.42	4.76	0.174	0.187
A2	2.20	2.80	0.087	0.110
b	0.68	0.94	0.027	0.037
b2	1.14	1.77	0.045	0.070
c	0.35	0.64	0.014	0.025
c2	1.14	1.40	0.045	0.055
D	14.60	16.00	0.575	0.630
D1	2.62	3.44	0.103	0.135
D2	5.84	6.86	0.230	0.270
E	-	10.50	-	0.413
e	2.41	2.67	0.095	0.105
L	13.19	14.79	0.519	0.582
L4	2.80	4.20	0.110	0.165
P	3.54	4.00	0.139	0.157

MARKING DIAGRAM

P/N = Marking Code
G = Green Compound
YWW = Date Code
F = Factory Code

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