10A, 35V - 200V 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

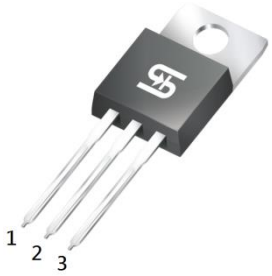
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

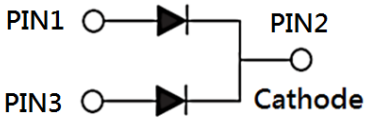
- Case: TO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.88g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	10	A
V_{RRM}	35 - 200	V
I_{FSM}	120	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 1035 CT	MBR 1045 CT	MBR 1050 CT	MBR 1060 CT	MBR 1090 CT	MBR 10100 CT	MBR 10150 CT	MBR 10200 CT	UNIT
Marking code on the device		MBR 1035 CT	MBR 1045 CT	MBR 1050 CT	MBR 1060 CT	MBR 1090 CT	MBR 10100 CT	MBR 10150 CT	MBR 10200 CT	
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	10								A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	120								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}	10								A

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)										
PARAMETER	**SYMBOL**	**MBR 1035 CT**	**MBR 1045 CT**	**MBR 1050 CT**	**MBR 1060 CT**	**MBR 1090 CT**	**MBR 10100 CT**	**MBR 10150 CT**	**MBR 10200 CT**	**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

Notes:
1. tp = 2.0μs, 1.0KHz

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**TYP**	**UNIT**
Junction-to-case thermal resistance	$R_{\Theta JC}$	1.5	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER		**CONDITIONS**	**SYMBOL**	**TYP**	**MAX**	**UNIT**
Forward voltage per diode[1]	MBR1035CT MBR1045CT	I_F = 5A, T_J = 25°C	V_F	-	0.70	V
	MBR1050CT MBR1060CT			-	0.80	V
	MBR1090CT MBR10100CT			-	0.85	V
	MBR10150CT MBR10200CT			-	0.88	V
	MBR1035CT MBR1045CT	I_F = 10A, T_J = 25°C		-	0.80	V
	MBR1050CT MBR1060CT			-	0.90	V
	MBR1090CT MBR10100CT			-	0.95	V
	MBR10150CT MBR10200CT			-	0.98	V
	MBR1035CT MBR1045CT	I_F = 5A, T_J = 125°C		-	0.57	V
	MBR1050CT MBR1060CT			-	0.65	V
	MBR1090CT MBR10100CT			-	0.75	V
	MBR10150CT MBR10200CT			-	0.78	V
	MBR1035CT MBR1045CT	I_F = 10A, T_J = 125°C		-	0.67	V
	MBR1050CT MBR1060CT			-	0.75	V
	MBR1090CT MBR10100CT			-	0.85	V
	MBR10150CT MBR10200CT			-	0.88	V

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Reverse current @ rated V_R per diode[2]	MBR1035CT MBR1045CT MBR1050CT MBR1060CT MBR1090CT MBR10100CT MBR10150CT MBR10200CT	T_J = 25°C	I_R	-	100	μA
	MBR1035CT MBR1045CT	T_J = 125°C		-	15	mA
	MBR1050CT MBR1060CT			-	10	mA
	MBR1090CT MBR10100CT			-	2	mA
	MBR10150CT MBR10200CT			-	5	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
MBR10xCT	TO-220AB	50 / Tube
MBR10xCTH	TO-220AB	50 / Tube

Notes:

1. “x” defines voltage from 35V(MBR1035CT) to 200V(MBR10200CT)
2. “H” means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

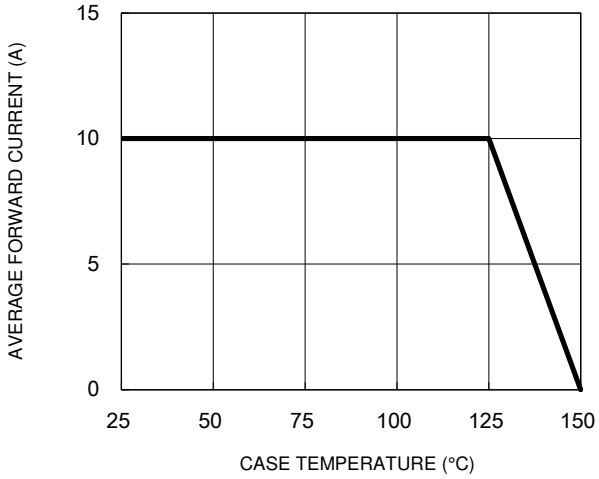


Fig.2 Typical Junction Capacitance

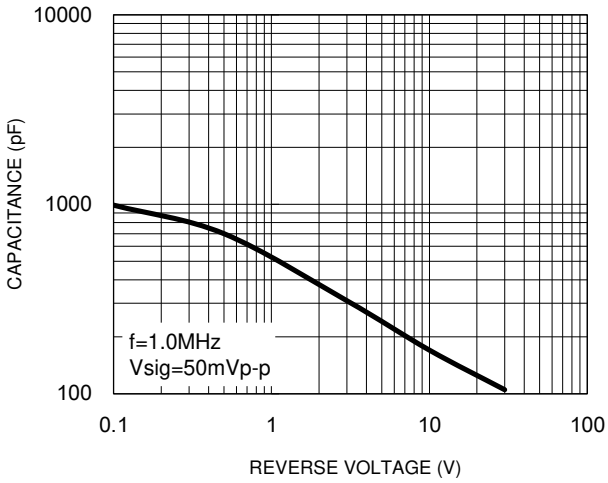


Fig.3 Typical Reverse Characteristics

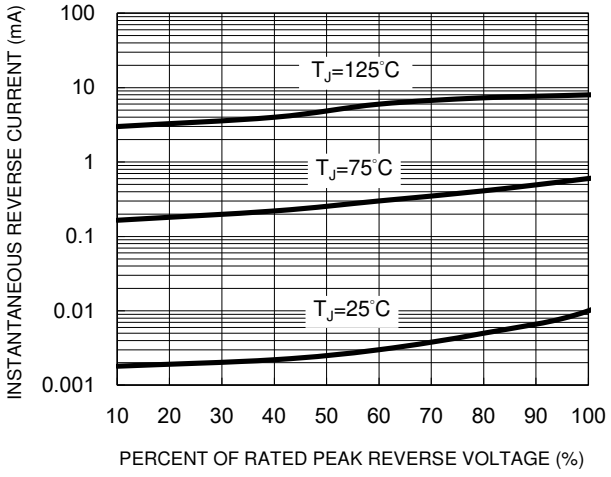


Fig.4 Typical Forward Characteristics

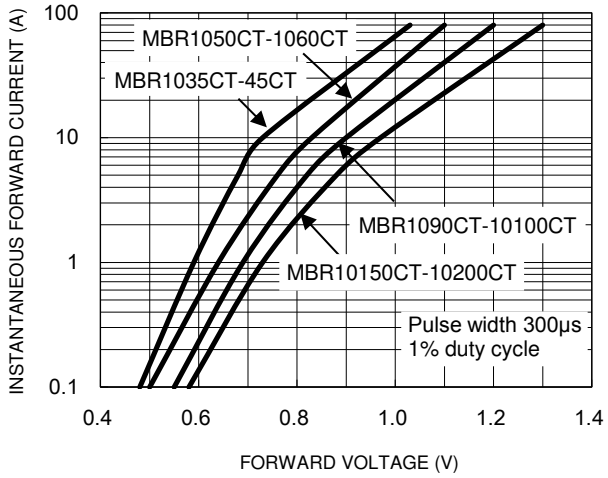
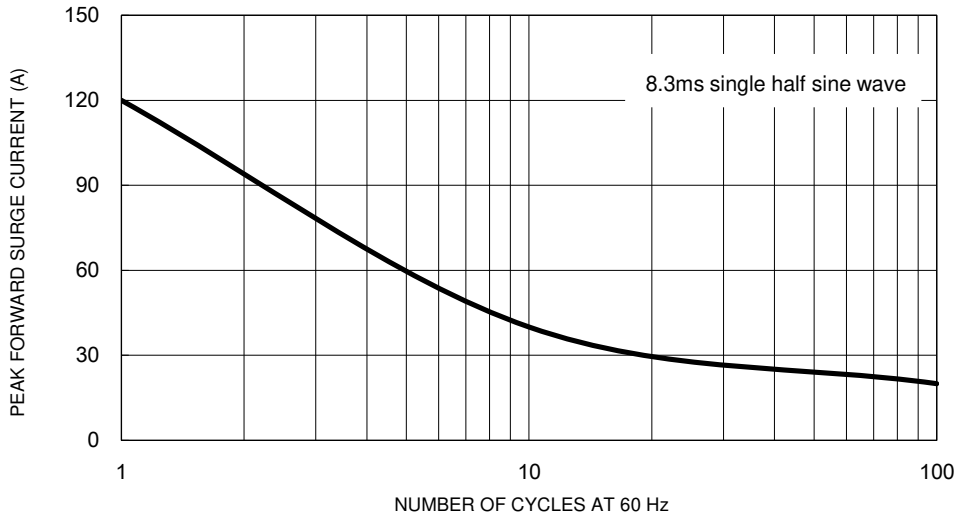


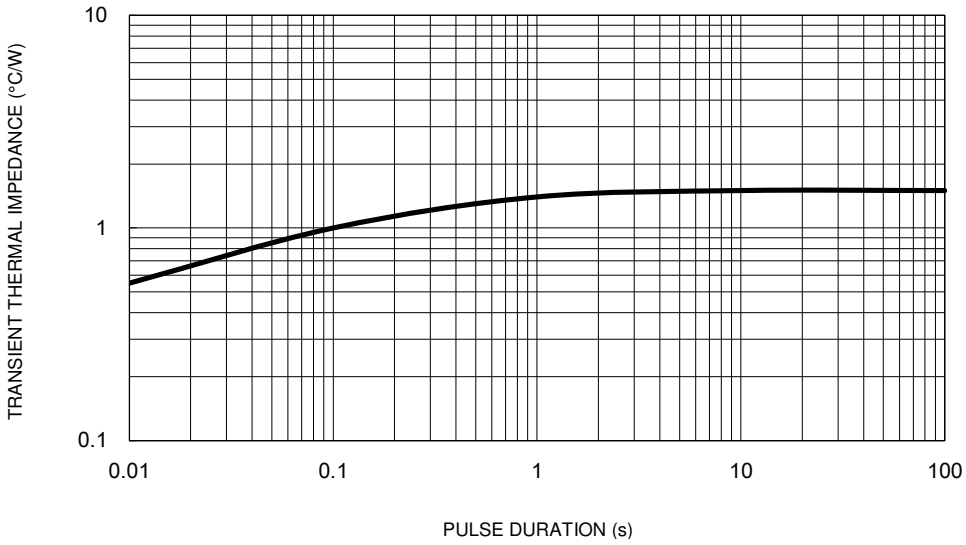
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

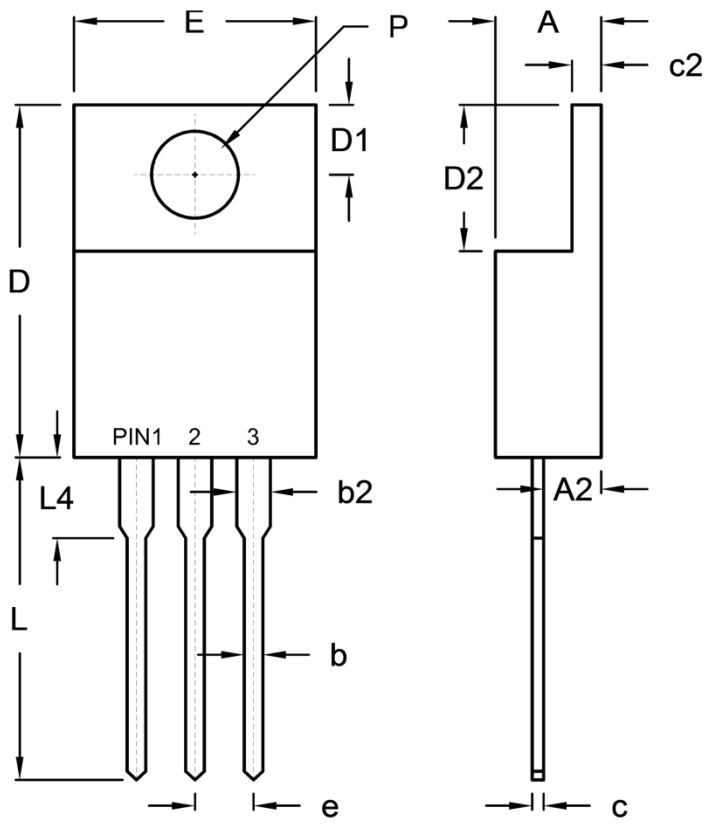
(T_A = 25°C unless otherwise noted)

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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