10A, 45V - 200V Schottky Barrier Rectifier

FEATURES

- 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

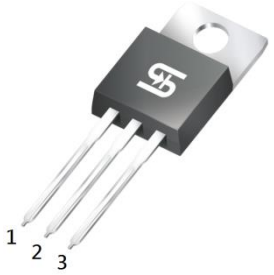
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

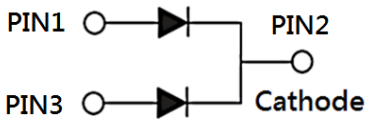
- Case: TO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Weight: 1.88g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	10	A
V_{RRM}	45 - 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 1045 CT-Y**	**MBR 1060 CT-Y**	**MBR 10100 CT-Y**	**MBR 10150 CT-Y**	**MBR 10200 CT-Y**	**UNIT**
Marking code on the device		MBR 1045CT	MBR 1060CT	MBR 10100CT	MBR 10150CT	MBR 10200CT	
Repetitive peak reverse voltage	V_{RRM}	45	60	100	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	31	42	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
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]	MBR1045CT-Y	I_F = 5A, T_J = 25°C	V_F	-	0.70	V
	MBR1060CT-Y			-	0.80	V
	MBR10100CT-Y			-	0.85	V
	MBR10150CT-Y MBR10200CT-Y			-	0.88	V
	MBR1045CT-Y	I_F = 10A, T_J = 25°C		-	0.80	V
	MBR1060CT-Y			-	0.90	V
	MBR10100CT-Y			-	0.95	V
	MBR10150CT-Y MBR10200CT-Y			-	0.98	V
	MBR1045CT-Y	I_F = 5A, T_J = 125°C		-	0.57	V
	MBR1060CT-Y			-	0.65	V
	MBR10100CT-Y			-	0.75	V
	MBR10150CT-Y MBR10200CT-Y			-	0.78	V
	MBR1045CT-Y	I_F = 10A, T_J = 125°C		-	0.67	V
	MBR1060CT-Y			-	0.75	V
	MBR10100CT-Y			-	0.85	V
	MBR10150CT-Y MBR10200CT-Y			-	0.88	V
Reverse current @ rated V_R per diode[2]	MBR1045CT-Y MBR1060CT-Y MBR10100CT-Y MBR10150CT-Y MBR10200CT-Y	T_J = 25°C	I_R	-	100	μA
	MBR1045CT-Y	T_J = 125°C		-	15	mA
	MBR1060CT-Y			-	10	mA
	MBR10100CT-Y			-	2	mA
	MBR10150CT-Y MBR10200CT-Y			-	5	mA

Notes:

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

ORDERING INFORMATION

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

Notes:

1. "x" defines voltage from 45V(MBR1045CT-Y) to 200V(MBR10200CT-Y)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

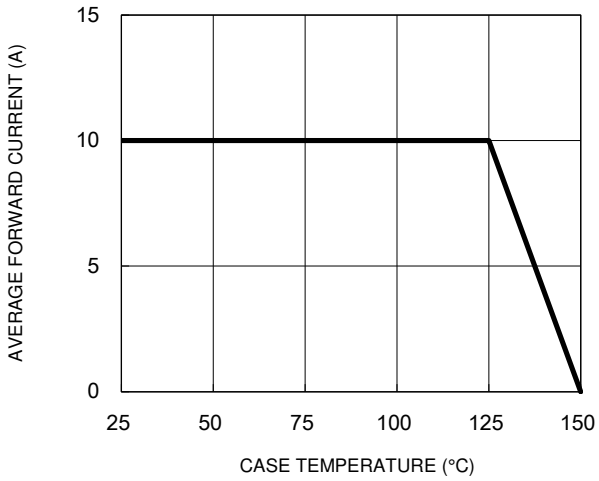


Fig.2 Typical Junction Capacitance

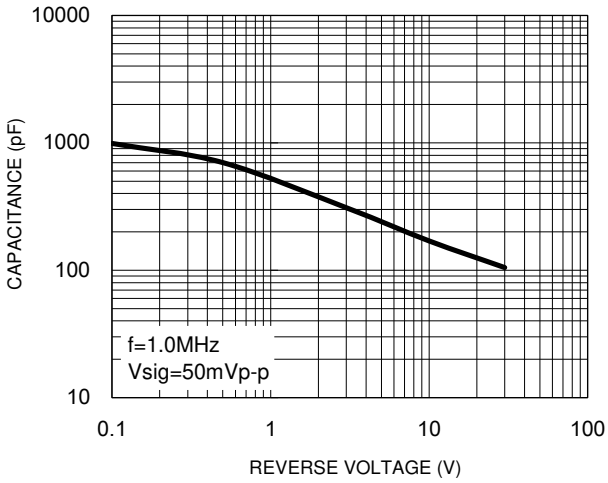


Fig.3 Typical Reverse Characteristics

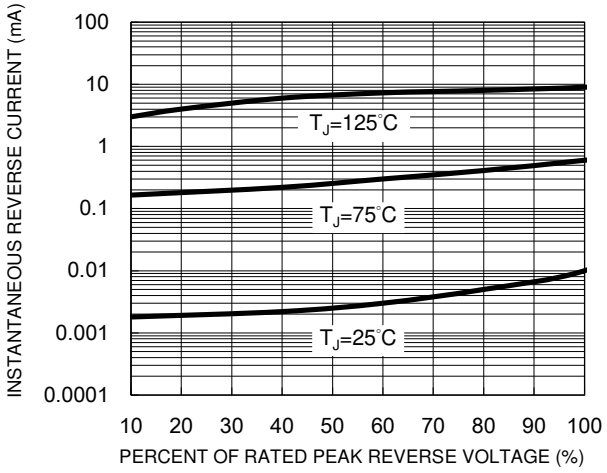


Fig.4 Typical Forward Characteristics

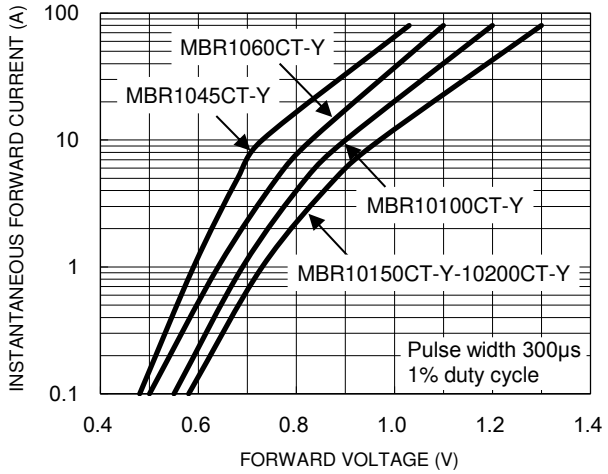
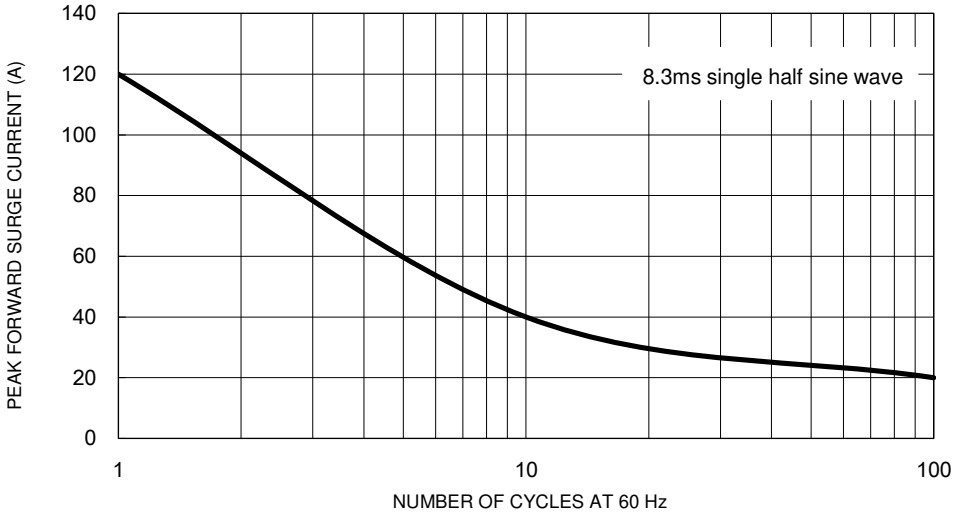


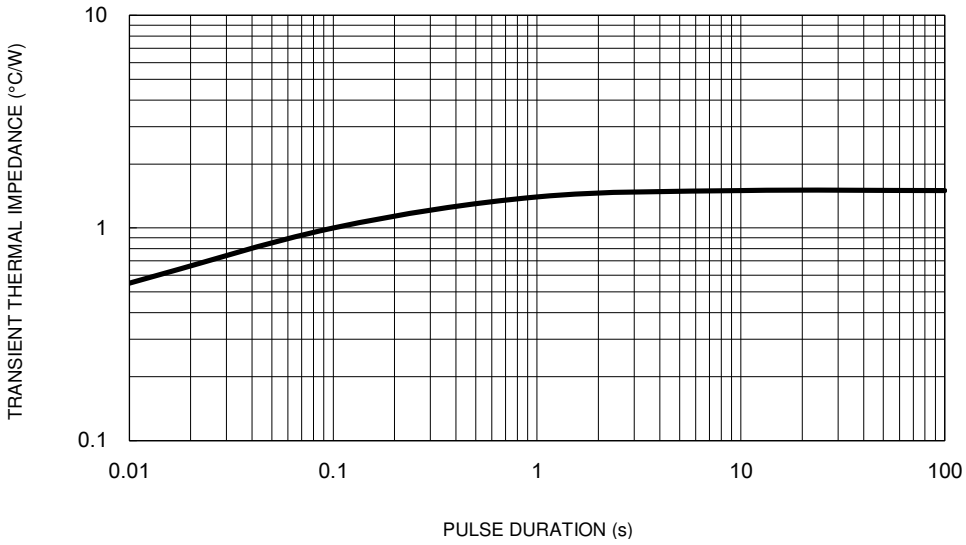
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

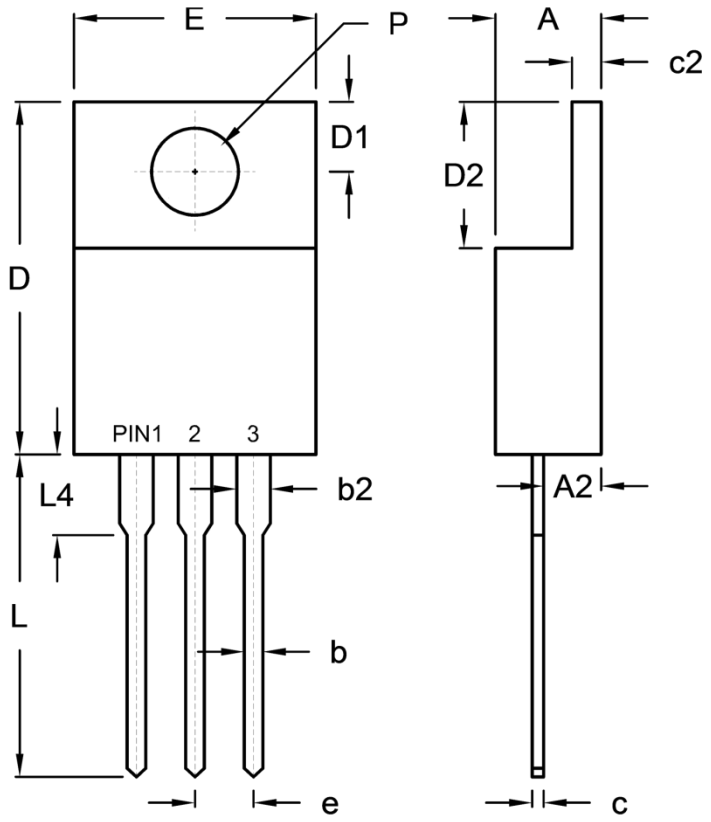
(T_A = 25°C unless otherwise noted)

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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