30A, 45V - 100V Low V_F 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

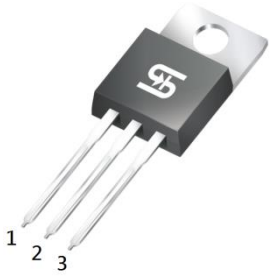
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

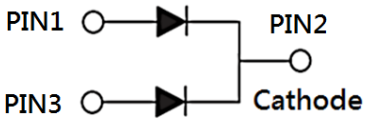
- Case: TO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.90g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	30	A
V_{RRM}	45 - 100	V
I_{FSM}	220	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 30L45CT**	**MBR 30L60CT**	**MBR 30L100CT**	**UNIT**
Marking code on the device		MBR 30L45CT	MBR 30L60CT	MBR 30L100CT	
Repetitive peak reverse voltage	V_{RRM}	45	60	100	V
Reverse voltage, total rms value	$V_{R(RMS)}$	31	42	70	V
Forward current	I_F	30			A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	220			A
Peak repetitive reverse surge current(1)	I_{RRM}	1			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 +175			°C

Notes:

1. tp = 2.0μs, 1.0KHz

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	$R_{\Theta JC}$	1	°C/W

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode[1]	MBR30L45CT	I_F = 15A, T_J = 25°C	V_F	-	0.55	V
	MBR30L60CT			-	0.60	V
	MBR30L100CT			-	0.77	V
	MBR30L45CT	I_F = 15A, T_J = 125°C		-	0.50	V
	MBR30L60CT			-	0.56	V
	MBR30L100CT			-	0.67	V
Reverse current @ rated V_R per diode[2]	MBR30L45CT	T_J = 25°C	I_R	-	400	μA
	MBR30L60CT			-	480	μA
	MBR30L100CT			-	500	μA
	MBR30L45CT	T_J = 100°C		-	200	mA
	MBR30L60CT			-	150	mA
	MBR30L100CT			-	32	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
MBR30LxCT	TO-220AB	50 / Tube
MBR30LxCTH	TO-220AB	50 / Tube

Notes:

1. “x” defines voltage from 45V(MBR30L45CT) to 100V(MBR30L100CT)
2. “H” means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

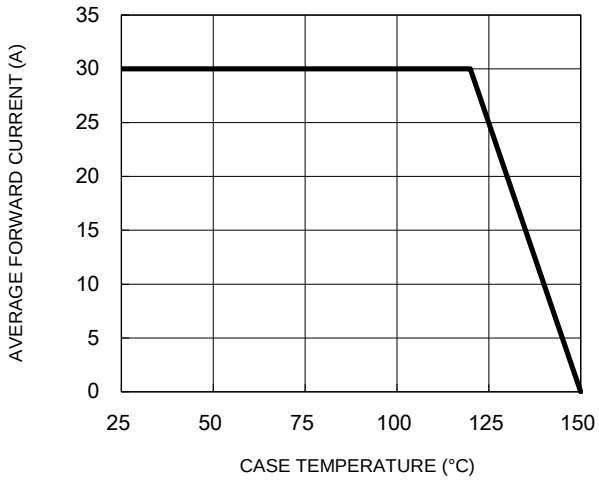


Fig.2 Typical Junction Capacitance

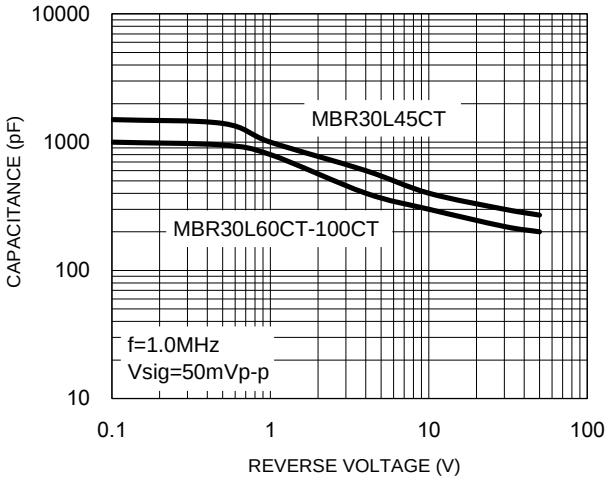


Fig.3 Typical Reverse Characteristics

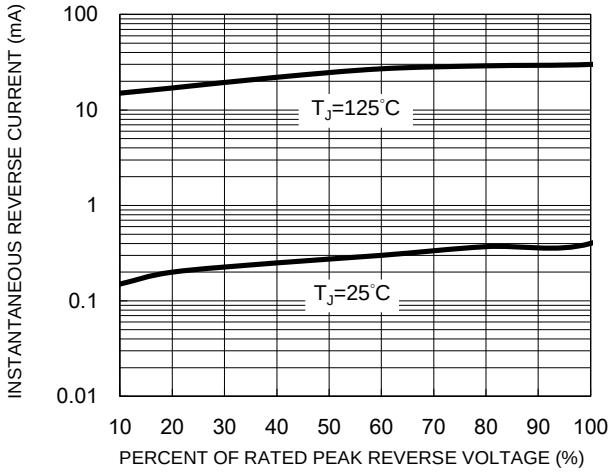


Fig.4 Typical Forward Characteristics

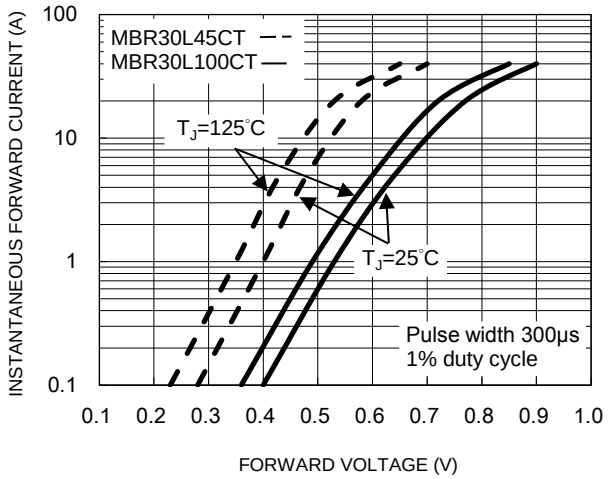
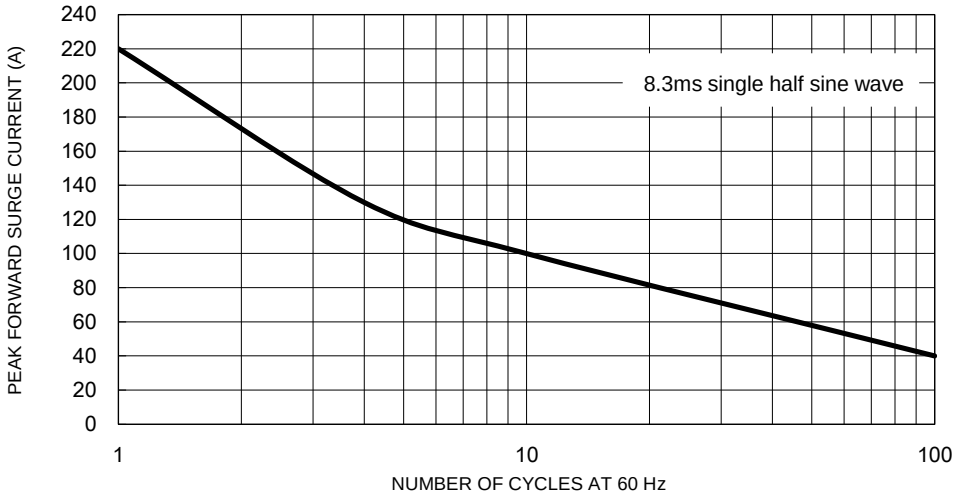


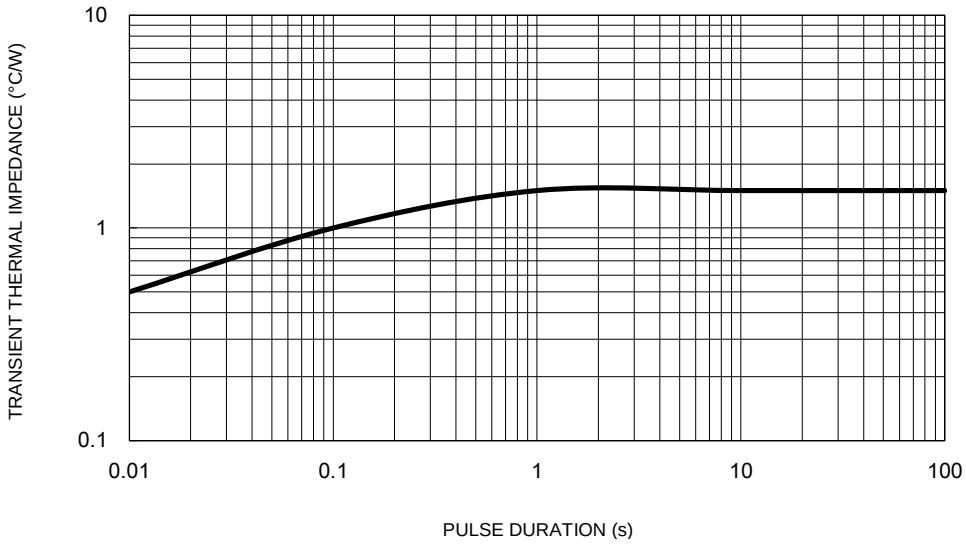
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

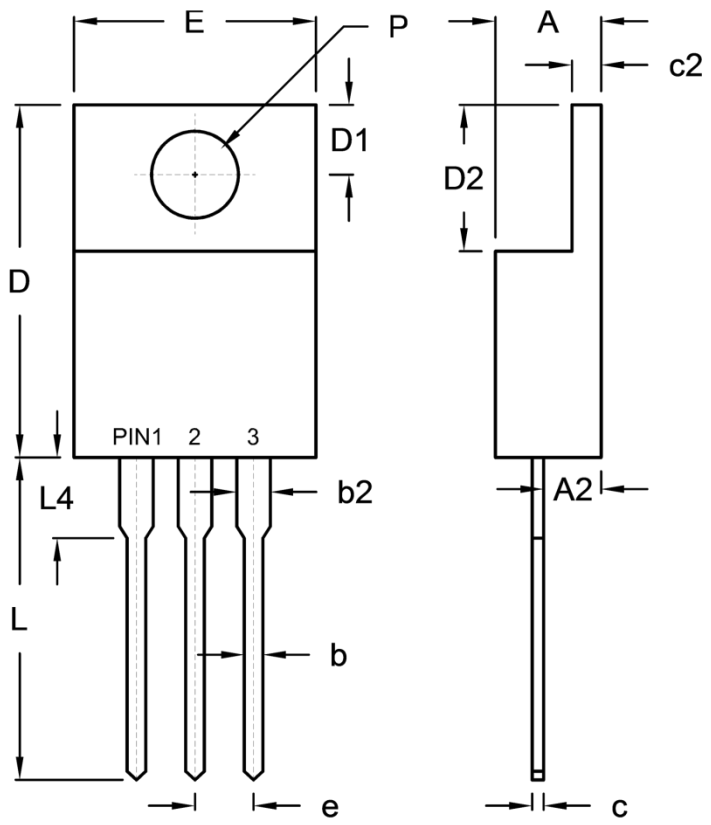
(T_A = 25°C unless otherwise noted)

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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