30A, 35V - 200V 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

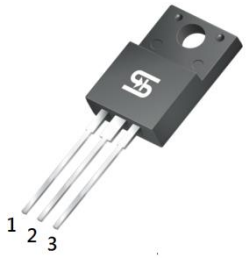
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

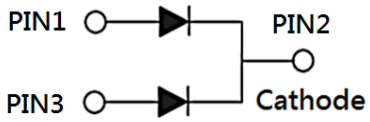
- Case: ITO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.70g (approximately)

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

Pb-Free RoHS COMPLIANT HALOGEN FREE



ITO-220AB



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

PARAMETER	SYMBOL	MBRF3035CT	MBRF3045CT	MBRF3050CT	MBRF3060CT	MBRF3090CT	MBRF30100CT	MBRF30150CT	MBRF30200CT	UNIT
Marking code on the device		MBRF3035CT	MBRF3045CT	MBRF3050CT	MBRF3060CT	MBRF3090CT	MBRF30100CT	MBRF30150CT	MBRF30200CT	
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	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			0.5					A

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)										
PARAMETER	**SYMBOL**	**MBRF 3035 CT**	**MBRF 3045 CT**	**MBRF 3050 CT**	**MBRF 3060 CT**	**MBRF 3090 CT**	**MBRF 30100 CT**	**MBRF 30150 CT**	**MBRF 30200 CT**	**UNIT**
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	$R_{\Theta JC}$	4	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER		**CONDITIONS**	**SYMBOL**	**TYP**	**MAX**	**UNIT**
Forward voltage per diode[(1)]	MBRF3035CT MBRF3045CT	I_F = 15A,T_J = 25°C	V_F	-	0.70	V
	MBRF3050CT MBRF3060CT			-	0.75	V
	MBRF3090CT MBRF30100CT			-	0.84	V
	MBRF30150CT MBRF30200CT			-	0.95	V
	MBRF3035CT MBRF3045CT	I_F = 30A,T_J = 25°C		-	0.82	V
	MBRF3050CT MBRF3060CT			-	0.90	V
	MBRF3090CT MBRF30100CT			-	0.94	V
	MBRF30150CT MBRF30200CT			-	1.05	V

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode[1]	MBRF3035CT MBRF3045CT	I_F = 15A,T_J = 125°C	V_F	-	0.60	V
	MBRF3050CT MBRF3060CT			-	0.65	V
	MBRF3090CT MBRF30100CT			-	0.70	V
	MBRF30150CT MBRF30200CT			-	0.80	V
	MBRF3035CT MBRF3045CT	I_F = 30A,T_J = 125°C		-	0.73	V
	MBRF3050CT MBRF3060CT			-	0.78	V
	MBRF3090CT MBRF30100CT			-	0.82	V
	MBRF30150CT MBRF30200CT			-	0.92	V
Reverse current @ rated V_R per diode[2]	MBRF3035CT MBRF3045CT MBRF3050CT MBRF3060CT MBRF3090CT MBRF30100CT MBRF30150CT MBRF30200CT	T_J = 25°C	I_R	-	200	μA
	MBRF3035CT MBRF3045CT	T_J = 125°C		-	20	mA
	MBRF3050CT MBRF3060CT			-	15	mA
	MBRF3090CT MBRF30100CT MBRF30150CT MBRF30200CT			-	10	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
MBRF30xCT	ITO-220AB	50 / Tube
MBRF30xCTH	ITO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 35V(MBRF3035CT) to 200V(MBRF30200CT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

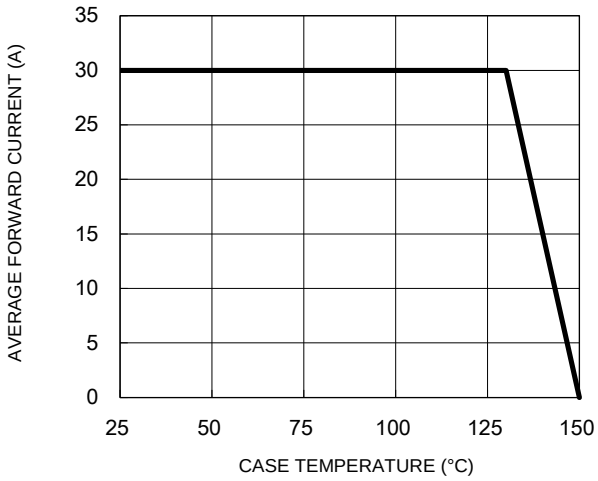


Fig.2 Typical Junction Capacitance

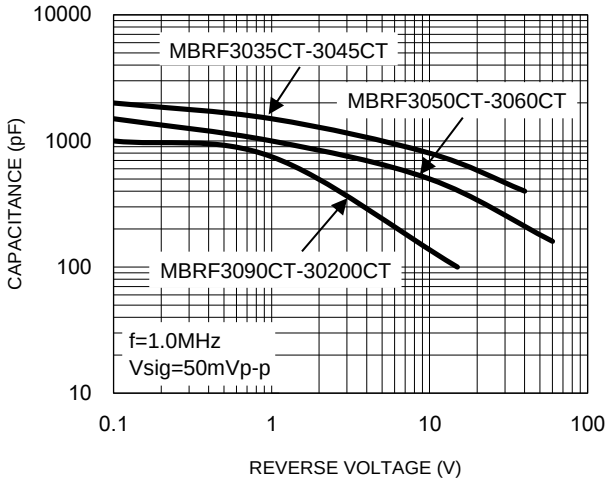


Fig.3 Typical Reverse Characteristics

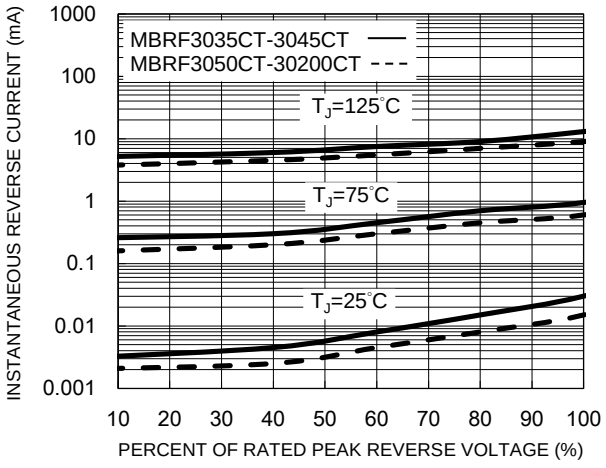


Fig.4 Typical Forward Characteristics

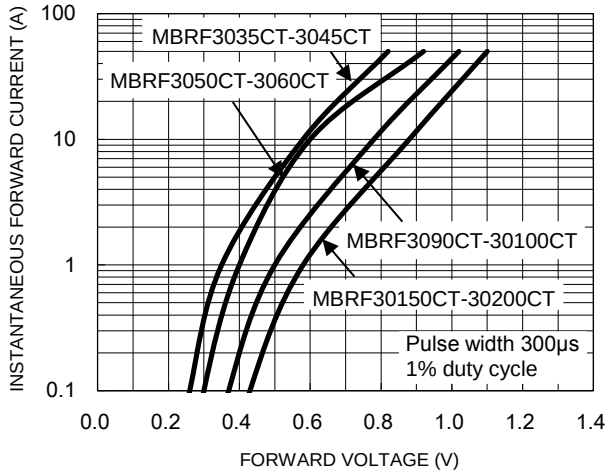
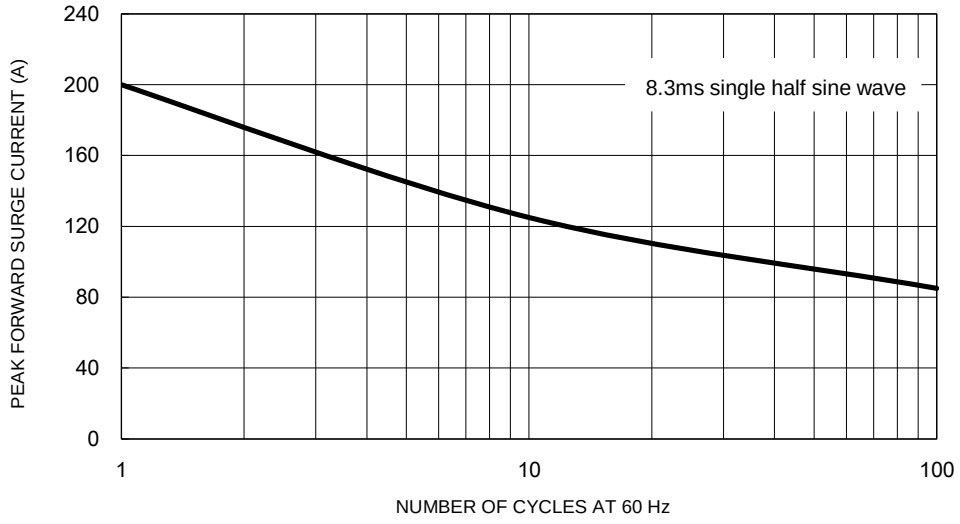


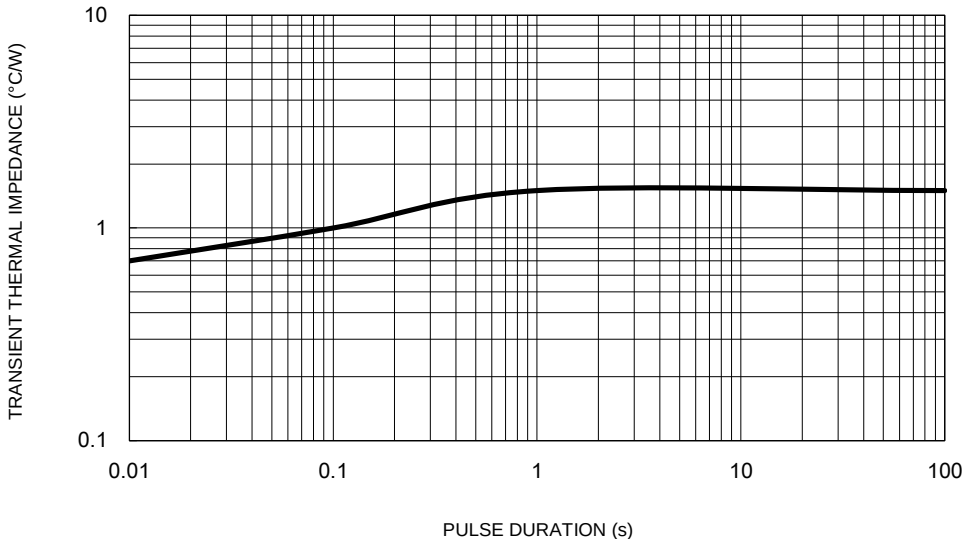
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

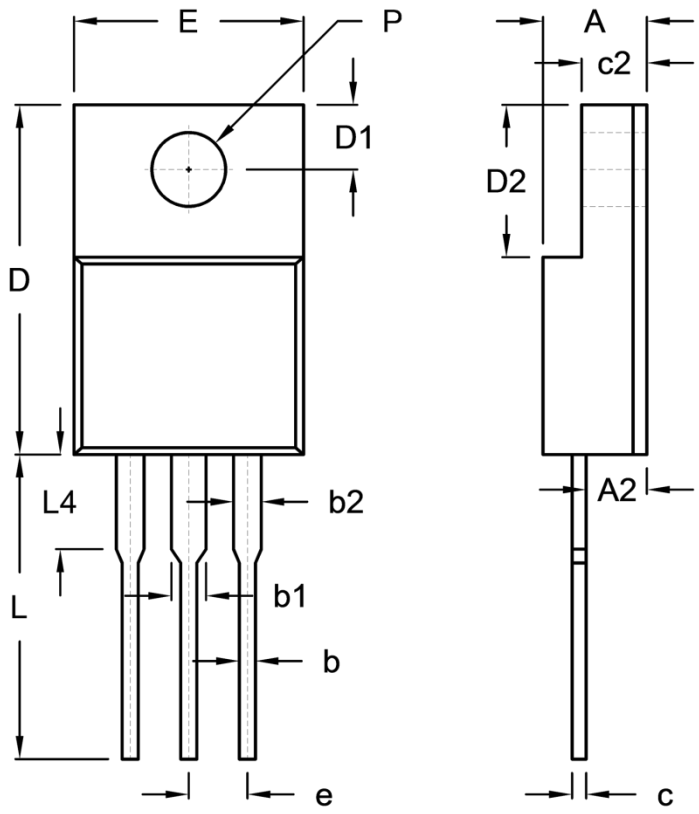
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS

ITO-220AB



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A2	2.30	2.96	0.091	0.117
b	0.50	0.90	0.020	0.035
b1	-	1.80	-	0.071
b2	0.95	1.45	0.037	0.057
c	0.46	0.76	0.018	0.030
c2	2.50	3.16	0.098	0.124
D	14.80	15.50	0.583	0.610
D1	2.40	3.20	0.094	0.126
D2	6.30	6.90	0.248	0.272
E	9.60	10.30	0.378	0.406
e	2.41	2.67	0.095	0.105
L	12.60	13.80	0.496	0.543
L4	-	4.10	-	0.161
P	3.00	3.40	0.118	0.134

MARKING DIAGRAM

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

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.