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
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

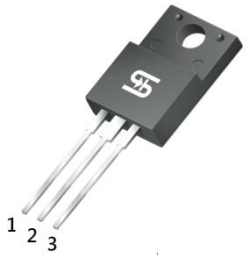
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

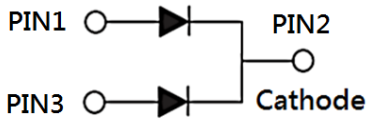
- Case: ITO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.70g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	10	A
V_{RRM}	35 - 200	V
I_{FSM}	120	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	MBRF 1035 CT	MBRF 1045 CT	MBRF 1050 CT	MBRF 1060 CT	MBRF 1090 CT	MBRF 10100 CT	MBRF 10150 CT	MBRF 10200 CT	UNIT
Marking code on the device		MBRF 1035 CT	MBRF 1045 CT	MBRF 1050 CT	MBRF 1060 CT	MBRF 1090 CT	MBRF 10100 CT	MBRF 10150 CT	MBRF 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}	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**	**MBRF 1035 CT**	**MBRF 1045 CT**	**MBRF 1050 CT**	**MBRF 1060 CT**	**MBRF 1090 CT**	**MBRF 10100 CT**	**MBRF 10150 CT**	**MBRF 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	$R_{\Theta JC}$	3.5	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER		**CONDITIONS**	**SYMBOL**	**TYP**	**MAX**	**UNIT**
Forward voltage per diode[1]	MBRF1035CT MBRF1045CT	I_F = 5A,T_J = 25°C	V_F	-	0.70	V
	MBRF1050CT MBRF1060CT			-	0.80	V
	MBRF1090CT MBRF10100CT			-	0.85	V
	MBRF10150CT MBRF10200CT			-	0.88	V
	MBRF1035CT MBRF1045CT	I_F = 10A,T_J = 25°C		-	0.80	V
	MBRF1050CT MBRF1060CT			-	0.90	V
	MBRF1090CT MBRF10100CT			-	0.95	V
	MBRF10150CT MBRF10200CT			-	0.98	V
	MBRF1035CT MBRF1045CT	I_F = 5A,T_J = 125°C		-	0.57	V
	MBRF1050CT MBRF1060CT			-	0.65	V
	MBRF1090CT MBRF10100CT			-	0.75	V
	MBRF10150CT MBRF10200CT			-	0.78	V

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode[1]	MBRF1035CT MBRF1045CT	I_F = 10A, T_J = 125°C	V_F	-	0.67	V
	MBRF1050CT MBRF1060CT			-	0.75	V
	MBRF1090CT MBRF10100CT			-	0.85	V
	MBRF10150CT MBRF10200CT			-	0.88	V
Reverse current @ rated V_R per diode[2]	MBRF1035CT MBRF1045CT MBRF1050CT MBRF1060CT MBRF1090CT MBRF10100CT MBRF10150CT MBRF10200CT	T_J = 25°C	I_R	-	100	μA
	MBRF1035CT MBRF1045CT	T_J = 125°C		-	15	mA
	MBRF1050CT MBRF1060CT			-	10	mA
	MBRF1090CT MBRF10100CT MBRF10150CT MBRF10200CT			-	5	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
MBRF10xCT	ITO-220AB	50 / Tube
MBRF10xCTH	ITO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 35V(MBRF1035CT) to 200V(MBRF10200CT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

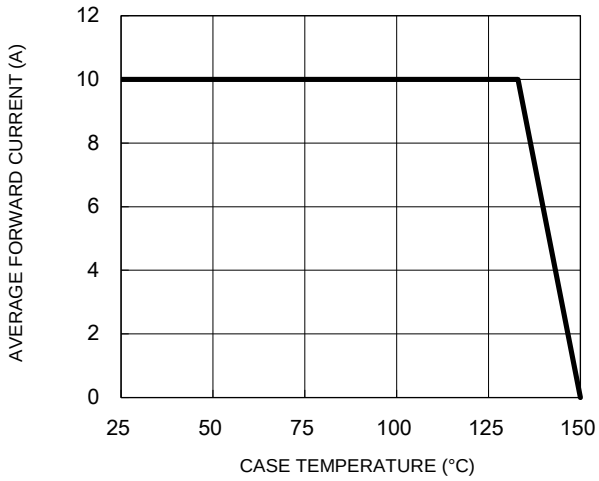


Fig.2 Typical Junction Capacitance

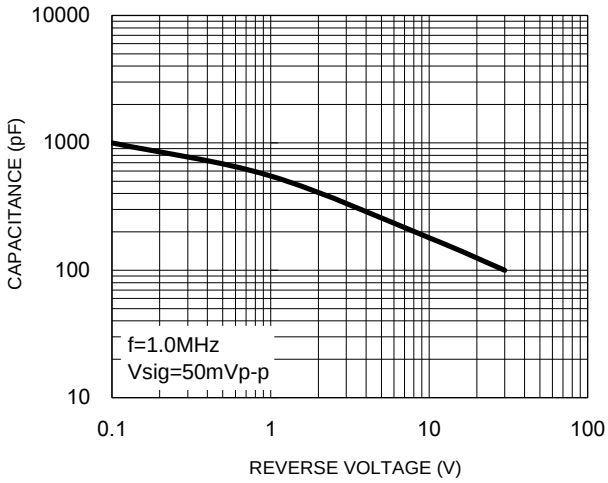


Fig.3 Typical Reverse Characteristics

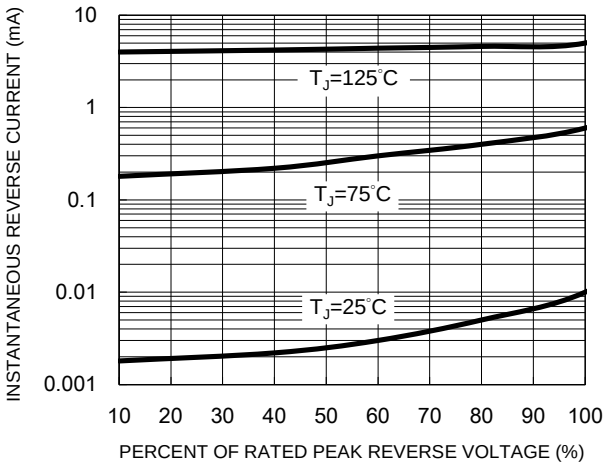


Fig.4 Typical Forward Characteristics

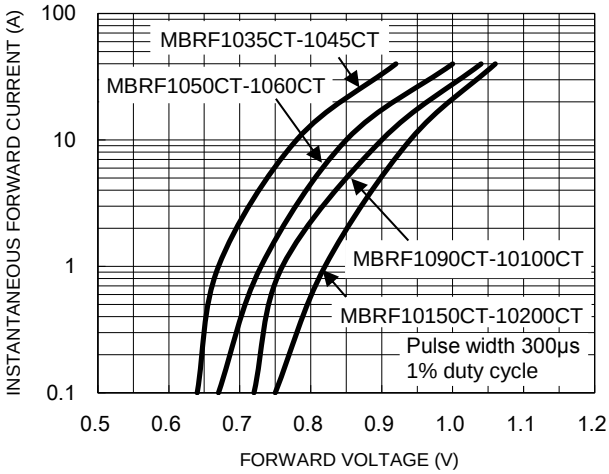
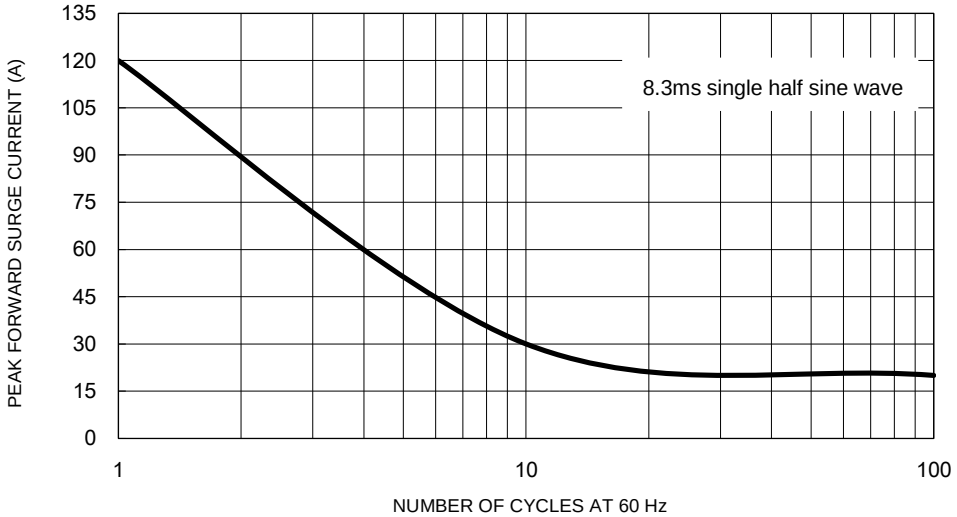


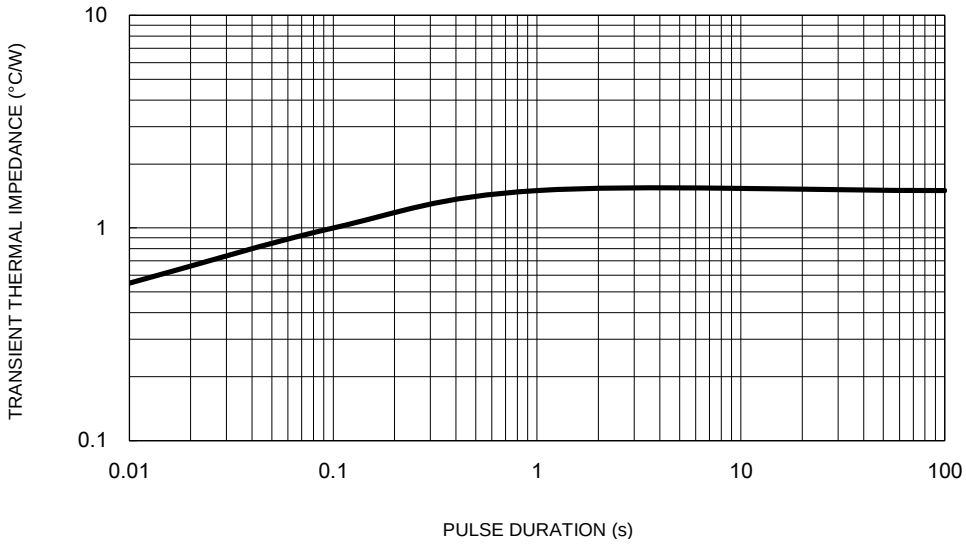
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

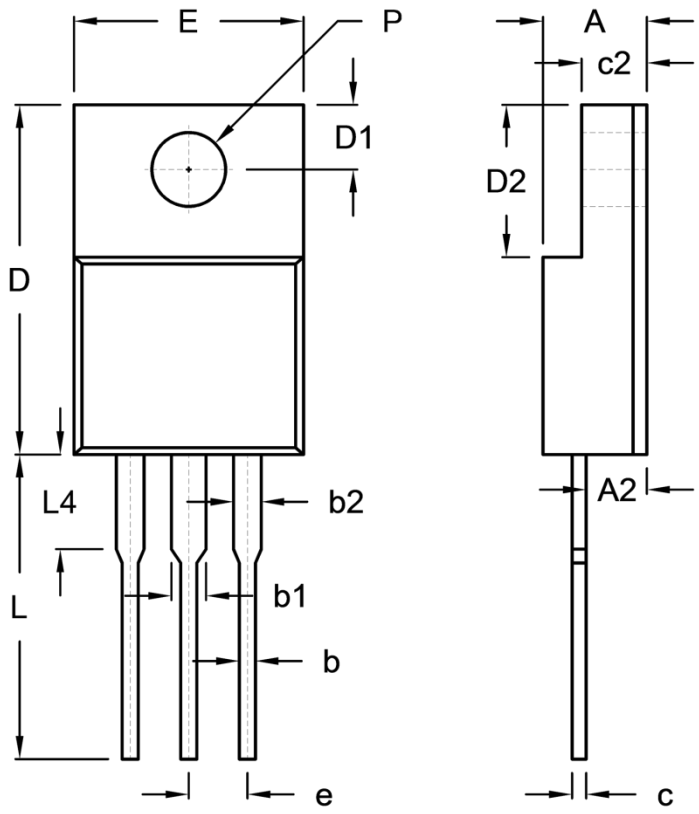
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance



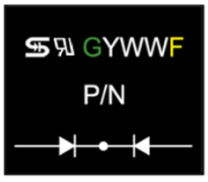
PACKAGE OUTLINE DIMENSIONS

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

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