15A, 35V - 150V 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

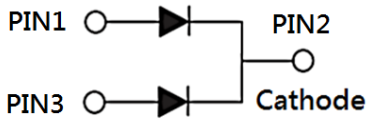
MECHANICAL DATA

- 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	15	A
V_{RRM}	35 - 150	V
I_{FSM}	150	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 1535 CT	MBRF 1545 CT	MBRF 1550 CT	MBRF 1560 CT	MBRF 1590 CT	MBRF 15100 CT	MBRF 15150 CT	UNIT
Marking code on the device		MBRF 1535 CT	MBRF 1545 CT	MBRF 1550 CT	MBRF 1560 CT	MBRF 1590 CT	MBRF 15100 CT	MBRF 15150 CT	
Repetitive peak reverse voltage	V_{RRM}	35	45	50	60	90	100	150	V
Reverse voltage, total rms value	$V_{R(RMS)}$	24	31	35	42	63	70	105	V
Forward current	I_F	15							A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	150							A
Peak repetitive reverse surge current[1]	I_{RRM}	1.0		0.5					A
Peak repetitive forward current (Rated V_R, Square wave, 20KHz)	I_{FRM}	15							A
Critical rate of rise of off-state voltage	dv/dt	10,000							V/µs

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)									
PARAMETER	SYMBOL	MBRF 1535 CT	MBRF 1545 CT	MBRF 1550 CT	MBRF 1560 CT	MBRF 1590 CT	MBRF 15100 CT	MBRF 15150 CT	UNIT
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]	MBRF1535CT MBRF1545CT	I_F = 7.5A,T_J = 25°C	V_F	-	-	V
	MBRF1550CT MBRF1560CT			-	0.75	V
	MBRF1590CT MBRF15100CT			-	0.92	V
	MBRF15150CT			-	0.95	V
	MBRF1535CT MBRF1545CT	I_F = 15A,T_J = 25°C		-	0.84	V
	MBRF1550CT MBRF1560CT			-	-	V
	MBRF1590CT MBRF15100CT			-	-	V
	MBRF15150CT			-	-	V
	MBRF1535CT MBRF1545CT	I_F = 7.5A,T_J = 125°C		-	0.57	V
	MBRF1550CT MBRF1560CT			-	0.65	V
	MBRF1590CT MBRF15100CT			-	0.82	V
	MBRF15150CT			-	0.92	V
	MBRF1535CT MBRF1545CT	I_F = 15A,T_J = 125°C		-	0.72	V
	MBRF1550CT MBRF1560CT			-	-	V
	MBRF1590CT MBRF15100CT			-	-	V
	MBRF15150CT			-	-	V

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Reverse current @ rated V_R per diode[2]	MBRF1535CT MBRF1545CT	T_J = 25°C	I_R	-	500	μA
	MBRF1550CT MBRF1560CT			-	300	μA
	MBRF1590CT MBRF15100CT MBRF15150CT			-	100	μA
	MBRF1535CT MBRF1545CT	T_J = 125°C		-	10	mA
	MBRF1550CT MBRF1560CT			-	7.5	mA
	MBRF1590CT MBRF15100CT MBRF15150CT			-	5	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
MBRF15xCT	ITO-220AB	50 / Tube
MBRF15xCTH	ITO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 35V(MBRF1535CT) to 150V(MBRF15150CT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

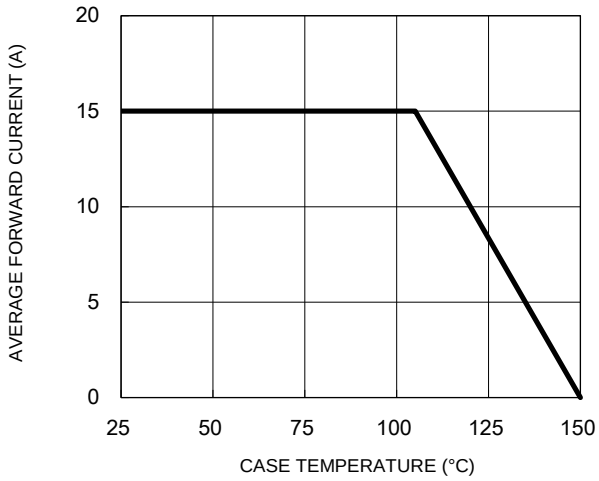


Fig.2 Typical Junction Capacitance

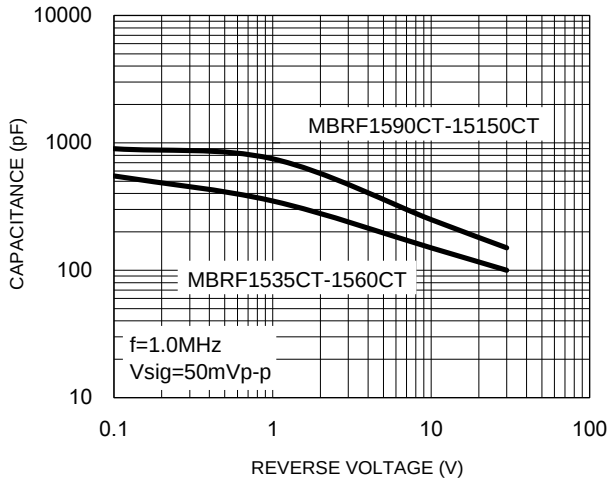


Fig.3 Typical Reverse Characteristics

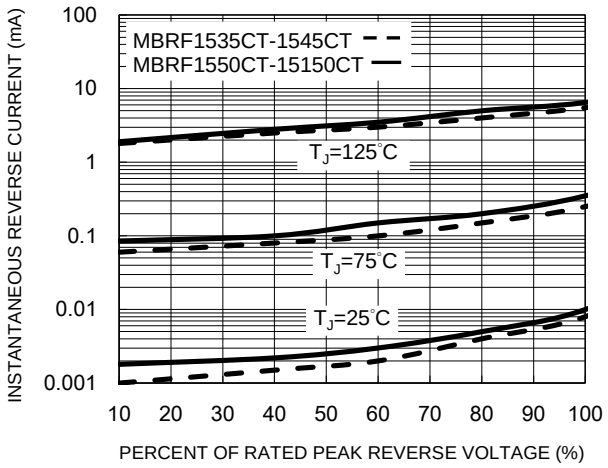


Fig.4 Typical Forward Characteristics

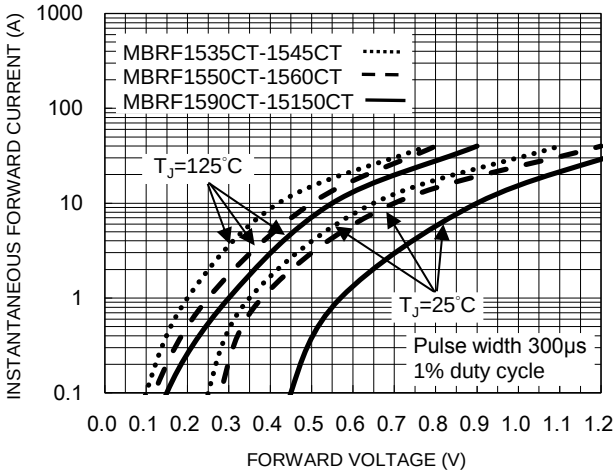
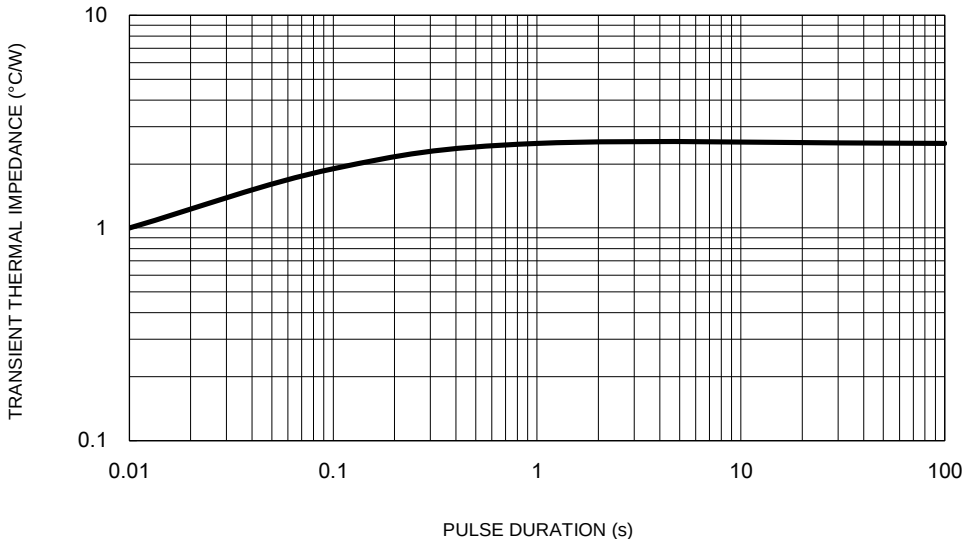


Fig.5 Maximum Non-Repetitive Forward Surge Current

CHARACTERISTICS CURVES

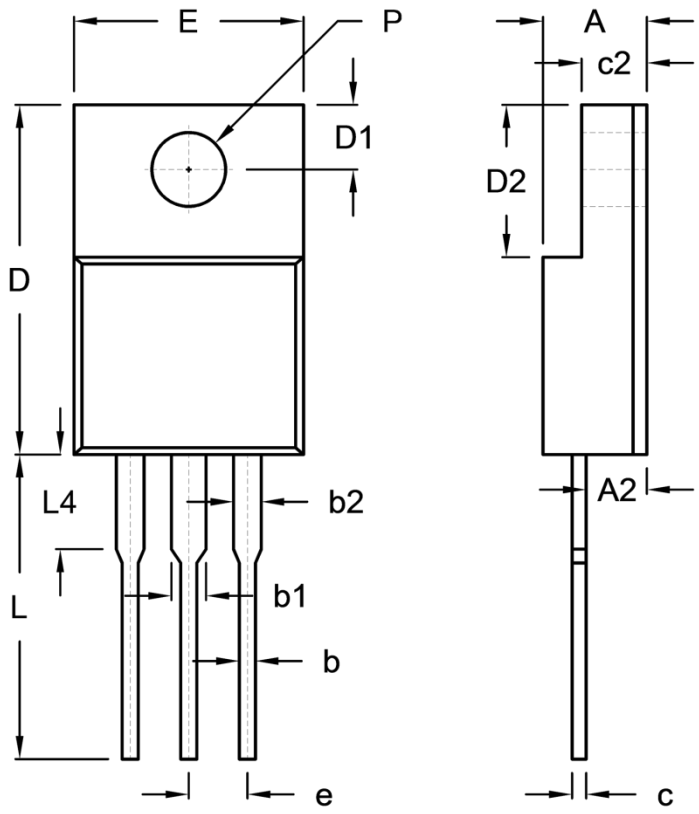
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance



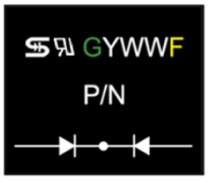
PACKAGE OUTLINE DIMENSIONS

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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