

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
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

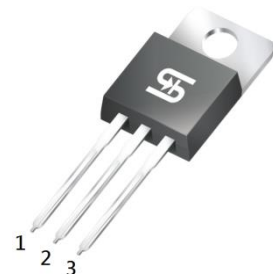
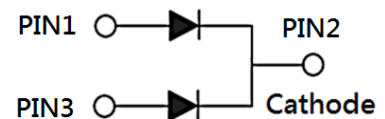
APPLICATIONS

- 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: 1.88g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	15	A
V_{RRM}	35 - 150	V
I_{FSM}	150	A
T_{JMAX}	150	°C
Package	TO-220AB	
Configuration	Dual dies	


TO-220AB


ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	MBR 1535 CT	MBR 1545 CT	MBR 1550 CT	MBR 1560 CT	MBR 1590 CT	MBR 15100 CT	MBR 15150 CT	UNIT
Marking code on the device		MBR 1535 CT	MBR 1545 CT	MBR 1550 CT	MBR 1560 CT	MBR 1590 CT	MBR 15100 CT	MBR 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	0.5					A	
Peak repetitive forward current (Rated V_R , Square wave, 20KHz)	I_{FRM}	15							A

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	MBR 1535 CT	MBR 1545 CT	MBR 1550 CT	MBR 1560 CT	MBR 1590 CT	MBR 15100 CT	MBR 15150 CT	UNIT
Critical rate of rise of off-state voltage	dv/dt	10,000							V/ μs
Junction temperature	T_J	-55 to +150							$^\circ\text{C}$
Storage temperature	T_{STG}	-55 to +150							$^\circ\text{C}$

Notes:

- $t_p = 2.0\mu\text{s}$, 1.0KHz

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	10	$^\circ\text{C/W}$
Junction-to-case thermal resistance	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 7.5\text{A}$, $T_J = 25^\circ\text{C}$	V_F	-	-	V
			-	0.75	V
			-	0.92	V
			-	1.05	V
	$I_F = 15\text{A}$, $T_J = 25^\circ\text{C}$		-	0.84	V
			-	-	V
			-	-	V
			-	-	V
	$I_F = 7.5\text{A}$, $T_J = 125^\circ\text{C}$		-	0.57	V
			-	0.65	V
			-	0.82	V
			-	0.92	V
	$I_F = 15\text{A}$, $T_J = 125^\circ\text{C}$		-	0.72	V
			-	-	V
			-	-	V
			-	-	V

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Reverse current @ rated V_R per diode ⁽²⁾	MBR1535CT MBR1545CT	$T_J = 25^\circ\text{C}$	I_R	-	500	μA
	MBR1550CT MBR1560CT			-	300	μA
	MBR1590CT MBR15100CT MBR15150CT			-	100	μA
	MBR1535CT MBR1545CT	$T_J = 125^\circ\text{C}$		-	10	mA
	MBR1550CT MBR1560CT			-	7.5	mA
	MBR1590CT MBR15100CT MBR15150CT			-	5	mA

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾⁽²⁾	PACKAGE	PACKING
MBR15xCT	TO-220AB	50 / Tube
MBR15xCTH	TO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 35V(MBR1535CT) to 150V(MBR15150CT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Forward Current Derating Curve

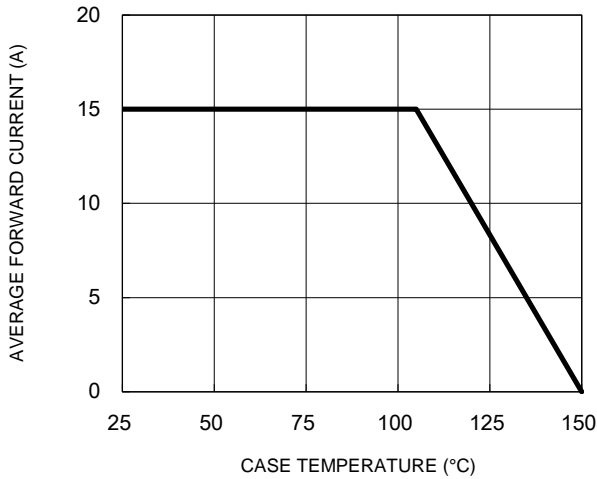


Fig.2 Typical Junction Capacitance

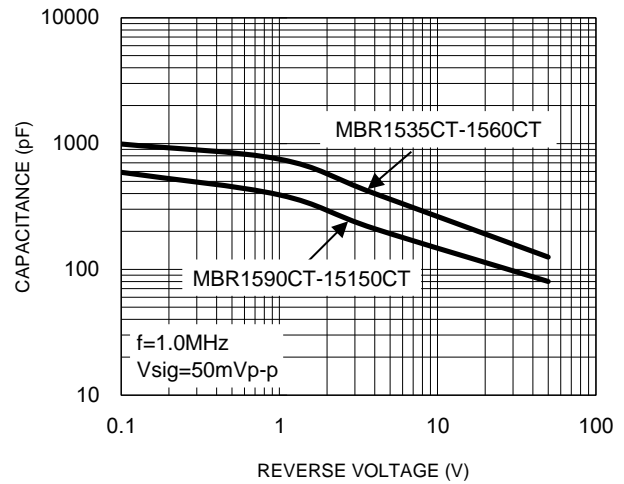


Fig.3 Typical Reverse Characteristics

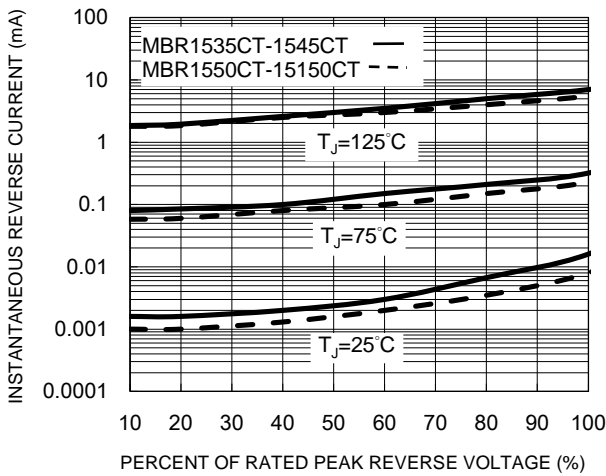


Fig.4 Typical Forward Characteristics

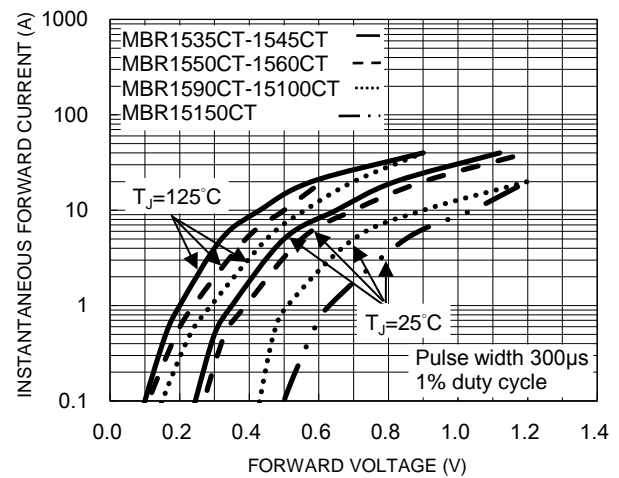
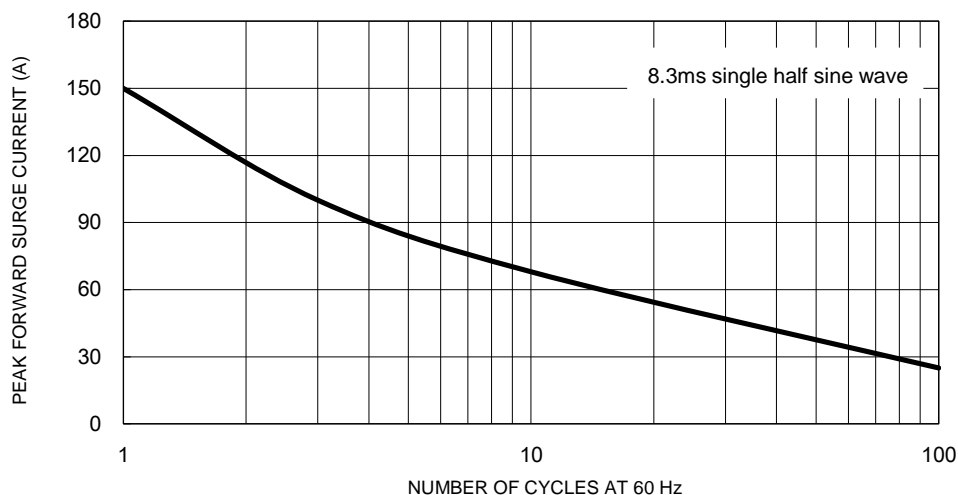


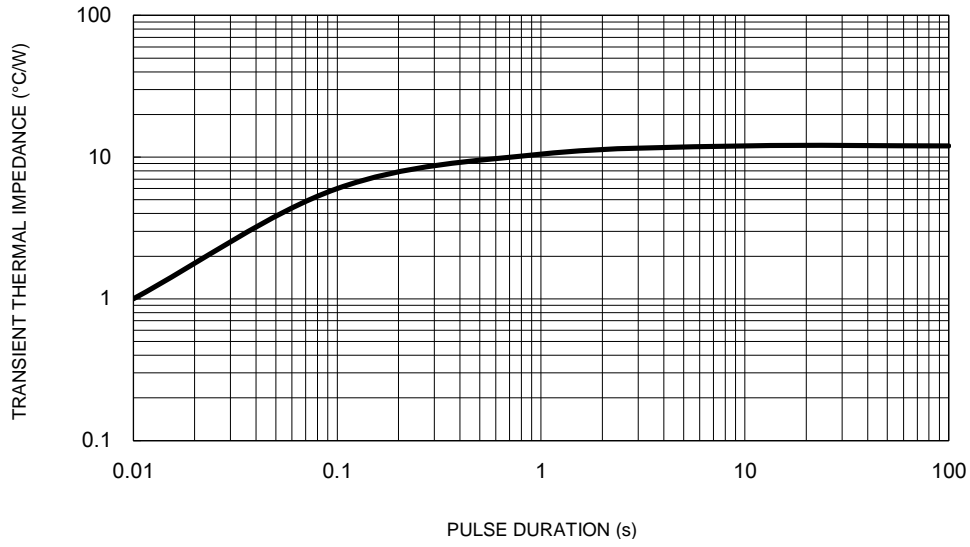
Fig.5 Maximum Non-Repetitive Forward Surge Current



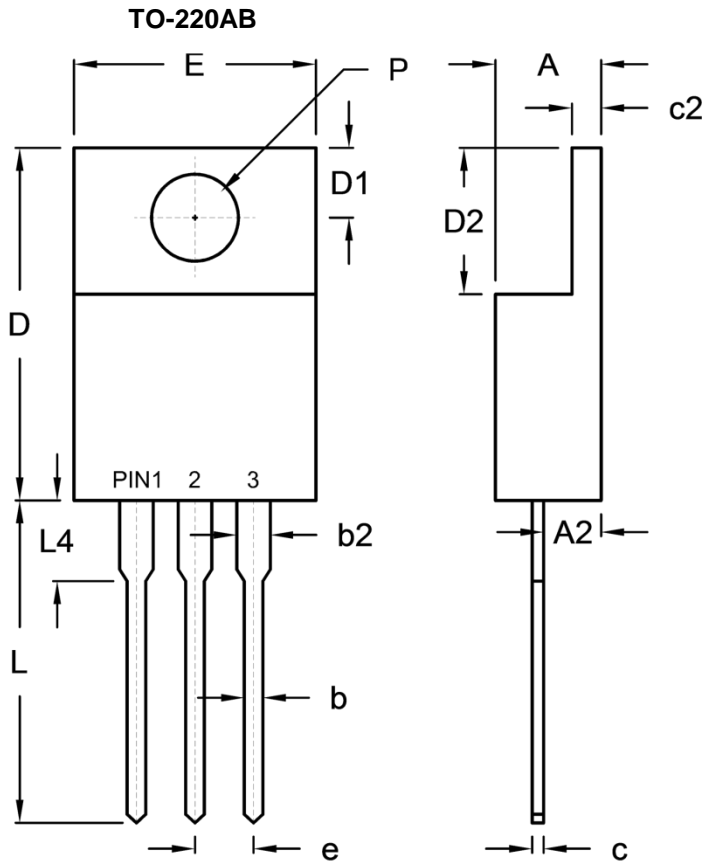
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS



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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