

25A, 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

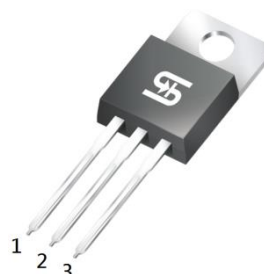
APPLICATIONS

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

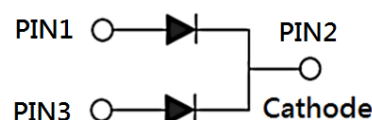
MECHANICAL DATA

- 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: 1.90g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	25	A
V_{RRM}	35 - 150	V
I_{FSM}	200	A
$T_{J\ MAX}$	150	°C
Package	TO-220AB	
Configuration	Dual dies	



TO-220AB



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C unless otherwise noted)									
PARAMETER	SYMBOL	MBR 2535 CT	MBR 2545 CT	MBR 2550 CT	MBR 2560 CT	MBR 2590 CT	MBR 25100 CT	MBR 25150 CT	UNIT
Marking code on the device		MBR 2535 CT	MBR 2545 CT	MBR 2550 CT	MBR 2560 CT	MBR 2590 CT	MBR 25100 CT	MBR 25150 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	25							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		0.5					A
Peak repetitive forward current (Rated V _R , Square wave, 20KHz)	I _{FRM}	25							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. $t_p = 2.0\mu\text{s}$, 1.0KHz

THERMAL PERFORMANCE

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

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 12.5\text{A}, T_J = 25^\circ\text{C}$	V_F	-	-	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 25.0\text{A}, T_J = 25^\circ\text{C}$		-	0.75	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 12.5\text{A}, T_J = 125^\circ\text{C}$		-	0.85	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 25.0\text{A}, T_J = 125^\circ\text{C}$		-	0.95	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 12.5\text{A}, T_J = 125^\circ\text{C}$		-	0.82	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 25.0\text{A}, T_J = 125^\circ\text{C}$		-	-	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 12.5\text{A}, T_J = 125^\circ\text{C}$		-	0.92	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 25.0\text{A}, T_J = 125^\circ\text{C}$		-	1.02	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 12.5\text{A}, T_J = 125^\circ\text{C}$		-	-	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 25.0\text{A}, T_J = 125^\circ\text{C}$		-	0.65	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 12.5\text{A}, T_J = 125^\circ\text{C}$		-	0.75	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 25.0\text{A}, T_J = 125^\circ\text{C}$		-	0.92	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 12.5\text{A}, T_J = 125^\circ\text{C}$		-	0.73	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 25.0\text{A}, T_J = 125^\circ\text{C}$		-	-	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 12.5\text{A}, T_J = 125^\circ\text{C}$		-	0.88	V
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $I_F = 25.0\text{A}, T_J = 125^\circ\text{C}$		-	0.98	V
Reverse current @ rated V_R per diode ⁽²⁾	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $T_J = 25^\circ\text{C}$	I_R	-	200	μA
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $T_J = 125^\circ\text{C}$		-	100	μA
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $T_J = 125^\circ\text{C}$		-	15	mA
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $T_J = 125^\circ\text{C}$		-	10	mA
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $T_J = 125^\circ\text{C}$		-	7.5	mA
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $T_J = 125^\circ\text{C}$		-	5	mA
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $T_J = 125^\circ\text{C}$		-	-	-
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $T_J = 125^\circ\text{C}$		-	-	-
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $T_J = 125^\circ\text{C}$		-	-	-
	MBR2535CT MBR2545CT MBR2550CT MBR2560CT MBR2590CT MBR25100CT MBR25150CT $T_J = 125^\circ\text{C}$		-	-	-

Notes:

- Pulse test with $PW = 0.3\text{ms}$
- Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION

ORDERING CODE⁽¹⁾⁽²⁾	PACKAGE	PACKING
MBR25xCT	TO-220AB	50 / Tube
MBR25xCTH	TO-220AB	50 / Tube

Notes:

1. “x” defines voltage from 35V(MBR2535CT) to 150V(MBR25150CT)
2. “H” means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

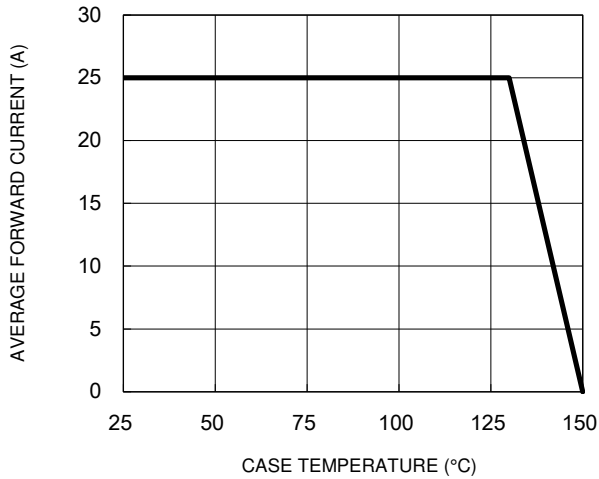


Fig.2 Typical Junction Capacitance

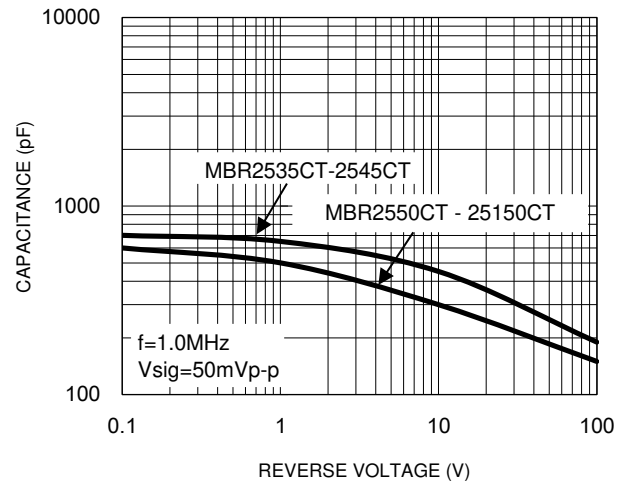


Fig.3 Typical Reverse Characteristics

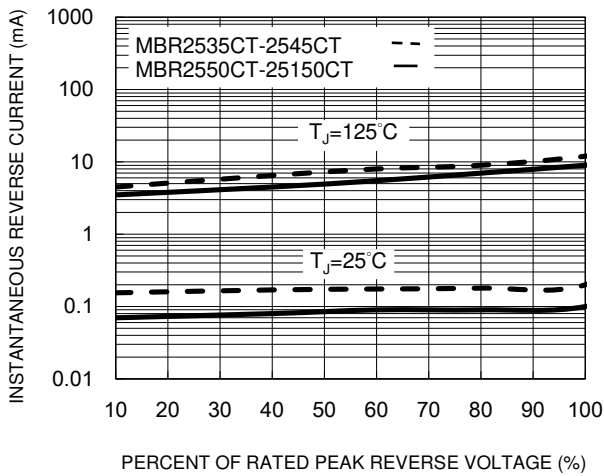


Fig.4 Typical Forward Characteristics

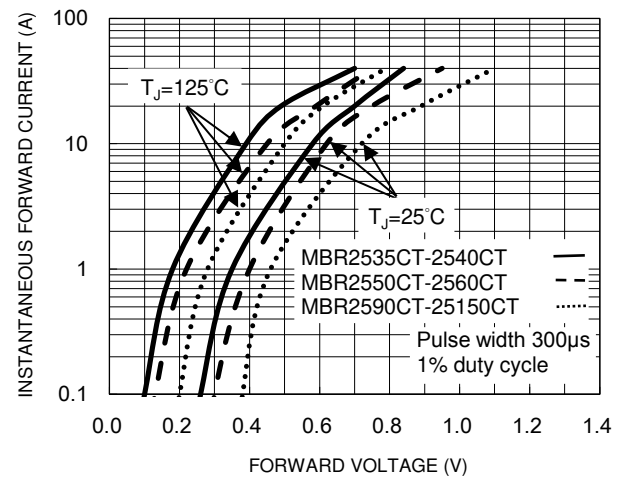
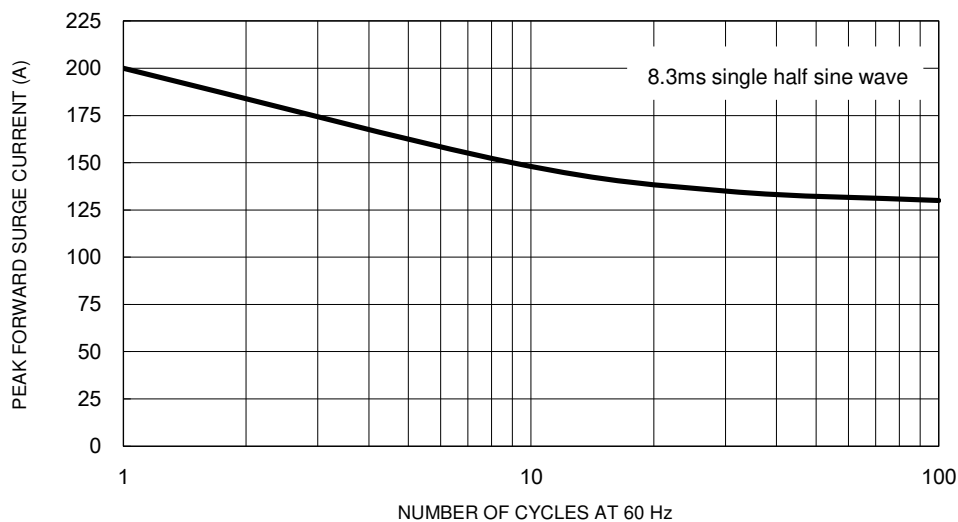


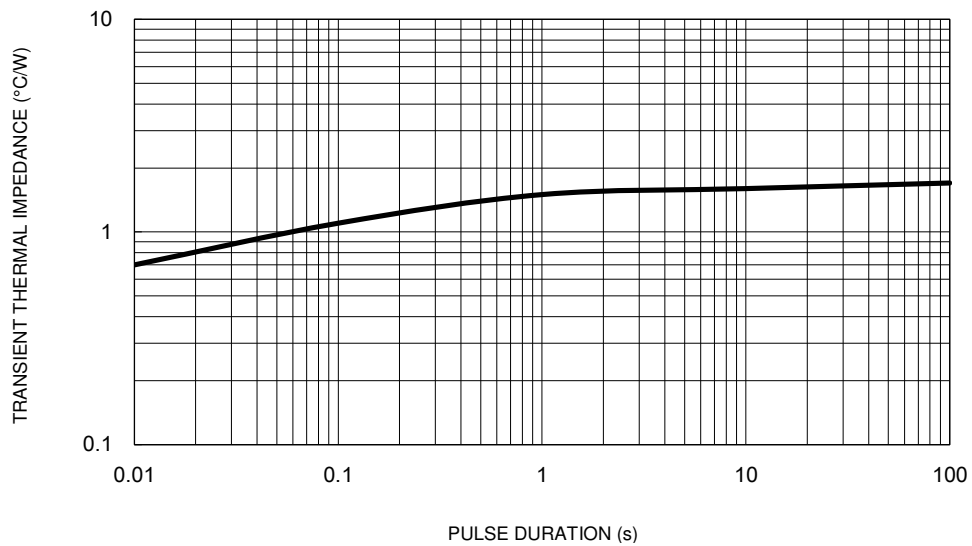
Fig.5 Maximum Non-Repetitive Forward Surge Current



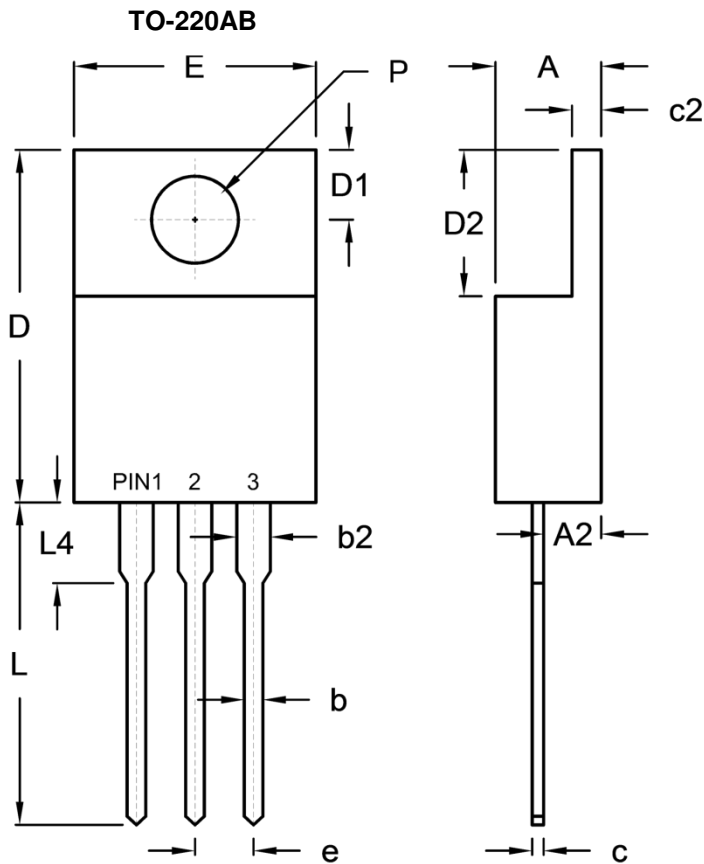
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ 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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