

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

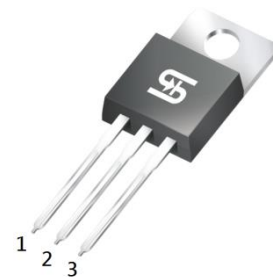
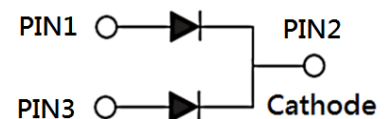
APPLICATIONS

- 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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	MBR	MBR	MBR	MBR	MBR	MBR	MBR	UNIT
		2535	2545	2550	2560	2590	25100	25150	
		CT	CT	CT	CT	CT	CT	CT	
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/ μ s
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	$I_F = 12.5\text{A}, T_J = 25^\circ\text{C}$	V_F	-	-	V			
	MBR2550CT MBR2560CT			-	0.75	V			
	MBR2590CT MBR25100CT			-	0.85	V			
	MBR25150CT			-	0.95	V			
	MBR2535CT MBR2545CT			$I_F = 25.0\text{A}, T_J = 25^\circ\text{C}$	-	0.82	V		
	MBR2550CT MBR2560CT	-			-	V			
	MBR2590CT MBR25100CT	-			0.92	V			
	MBR25150CT	-			1.02	V			
	MBR2535CT MBR2545CT	$I_F = 12.5\text{A}, T_J = 125^\circ\text{C}$			-	-	V		
	MBR2550CT MBR2560CT			-	0.65	V			
	MBR2590CT MBR25100CT			-	0.75	V			
	MBR25150CT			-	0.92	V			
	MBR2535CT MBR2545CT			$I_F = 25.0\text{A}, T_J = 125^\circ\text{C}$	-	0.73	V		
	MBR2550CT MBR2560CT	-			-	V			
	MBR2590CT MBR25100CT	-			0.88	V			
	MBR25150CT	-			0.98	V			
	Reverse current @ rated V_R per diode ⁽²⁾	MBR2535CT MBR2545CT MBR2550CT MBR2560CT			$T_J = 25^\circ\text{C}$	I_R	-	200	μA
		MBR2590CT MBR25100CT MBR25150CT		-			100	μA	
		MBR2535CT MBR2545CT		$T_J = 125^\circ\text{C}$			-	15	mA
		MBR2550CT MBR2560CT					-	10	mA
MBR2590CT MBR25100CT		-	7.5		mA				
MBR25150CT		-	5		mA				

Notes:

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

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

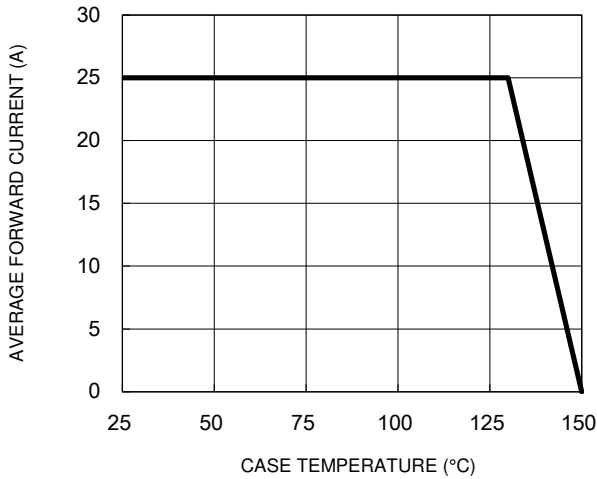


Fig.2 Typical Junction Capacitance

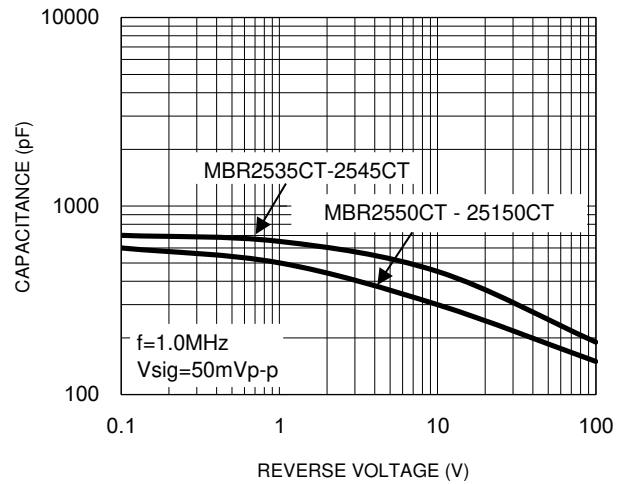


Fig.3 Typical Reverse Characteristics

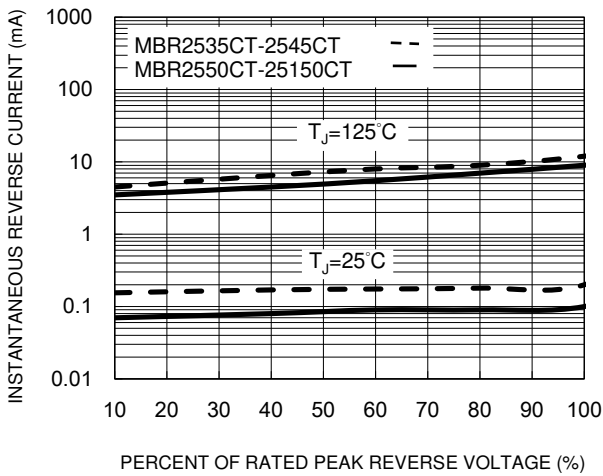


Fig.4 Typical Forward Characteristics

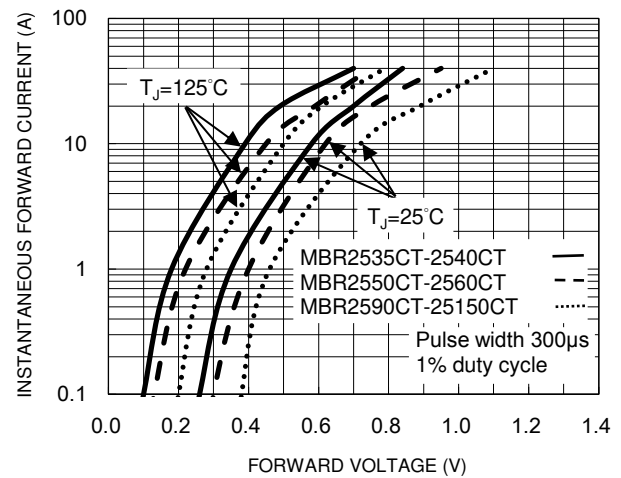
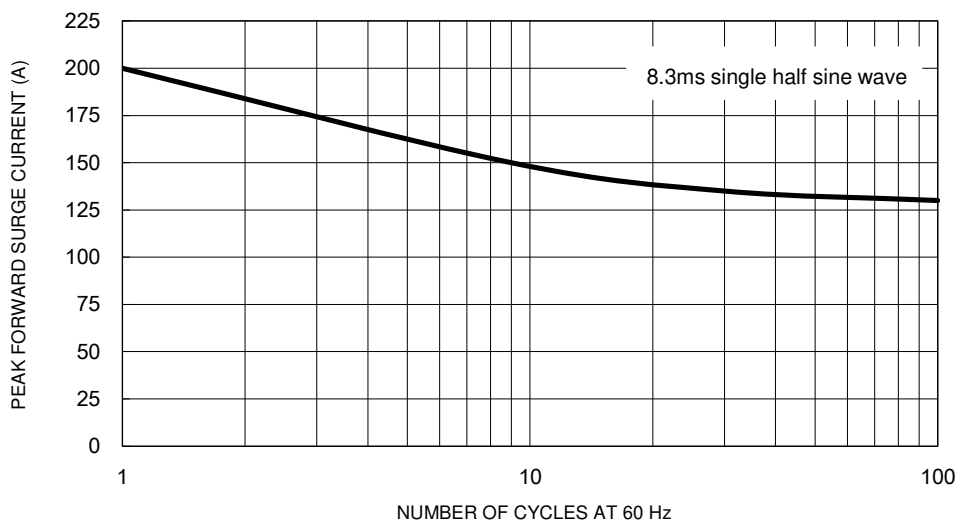


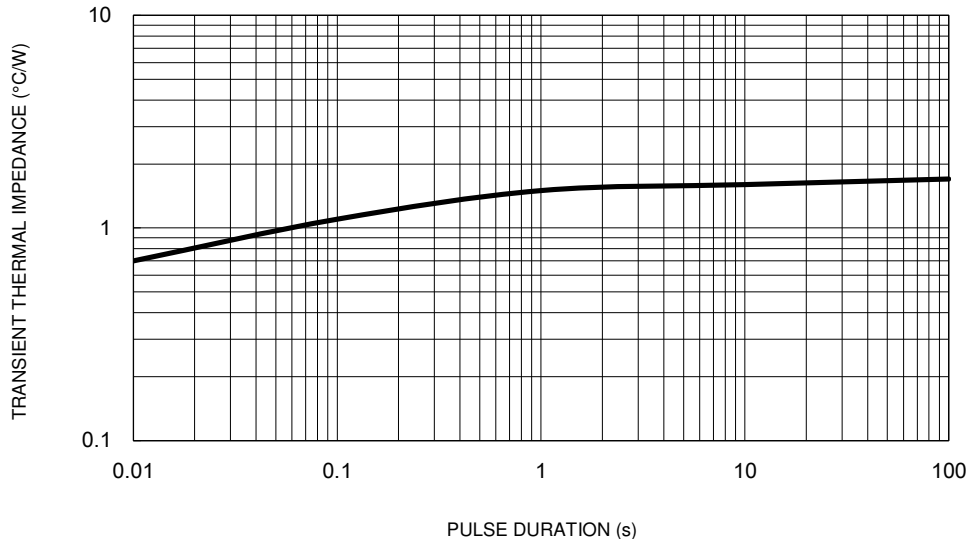
Fig.5 Maximum Non-Repetitive Forward Surge Current



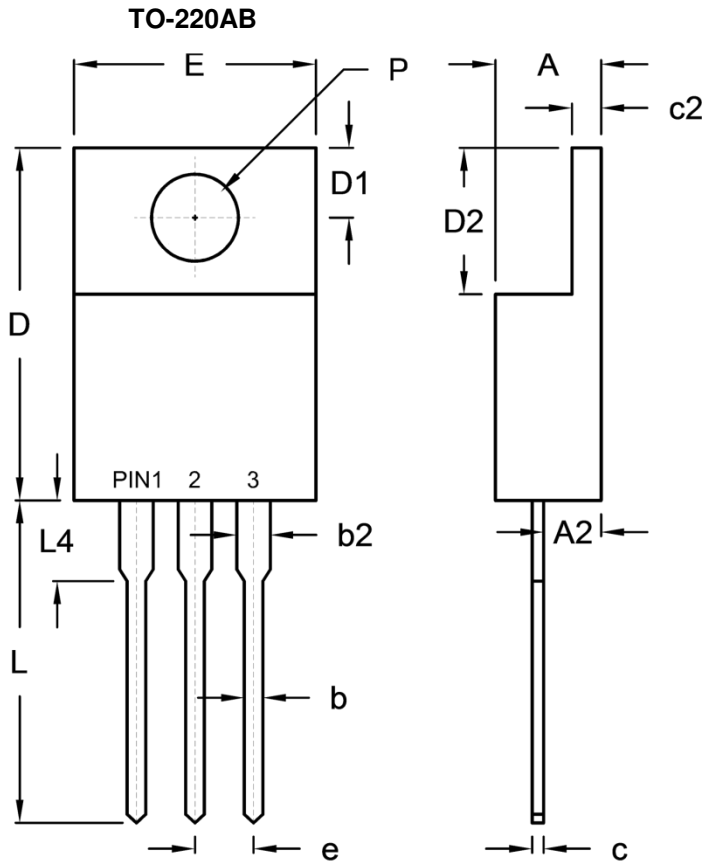
CHARACTERISTICS CURVES

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