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

APPLICATIONS

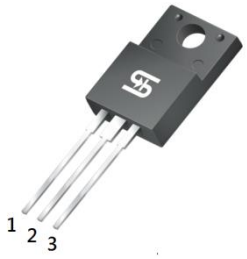
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

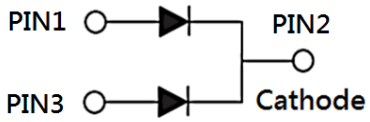
- Case: ITO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.70g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	25	A
V_{RRM}	35 - 150	V
I_{FSM}	200	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	MBRF2535CT	MBRF2545CT	MBRF2550CT	MBRF2560CT	MBRF2590CT	MBRF25100CT	MBRF25150CT	UNIT
Marking code on the device		MBRF2535CT	MBRF2545CT	MBRF2550CT	MBRF2560CT	MBRF2590CT	MBRF25100CT	MBRF25150CT	
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 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

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**TYP**	**UNIT**
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	8	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	1	°C/W

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode[1]	MBRF2535CT MBRF2545CT	I_F = 12.5A,T_J = 25°C	V_F	-	-	V
	MBRF2550CT MBRF2560CT			-	0.75	V
	MBRF2590CT MBRF25100CT			-	0.85	V
	MBRF25150CT			-	0.95	V
	MBRF2535CT MBRF2545CT	I_F = 25A,T_J = 25°C		-	0.82	V
	MBRF2550CT MBRF2560CT			-	-	V
	MBRF2590CT MBRF25100CT			-	0.92	V
	MBRF25150CT			-	1.02	V
	MBRF2535CT MBRF2545CT	I_F = 12.5A,T_J = 125°C		-	-	V
	MBRF2550CT MBRF2560CT			-	0.65	V
	MBRF2590CT MBRF25100CT			-	0.75	V
	MBRF25150CT			-	0.92	V
	MBRF2535CT MBRF2545CT	I_F = 25A,T_J = 125°C		-	0.73	V
	MBRF2550CT MBRF2560CT			-	-	V
	MBRF2590CT MBRF25100CT			-	0.88	V
	MBRF25150CT			-	0.98	V

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Reverse current @ rated V_R per diode[2]	MBRF2535CT MBRF2545CT MBRF2550CT MBRF2560CT	T_J = 25°C	I_R	-	2	mA
	MBRF2590CT MBRF25100CT MBRF25150CT			-	100	μA
	MBRF2535CT MBRF2545CT	T_J = 125°C		-	15	mA
	MBRF2550CT MBRF2560CT			-	10	mA
	MBRF2590CT MBRF25100CT			-	7.5	mA
	MBRF25150CT			-	5	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
MBRF25xCT	ITO-220AB	50 / Tube
MBRF25xCTH	ITO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 35V(MBRF2535CT) to 150V(MBRF25150CT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

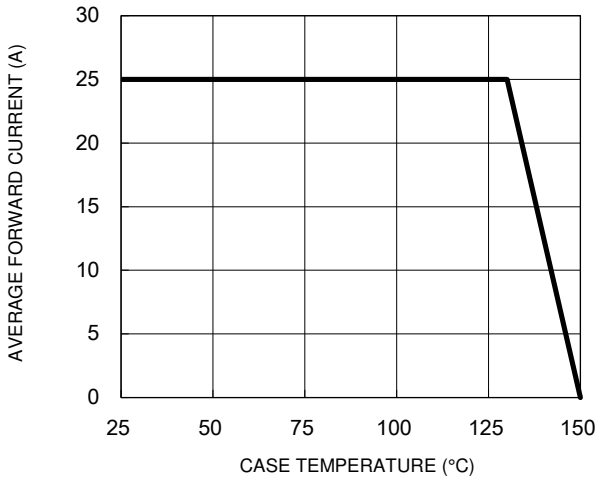


Fig.2 Typical Junction Capacitance

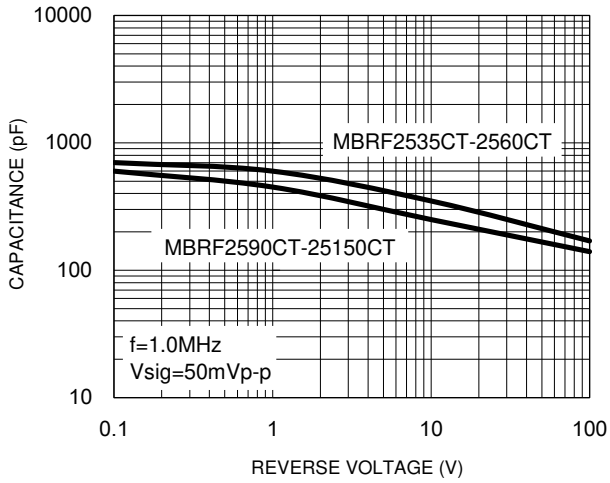


Fig.3 Typical Reverse Characteristics

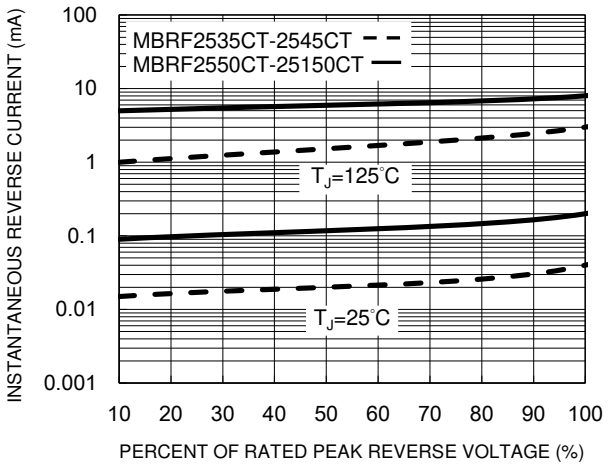


Fig.4 Typical Forward Characteristics

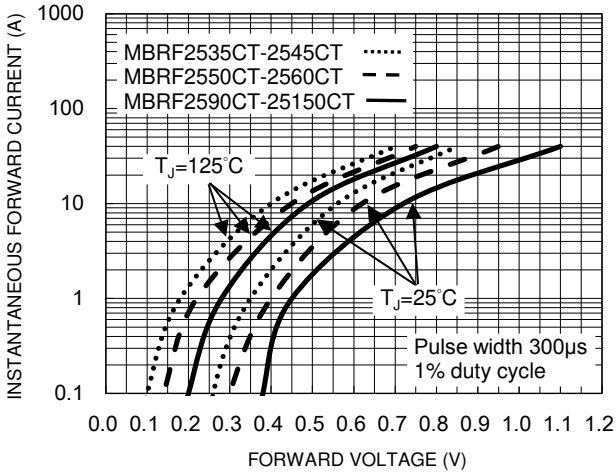
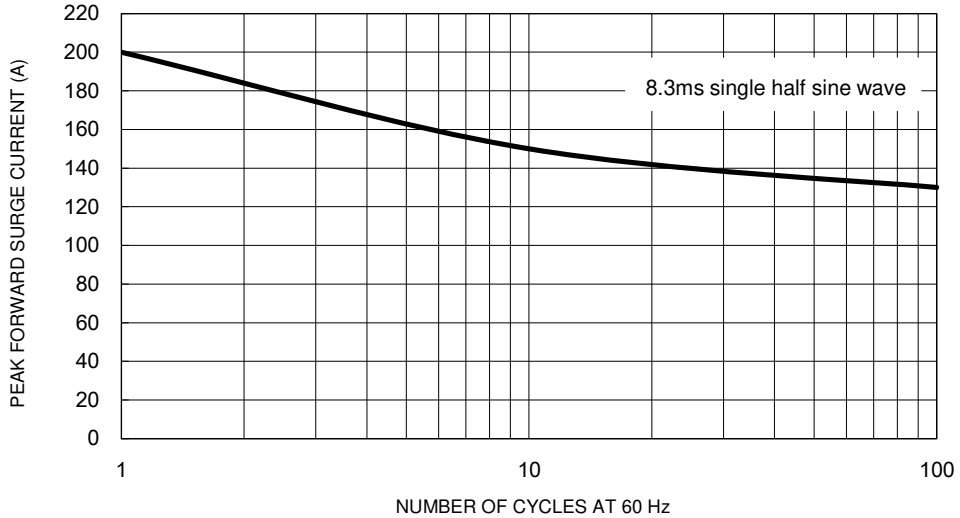


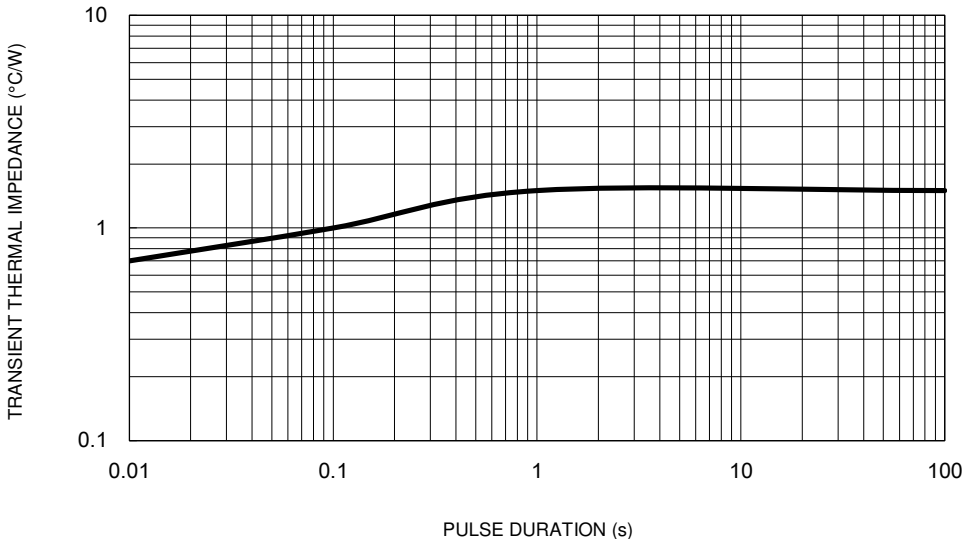
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

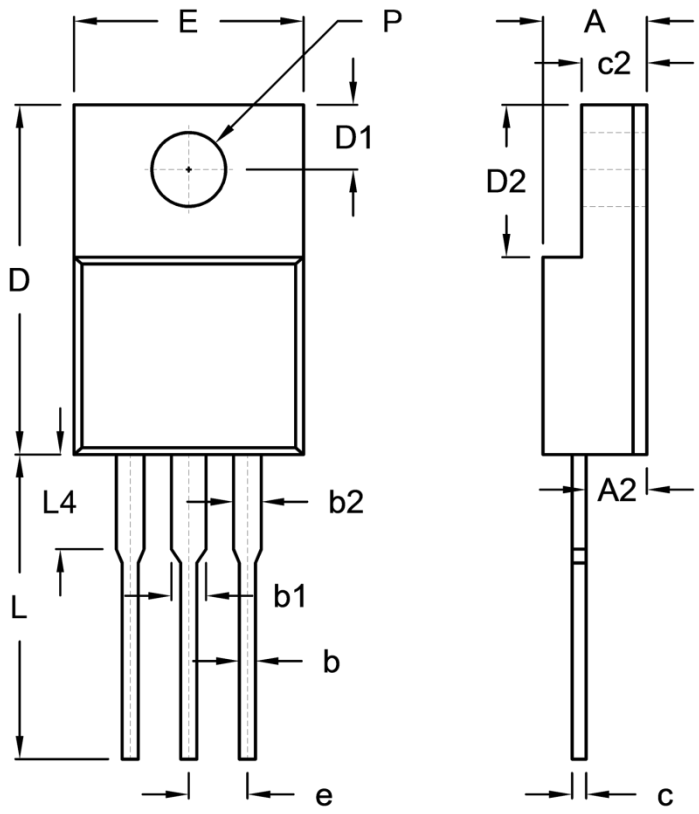
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance



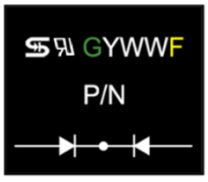
PACKAGE OUTLINE DIMENSIONS

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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