20A, 45V - 200V Schottky Barrier Rectifier

FEATURES

- 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

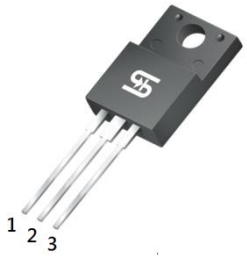
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

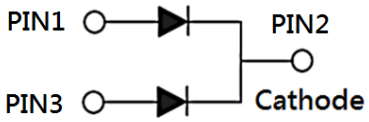
- Case: ITO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Weight: 1.70g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	20	A
V_{RRM}	45 - 200	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 2045 CT-Y	MBRF 2060 CT-Y	MBRF 20100 CT-Y	MBRF 20150 CT-Y	MBRF 20200 CT-Y	UNIT
Marking code on the device		MBRF 2045 CT	MBRF 2060 CT	MBRF 20100 CT	MBRF 20150 CT	MBRF 20200 CT	
Repetitive peak reverse voltage	V_{RRM}	45	60	100	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	31	42	70	105	140	V
Forward current	I_F	20					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}	20					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. tp = 2.0μs, 1.0KHz

THERMAL PERFORMANCE

PARAMETER		SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	MBRF2045CT-Y-60CT-Y	$R_{\Theta JC}$	1.5	°C/W
	MBRF20100CT-Y-200CT-Y		3.5	°C/W

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode(1)	MBRF2045CT-Y MBRF2060CT-Y	I_F = 10A,T_J = 25°C	V_F	-	0.80	V
	MBRF20100CT-Y			-	0.85	V
	MBRF20150CT-Y MBRF20200CT-Y			-	0.95	V
	MBRF2045CT-Y	I_F = 20A,T_J = 25°C		-	0.84	V
	MBRF2060CT-Y MBRF20100CT-Y			-	0.95	V
	MBRF20150CT-Y MBRF20200CT-Y			-	1.05	V
Forward voltage per diode(1)	MBRF2045CT-Y	I_F = 10A,T_J = 125°C	V_F	-	0.57	V
	MBRF2060CT-Y			-	0.70	V
	MBRF20100CT-Y			-	0.75	V
	MBRF20150CT-Y MBRF20200CT-Y			-	0.85	V
	MBRF2045CT-Y	I_F = 20A,T_J = 125°C		-	0.72	V
	MBRF2060CT-Y MBRF20100CT-Y			-	0.85	V
	MBRF20150CT-Y MBRF20200CT-Y			-	0.95	V
Reverse current @ rated V_R per diode(2)	MBRF2045CT-Y MBRF2060CT-Y MBRF20100CT-Y MBRF20150CT-Y MBRF20200CT-Y	T_J = 25°C	I_R	-	100	µA
	MBRF2045CT-Y	T_J = 125°C		-	15	mA
	MBRF2060CT-Y			-	10	mA
	MBRF20100CT-Y			-	5	mA
	MBRF20150CT-Y MBRF20200CT-Y			-	2	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1]	PACKAGE	PACKING
MBRF20xCT-Y	ITO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 45V(MBRF2045CT-Y) to 200V(MBRF20200CT-Y)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

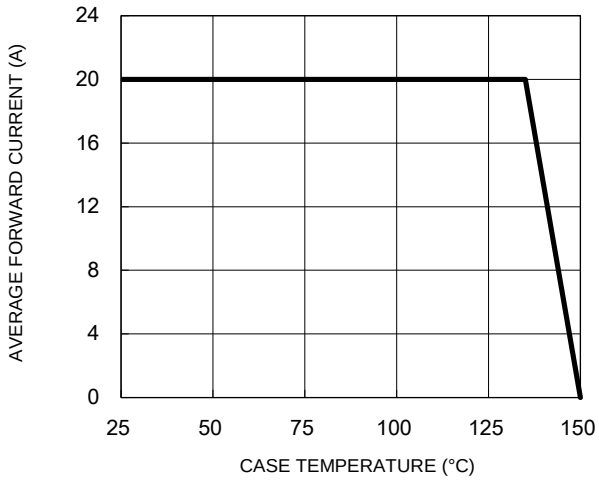


Fig.2 Typical Junction Capacitance

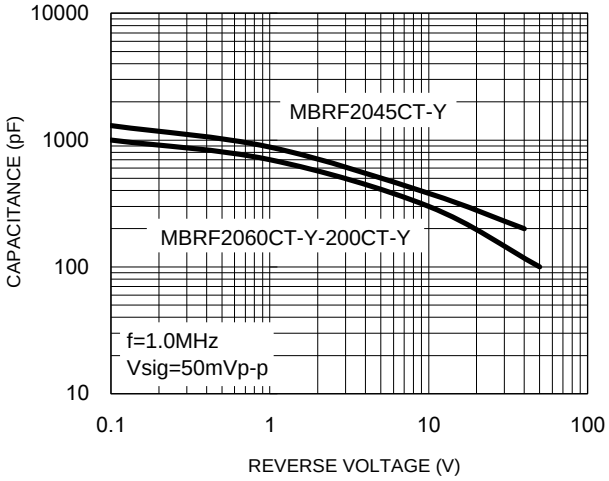


Fig.3 Typical Reverse Characteristics

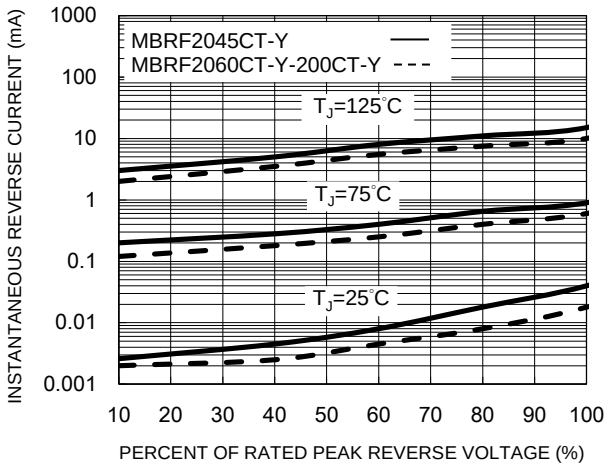


Fig.4 Typical Forward Characteristics

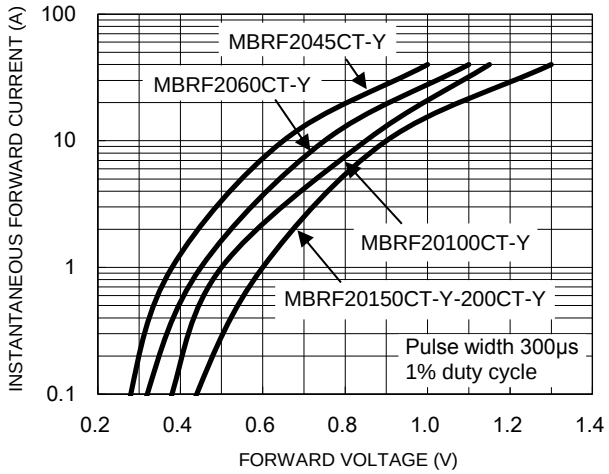
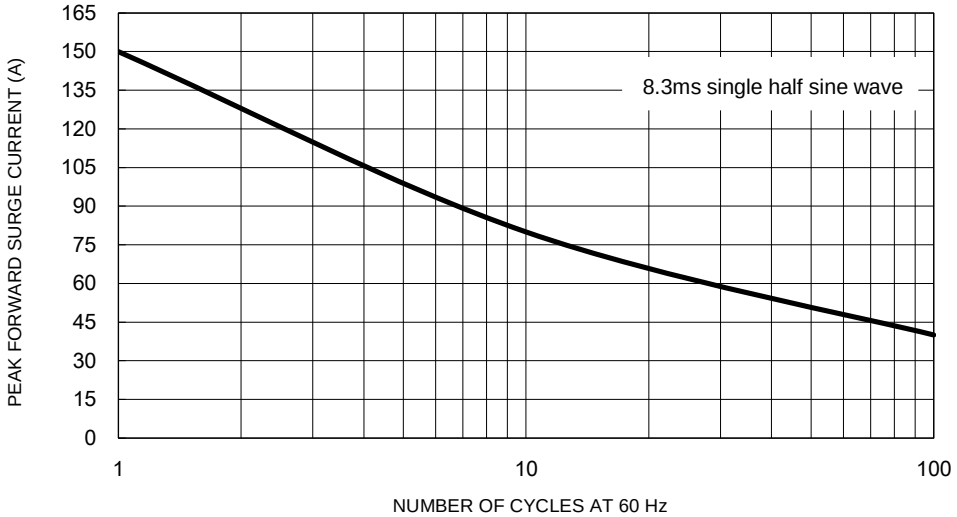


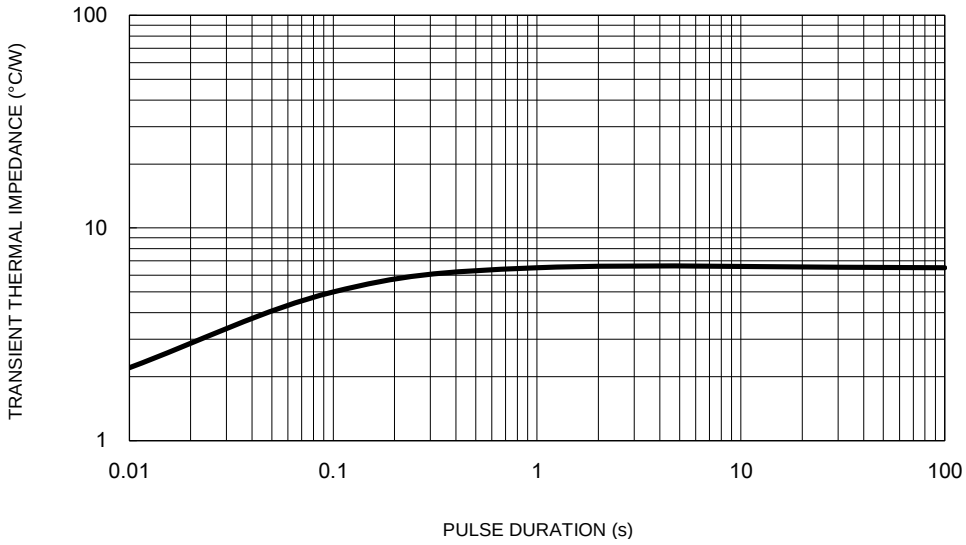
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

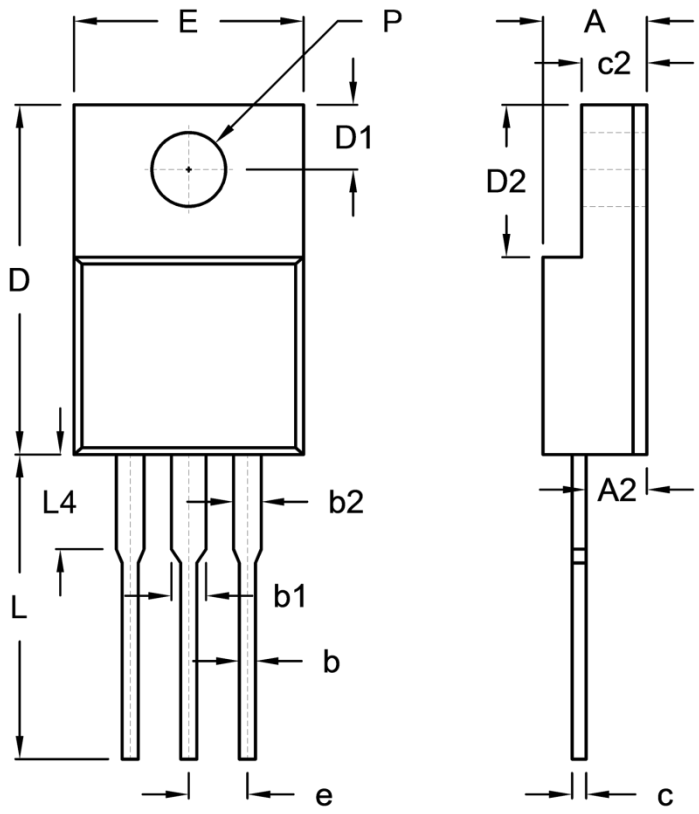
(T_A = 25°C unless otherwise noted)

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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