

MBR2045CTW

SCHOTTKY BARRIER RECTIFIER

REVERSE VOLTAGE – 45 Volts
FORWARD CURRENT – 20 Amperes

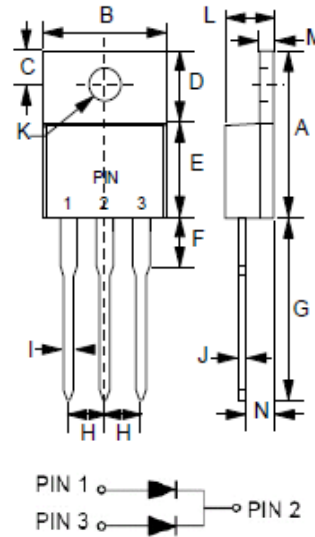
FEATURES

- Metal of silicon rectifier, majority carrier conduction
- Guard ring for transient protection
- Low power loss, high efficiency
- Low leakage current
- High current capability, low V_F
- High surge capacity
- Qualified according to AEC-Q101 Rev_C
- For use in low voltage, high frequency inverters, free whelling, and polarity protection applications
- IEC 61000-4-2, level 4(ESD), >15KV(Air)
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

MECHANICAL DATA

- Case :TO-220AB molded plastic
- Case Material: "Green" molding compound, UL flammability classification 94V-0, "Halogen-free"
- Polarity : As marked on the body
- Wight : 2.0275grams(Approximate)
- Mounting position : Any
- Marking : MBR2045CTW
- Max. mounting torque=0.5N.m(5.1Kgf.cm)

TO-220AB



TO-220AB		
DIM	MIN	MAX
A	14.40	15.20
B	9.65	10.67
C	2.54	3.43
D	5.84	6.86
E	8.26	9.28
F	--	4.20
G	12.70	14.73
H	2.29	2.79
I	0.51	1.14
J	0.30	0.64
K	3.53φ	4.09φ
L	3.56	4.83
M	1.14	1.40
N	2.03	2.92

All dimensions in millimeters

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

ABSOLUTE RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum RMS Voltage	V_{RMS}	31.5	
Maximum DC blocking voltage	V_{DC}	45	V
Maximum Average rectified output current	$I_{(AV)}$	20	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load.	I_{FSM}	150	A
Voltage Rate of Charge (Rated VR)	dV/dt	10000	V/us
Operating and Storage temperature range	T_J, T_{STG}	-55 to +175	°C

STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITION	SYMBOL	MAX	UNIT
Forward voltage (Note4)	$I_F=10A$	V_F	$T_J=25^\circ C$	0.65
			$T_J=125^\circ C$	0.57
	$I_F=20A$	V_F	$T_J=25^\circ C$	0.84
			$T_J=125^\circ C$	0.72
Leakage current	$V_R=45V$	I_R	$T_J=25^\circ C$	0.02
			$T_J=100^\circ C$	5
			$T_J=125^\circ C$	12
Typical junction capacitance (Note5)		C_j	300	pF

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	TYP	UNIT
Typical thermal resistance (Note 6,7)	R_{thJc}	2	°C/W
	R_{thJa}	5	

Note :

- (1) EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3).compliant. All applicable RoHS exemptions applied.
- (2) See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- (3). Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- (4) 300us pulse width, 2% duty cycle.
- (5) Measured at 1.0MHz and applied reverse voltage of 4.0 VDC
- (6) Thermal Resistance Junction to Case.
- (7) Thermal Resistance test performed in accordance with JESD-51.The unit mounted on copper plate heatsink.

REV.-8, Oct.-2021, KTHC91

RATING AND CHARACTERISTIC CURVES
MBR2045CTW

FIG.1- FORWARD CURRENT DERATING CURVE

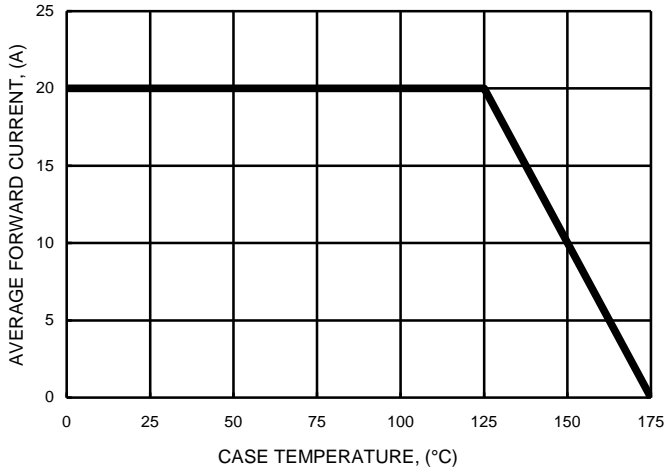


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

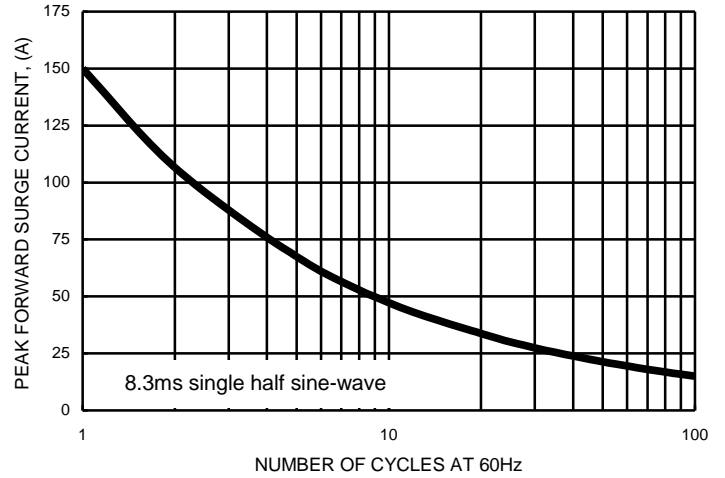


FIG.3- TYPICAL FORWARD CHARACTERISTICS

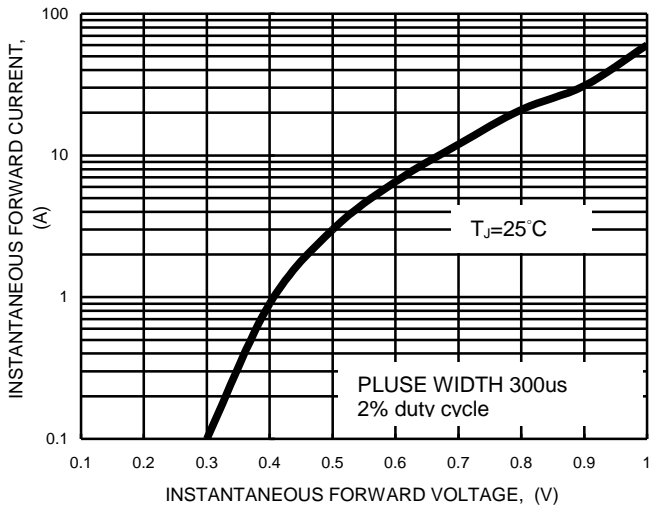


FIG.4- TYPICAL JUNCTION CAPACITANCE

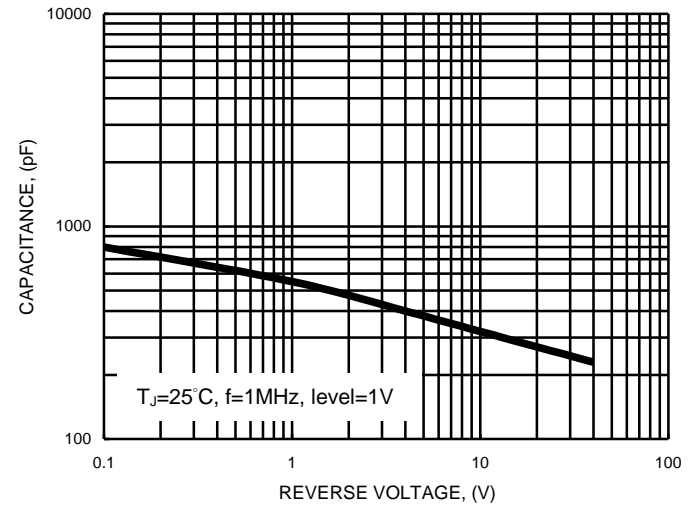
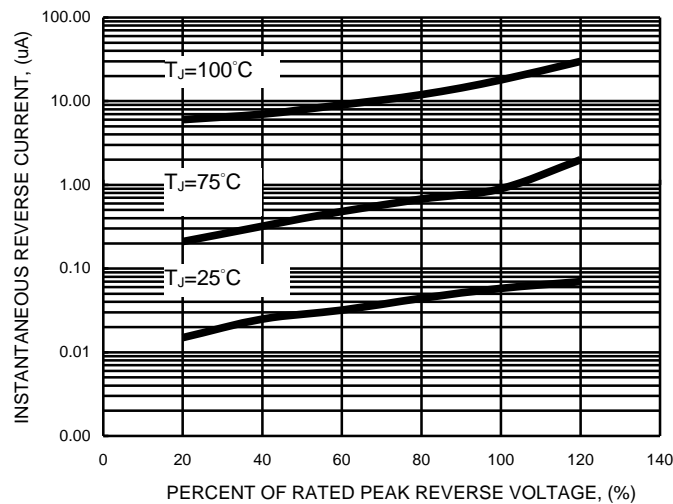


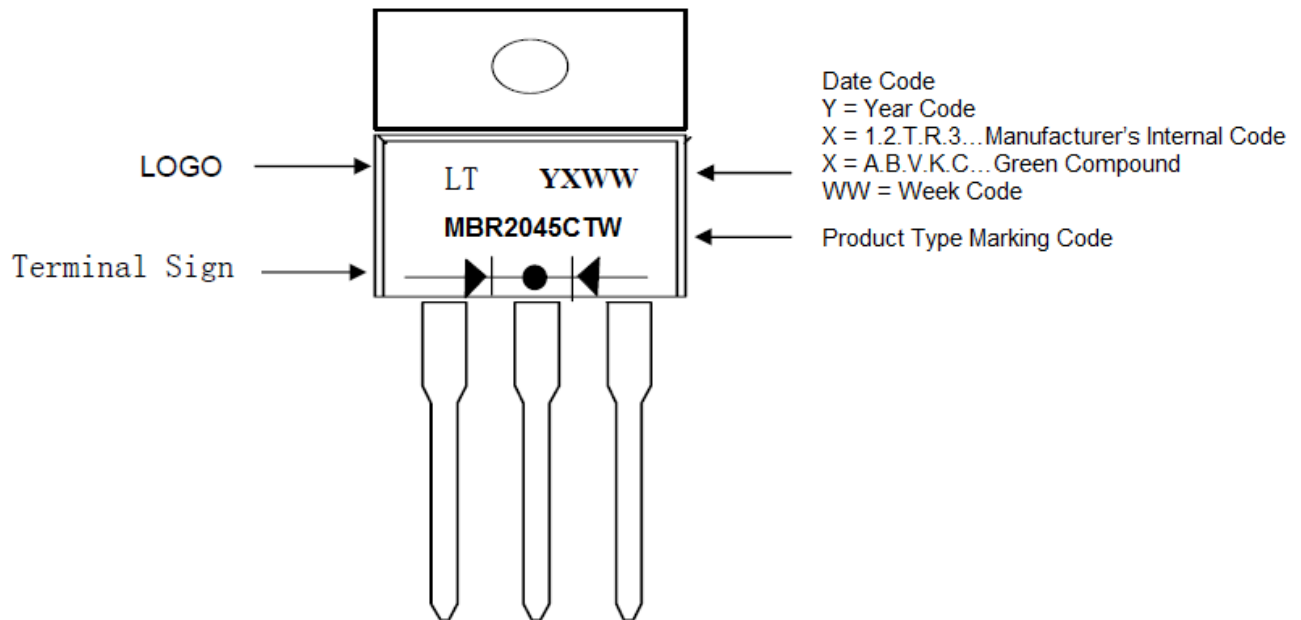
FIG.5- TYPICAL REVERSE CHARACTERISTICS



Ordering Information :

Part Number	Case	Packaging
MBR2045CTW	TO-220AB	50 pieces/tube

Marking Information :



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