# LITE ON SEMICONDUCTOR

### MBRF1030CT thru 1045CT

#### SCHOTTKY BARRIER RECTIFIERS

REVERSE VOLTAGE - **30** to **45** Volts FORWARD CURRENT - **10** Amperes

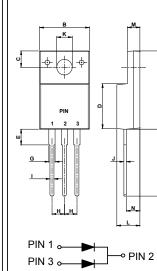
ITO-220AB

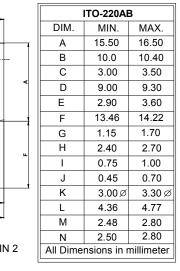
#### FEATURES

- Metal of silicon rectifier, majority carrier conducton
- Guard ring for transient protection
- Low power loss, high efficiency
- High current capability, low VF
- High surge capacity
- Plastic package has UL flammability classification 94V-0
- For use in low voltage, high frequency inverters, free whelling, and polarity protection applications

#### **MECHANICAL DATA**

- Case : ITO-220AB molded plastic
- Polarity : As marked on the body
- Weight : 0.06 ounces, 1.7 grams
- Mounting position : Any
- Max. mounting torque = 0.5 N.m (5.1 Kgf.cm)





#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

CHARACTERISTICS	SYMBOL	MBRF1030CT	MBRF1040CT	MBRF1045CT	UNIT
Maximum Recurrent Peak Reverse Voltage	VRRM	30	40	45	V
Maximum RMS Voltage	VRMS	21	28	31.5	V
Maximum DC Blocking Voltage	VDC	30	40	45	V
Maximum Average Forward RectifiedCurrent at TC=120°C (See Fig.1)	l(AV)	10		Α	
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	Іғѕм	125			A
Voltage Rate of Change (Rated VR)	dv/dt	10000			V/us
Maximum Forward @IF=5A TJ = 125℃   Voltage, (Note 1) @IF=5A TJ = 25℃   @IF=10A TJ = 125℃	VF	0.57 0.70 0.84			v
Maximum DC Reverse Current@TJ =25℃at Rated DC Blocking Voltage@TJ =125℃	lr	0.1 15			mA
Typical Junction Capacitance, per element (Note 2)	Сл	280			pF
Typical Thermal Resistance (Note 3, 4)	Rejc	4.0			°C/W
Operating Temperature Range	TJ	-55 to +150			°C
Storage Temperature Range	Tstg	-55 to +175			°C
Dielectric Strengh from terminals to case, AC with t=1 minute, RH<30%	Vdis	2000			V
NOTEC 1 2000 Dulas Width 201 Duty Ovala				DEV 2 Oct 2010 KTL	

NOTES : 1. 300us Pulse Width, 2% Duty Cycle.

2. Thermal Resistance Junction to Case.

3. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

4. Device mounted on 50mm x 50 mm x 2 mm Cu Plate.

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#### RATING AND CHARACTERISTIC CURVES MBRF1030CT thru MBRF1045CT

#### FIG.1 - FORWARD CURRENT DERATING CURVE FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT PEAK FORWARD SURGE CURRENT, AMPERES 16 150 AVERAGE FORWARD CURRENT AMPERES 125 12 100 75 8 50 4 RESISTIVE OR 25 INDUCTIVE LOAD 8.3ms Single Half-Sine-W 0 ∟ 25 0 2 5 50 100 50 75 100 125 150 175 20 CASE TEMPERATURE °, C NUMBER OF CYCLES AT 60Hz FIG.3 - TYPICAL REVERSE CHARACTERISTICS FIG.4 - TYPICAL FORWARD CHARACTERISTICS 100 10000 INSTANTANEOUS REVERSE CURRENT, (mA) TJ = 125℃ INSTANTANEOUS FORWARD CURRENT ,(A) 1000 10 100 10 1 . TJ = 25℃ 1 \_TJ = 25℃ PULSE WIDTH 300us 2% Duty cycle 0.1 0.1 0 20 40 60 80 100 120 0 0.2 0.6 0.8 1.2 0.4 1 INSTANTANEOUS FORWARD VOLTAGE, VOLTS PERCENT OF RATED PEAK REVERSE VOLTAGE ,(%) FIG.5 - TYPICAL JUNCTION CAPACITANCE 1000 CAPACITANCE, (pF) 100 TJ = 25°C, f= 1MHz 10 0.1 100 1 4 10 **REVERSE VOLTAGE**, VOLTS

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