



# SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

MB12F THRU MB110F

VOLTAGE RANGE

20 to 100 Volts

CURRENT

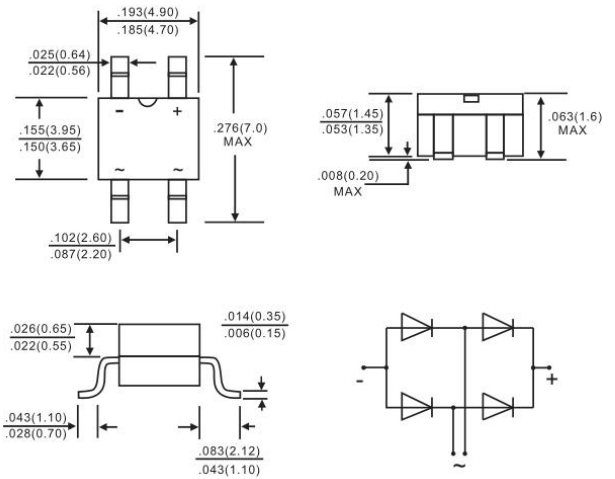
1.0 Ampere



## Features

- Built in strain relief
- High switching speed
- Low voltage drop, high efficiency
- For use in low voltage high frequency inverters, Free willing ,and polarity protection applications
- Guardring for over voltage protection
- High temperature soldering guaranteed:260°C/10 seconds at terminals

**MBF**



Dimensions in inches and (millimeters)

## Mechanical Data

- Case: Molded plastic body
- Epoxy: UL94V-0 rate flame retardant
- Polarity: Molded on body
- LeadP: Plated terminals solderable per MIL-STD-202E method 208C
- Weight: 0.004 ounce, 0.12 gram

## Maximum Ratings and Electrical Characteristics

- Ratings at 25°C ambient temperature unless otherwise specified
- Single Phase, half wave, 60Hz, resistive or inductive load
- For capacitive load derate current by 20%

TYPE NUMBER	SYMBOL	MB 12F	MB 13F	MB 14F	MB 15F	MB 16F	MB 18F	MB 19F	MB 110F	UNIT
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	20	30	40	50	60	80	90	100	Volts
Maximum RMS Voltage	$V_{RMS}$	14	21	28	35	42	56	63	70	Volts
Maximum DC Blocking Voltage	$V_{DC}$	20	30	40	50	60	80	90	100	Volts
Maximum Average Forward Rectified Current at TLsee figure 1 TL =100°C	$I_{AV}$	1.0								Amps
Peak Forward Surge Current 8.3ms single half sine wave superimposed on rated load (JEDEC Method)	$I_{FSM}$	30								Amps
Maximum Instantaneous Forward Voltage @ 1.0A <sup>(Note1)</sup>	$V_F$	0.55		0.75		0.85				Volts
Maximum DC Reverse Current at rated DC Blocking Voltage per element	$T_A = 25^\circ\text{C}$	0.5								mA
	$T_A = 125^\circ\text{C}$	20.0			10.0					
Typical Thermal Resistance <sup>(Note 2)</sup>	$R_{\theta JL}$	18								°C/W
Diode junction capacitance <sup>(Note 3)</sup>	$C_j$	45								pF
Operating Junction Temperature	$T_J$	(-55 to +150)								°C
Storage Temperature Range	$T_{STG}$	(-55 to +150)								°C

Notes:

1. Measured at 1.0MHz and applied reverse voltage of 4.0 Volts.
2. Unit mounted on P.C.B. with 0.033"×0.043"(1.00mm×1.30mm) copper pads.
3. f=1MHz and applied 4V DC reverse voltage.



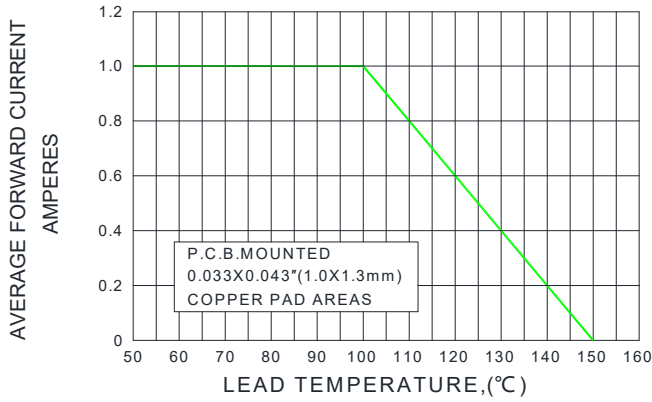
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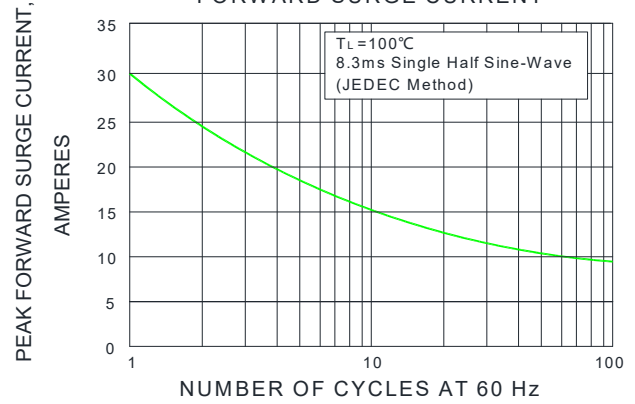
## MB12F THRU MB110F

Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

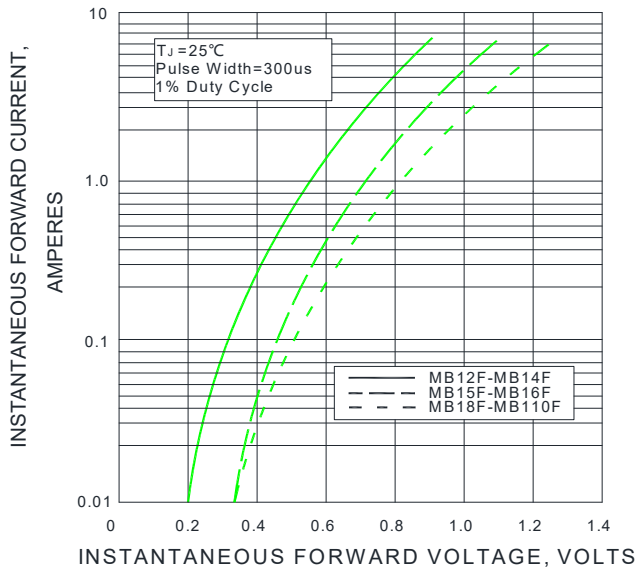
F1G.1-FORWARD CURRENT DERATING CURVE



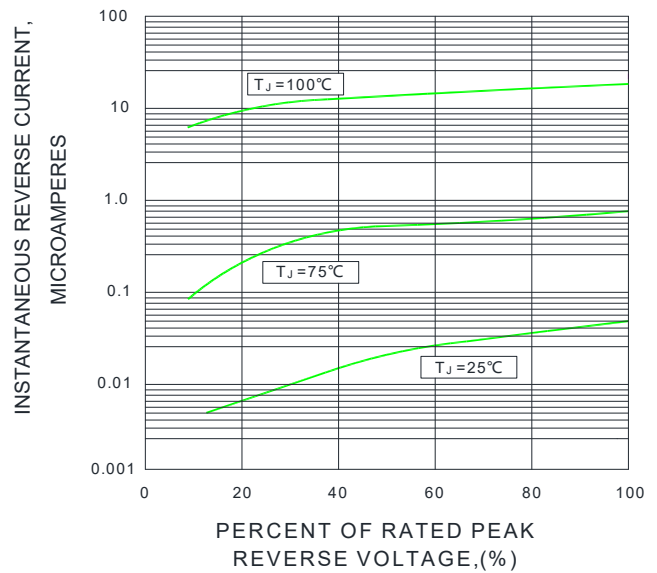
F1G.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



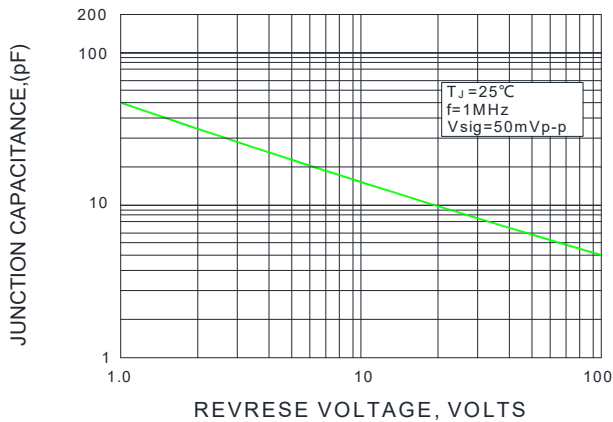
F1G.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



F1G.4-TYPICAL REVERSE CHARACTERISTICS



F1G.5-TYPICAL JUNCTION CAPACITANCE





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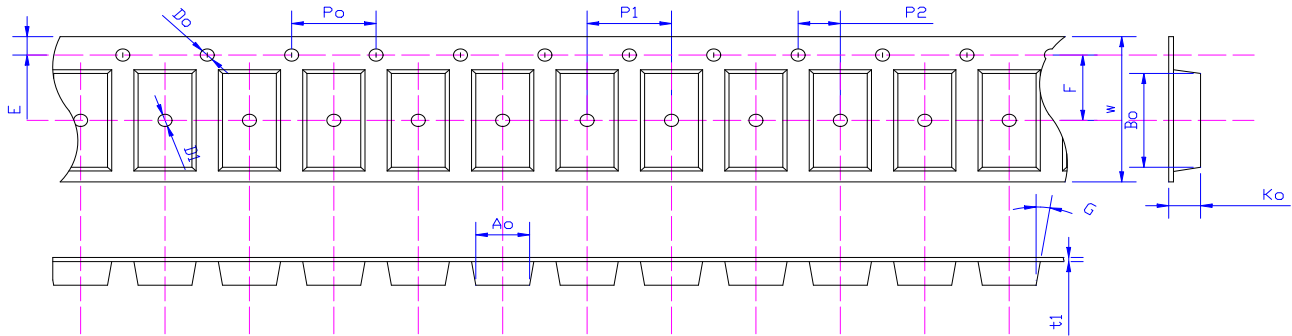
VOLTAGE RANGE

20 to 100 Volts

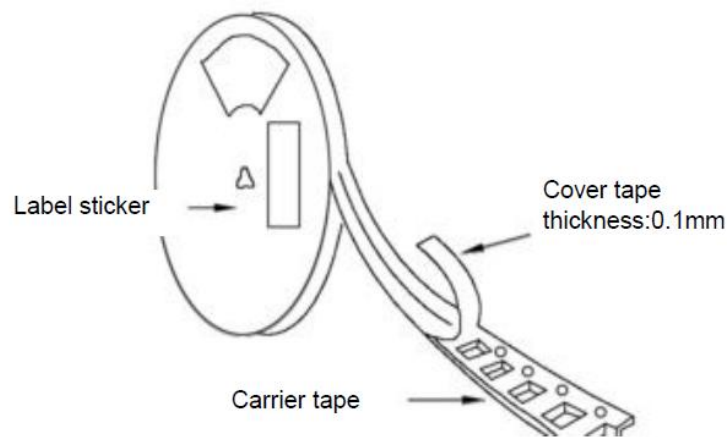
CURRENT

1.0 Ampere

## Package Reel Information



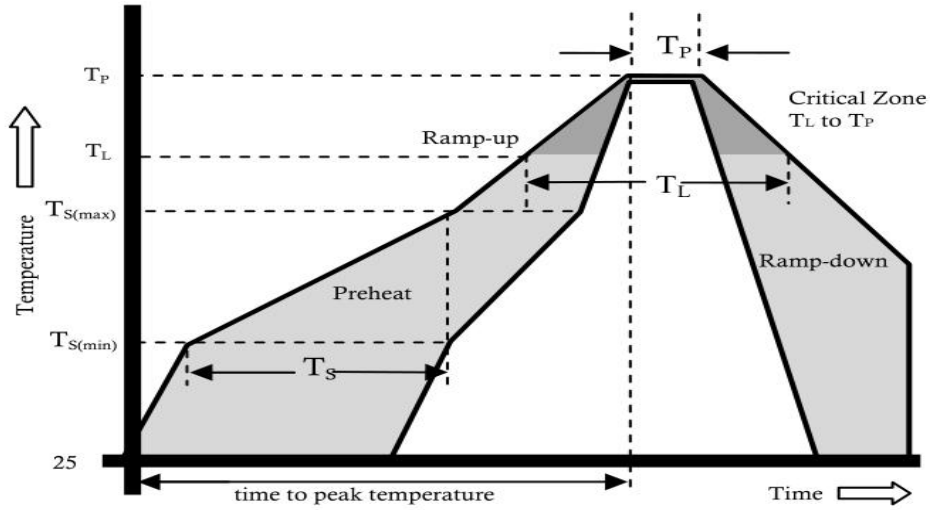
Specifications	Ao	Bo	Ko	Po	W	t1
MBF	5.05±0.10	7.10±0.10	1.65±0.10	4.00±0.1	12.0±0.10	0.30±0.02



DEVICE TYPE	Tape Width	13"Reel			07"Reel			
		Q'TY/REEL(pcs)	BOX/CARTOO N	Q'TY/CARTON (pcs)	Q'TY/REEL(pcs)	REEL/BOX	BOX/CARTOO N	Q'TY/CARTON (pcs)
MBF	13mm	5000	8	80000	NA	NA	NA	NA



Reflow Profile



Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60-180 secs.
Average ramp up rate(Liquidus Temp( $T_L$ ) to peak)		3°C/sec. Max.
$T_{S(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max.
Reflow	Temperature ( $T_L$ )(Liquidus)	+217°C
	Temperature ( $T_P$ )	60-150 secs.
Peak Temp ( $T_P$ )		+(260+0/-5)°C
Time within 5°C of actual Peak Temp ( $T_P$ )		25 secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp ( $T_P$ )		8 min. Max.
Do not exceed		+260°C



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