10Amp. Schottky Barrier Rectifiers

MBR10120FP

$I_{F(AV)}$	2 × 5A
V_{RRM}	120V
Tj	175°C
V_F	0.68V

Features

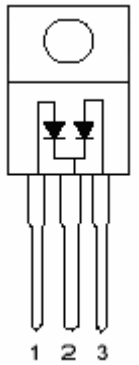
- 175℃ operating junction temperature
- Low V_F and low I_R type
- Metal silicon junction, major carrier conduction
- 10A total (5A per diode leg)
- Guardring for over voltage protection
- Low power loss, high efficiency
- High surge capability
- Insulating package, insulating voltage=2000V DC, capacitance=45pF
- High temperature soldering guaranteed : 260℃/10s, 0.25”(6.35mm) from case
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection application
- RoHS compliant package

Mechanical Data

- Case: JEDEC TO-220FP molded plastic
- Mounting Position: Any
- Weight: 2.2 grams, 0.078 ounce approximately
- Terminals: Pure tin plated, lead-free, solderable per MIL-STD-750 method 2026
- Epoxy: UL 94V-0 rate flame retardant
- Mounting Torque : 5 in-lbs max

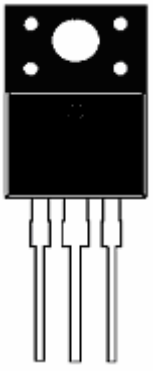
Equivalent Circuit

MBR10120FP



Outline

TO-220FP



A K A

Maximum Ratings and Electrical Characteristics (Per Diode Leg)

(Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.)

Parameter		Symbol	Min.	Typ.	Max.	Units
Maximum Recurrent peak reverse voltage		V_{RRM}			120	V
Maximum RMS voltage		V_{RMS}			84	V
Maximum DC blocking voltage		V_{DC}			120	V
Maximum instantaneous forward voltage at (Note 1)	I_F=5A, T_C=25℃	V_F			0.92	V
	I_F=5A, T_C=125℃			0.68	0.75	
	I_F=10 A, T_C=25℃				1.00	
	I_F=10A, T_C=125℃				0.85	
Maximum Average forward rectified current @ T_C=142℃	Per Diode	$I_{F(AV)}$			5	A
	Per Device				10	
Non-repetitive peak forward surge current @ 8.3ms single half sine wave superimposed on rated load (JEDEC method)		I_{FSM}			120	A
Peak repetitive reverse surge current, T_J<175℃ (Note 1)		I_{RRM}			2	A
Maximum instantaneous reverse current at	V_R=120 V, T_C=25℃	I_R			5	μA
	V_R=120 V, T_C=125℃				5	mA
Voltage rate of change, (rated V_R)		dV/dt			10,000	V/μs
Typical junction capacitance @ f=1MHz and applied 5V reverse voltage		C_J		81		pF
ESD susceptibility (Note 2)					8000	V
Storage temperature range		Tstg	-65		+175	℃
Operating junction temperature range		T_J	-65		+175	℃

Notes : 1. 2.0μs pulse width, f=1.0kHz
2. Human body model, 1.5kΩ in series with 100pF

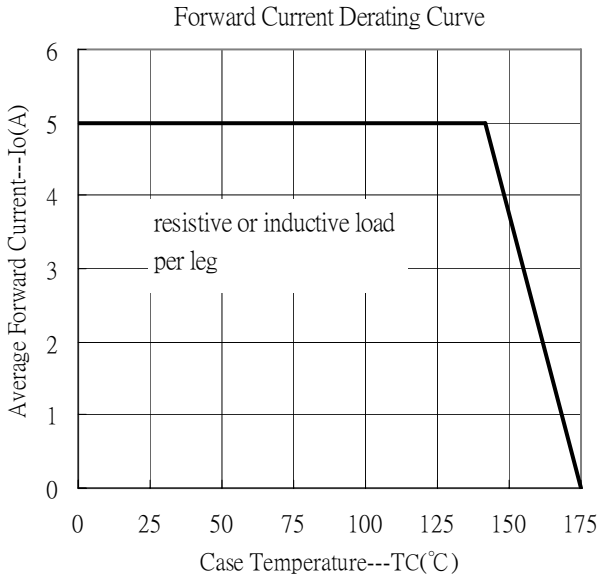
Thermal Data

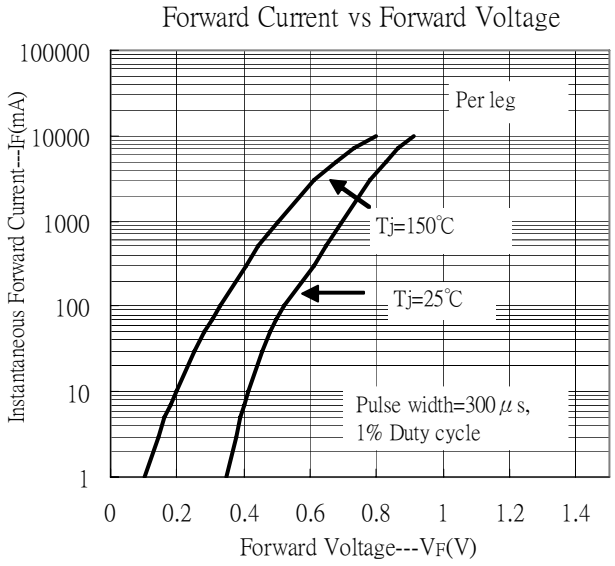
Parameter	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-case	$R_{th,j-c}$	2.5	°C/W
Lead Temperature for Soldering Purposes : 1/8" from Case for 5seconds	T_L	260	°C

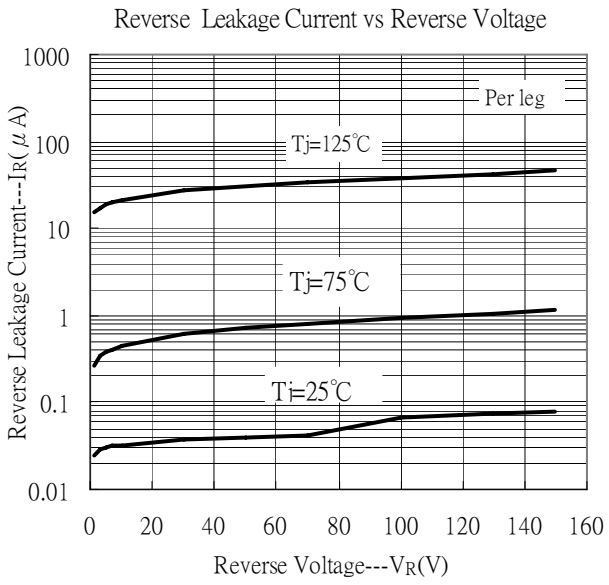
Ordering Information

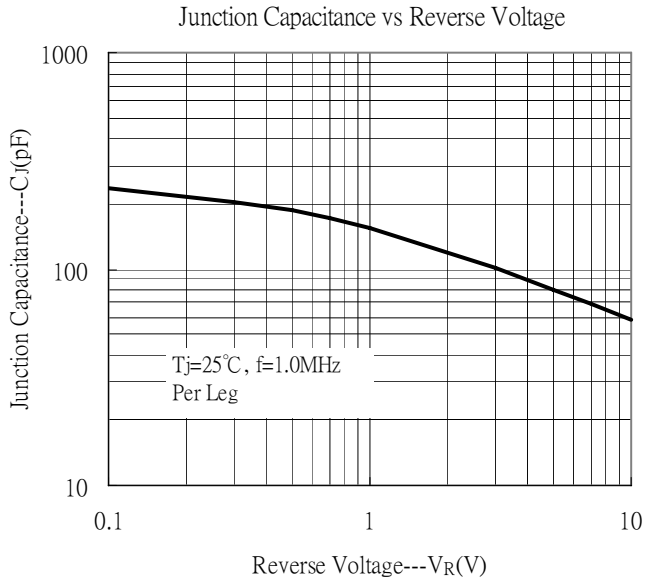
Device	Package	Shipping	Marking
MBR10120FP	TO-220FP (RoHS compliant package)	50 pcs / Tube, 40 Tubes/Box	10120

Characteristic Curves

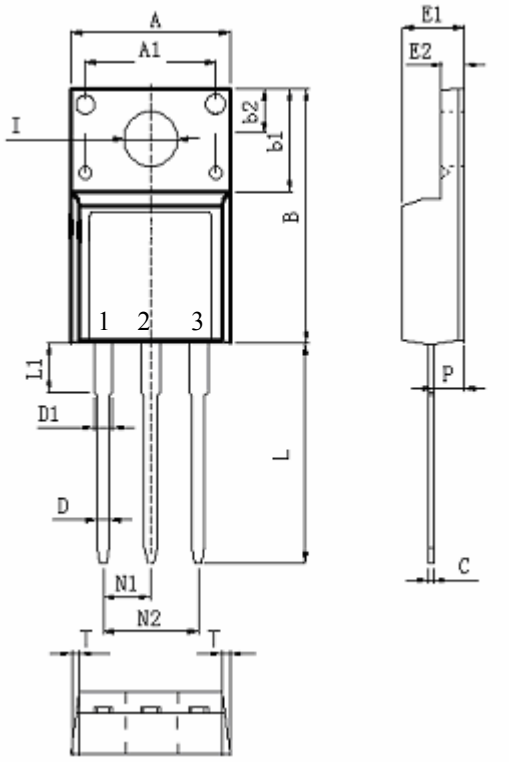






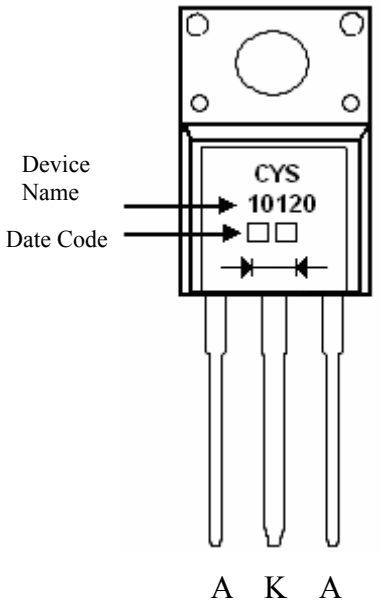


TO-220FP Dimension



Style: Pin 1.Anode 2.Cathode 3.Anode

Marking:



3-Lead TO-220FP Plastic Package
CYStek Package Code: FP

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.3740	0.4134	9.50	10.50	E2	0.0984	0.1063	2.50	2.70
A1	*0.2756		*7.00		N1	0.0961	0.1039	2.44	2.64
B	0.6063	0.6299	15.40	16.00	N2	0.1921	0.2079	4.88	5.28
b1	0.2480	0.2717	6.30	6.90	P	0.0984	0.1142	2.50	2.90
b2	0.0984	0.1181	2.50	3.00	L	0.5276	0.5354	13.40	13.60
C	0.0138	0.0295	0.35	0.75	L1	0.1378	0.1772	3.50	4.50
D	0.0276	0.0354	0.70	0.90	I	0.1181	0.1339	3.00	3.40
D1	0.0394	0.0551	1.00	1.40	T	0.0059	0.0138	0.15	0.35
E1	0.1693	0.1850	4.30	4.70					

Notes: 1.Controlling dimension: millimeters.
2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: KFC ; tin plated
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of CYStek.
- CYStek reserves the right to make changes to its products without notice.
- CYStek ***semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.***
- CYStek assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.