

10Amp. Schottky Barrier Rectifiers

MBR10120FP

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

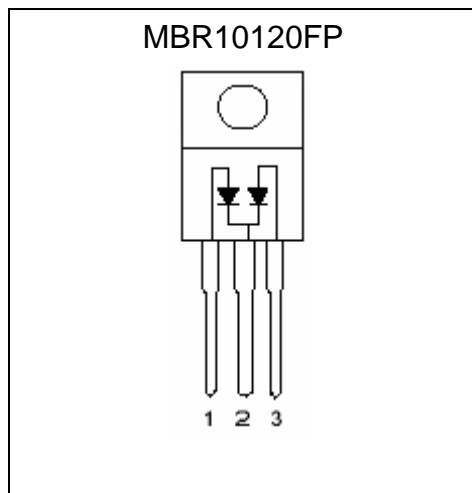
Features

- 175°C 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°C/10s, 0.25"(6.35mm) from case
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection application
- RoHS compliant package

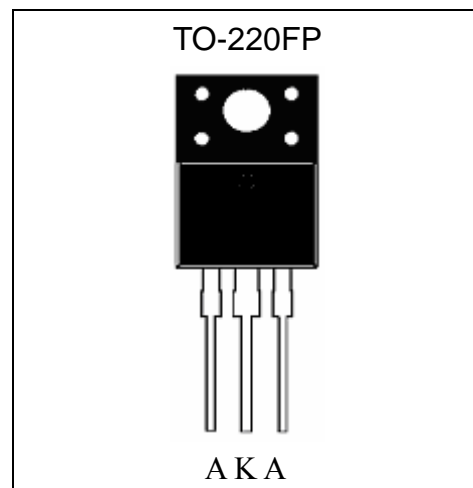
Mechanical Data

- 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



Outline



**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)	V _F		0.68	0.92	V	
				IF=5A, Tc=125°C		0.75
				IF=10 A, Tc=25°C		1.00
				IF=10A, Tc=125°C		0.85
Maximum Average forward rectified current @ Tc=142°C	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, Tj<175°C (Note 1)	I _{RRM}			2	A	
Maximum instantaneous reverse current at	I _R			5	μA	
				VR=120 V, Tc=125°C	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	T _{stg}	-65		+175	°C	
Operating junction temperature range	T _J	-65		+175	°C	

Notes : 1. 2.0μs pulse width, f=1.0kHz

2. Human body model, 1.5kΩ in series with 100pF

Thermal Data

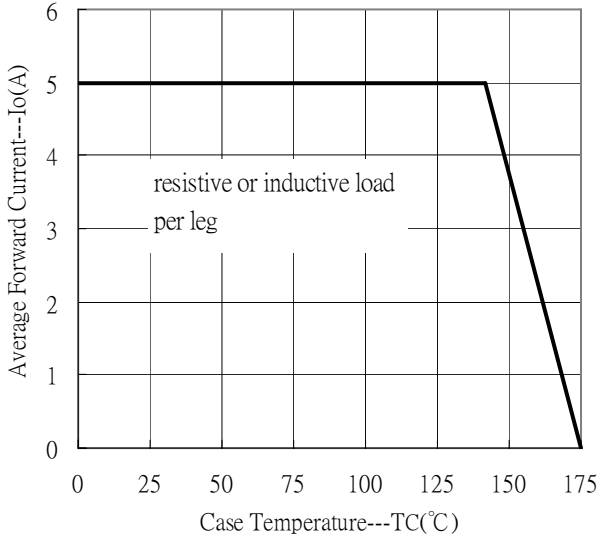
Parameter	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-case	R _{th,j-c}	2.5	°C/W
Lead Temperature for Soldering Purposes : 1/8" from Case for 5seconds	T _L	260	°C

Ordering Information

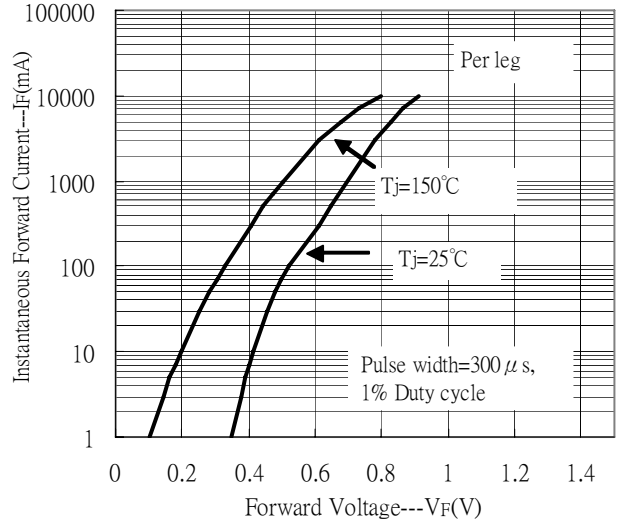
Device	Package	Shipping	Marking
MBR10120FP	TO-220FP (RoHS compliant package)	50 pcs / Tube, 40 Tubes/Box	10120

Characteristic Curves

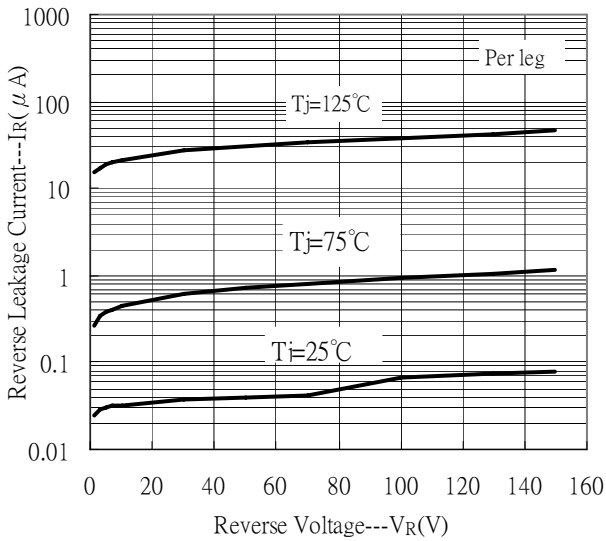
Forward Current Derating Curve



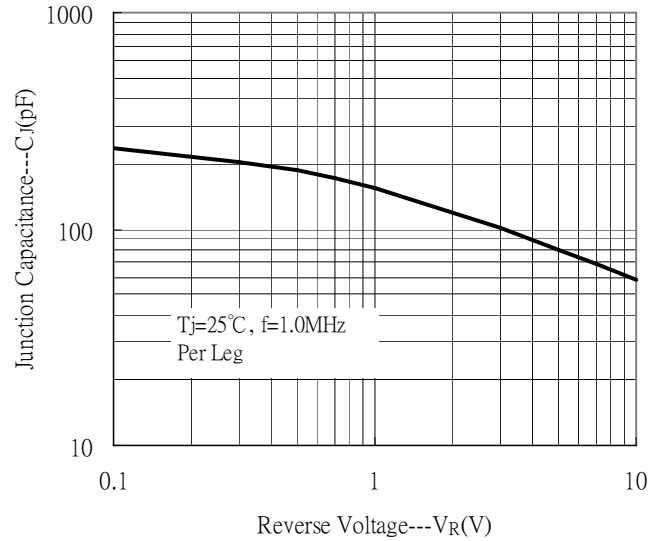
Forward Current vs Forward Voltage



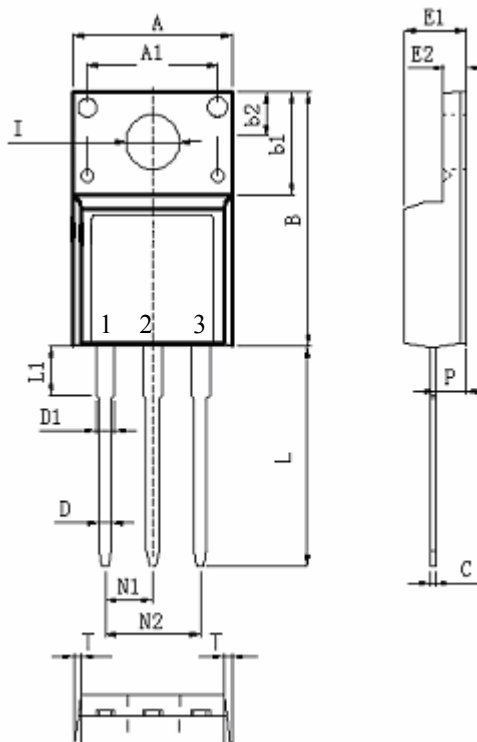
Reverse Leakage Current vs Reverse Voltage



Junction Capacitance vs Reverse Voltage

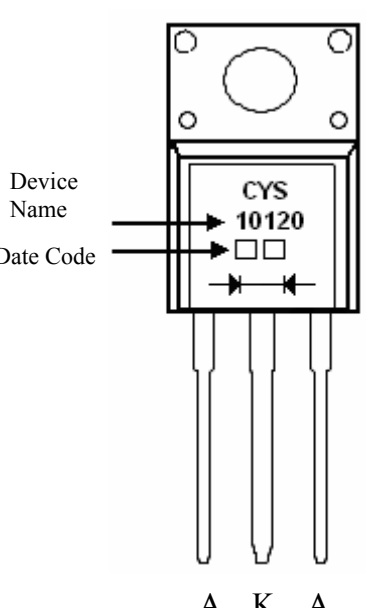


TO-220FP Dimension



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

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