

**10Amp. Schottky Barrier Rectifiers**

# MBR1060FP

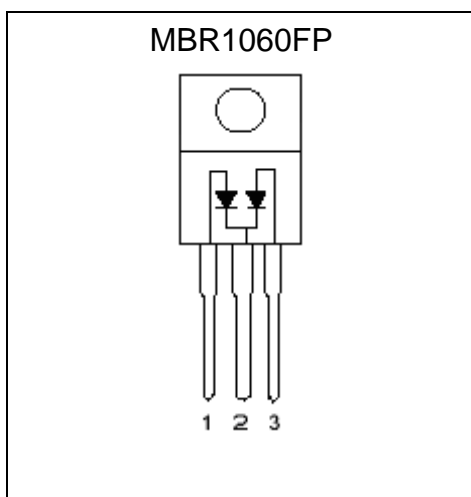
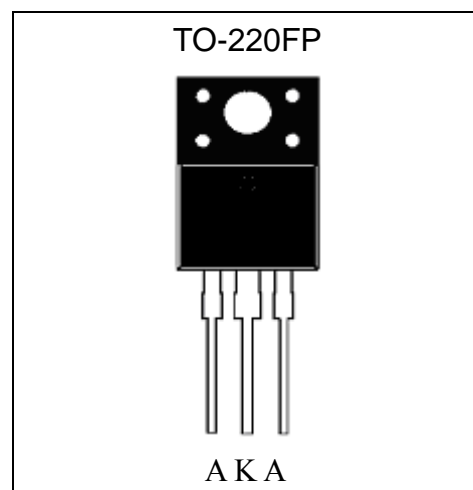
$I_{F(AV)}$	$2 \times 5A$
$V_{RRM}$	60V
$T_j$	175°C
$V_F$	0.58V

**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 stress 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	$V_{RRM}$			60	V
Maximum RMS voltage	$V_{RMS}$			42	V
Maximum DC blocking voltage	$V_{DC}$			60	V
Maximum instantaneous forward voltage at (Note 1)	$I_F=5A, T_C=25^\circ C$			0.76	V
	$I_F=5A, T_C=125^\circ C$		0.58	0.62	
	$I_F=10A, T_C=25^\circ C$			0.85	
	$I_F=10A, T_C=125^\circ C$			0.71	
Maximum Average forward rectified current @ $T_C=145^\circ C$	Per Diode			5	A
	Per Device			10	
Non-repetitive peak forward surge current @ 8.3ms single half sine wave superimposed on rated load (JEDEC method)	$I_{FSM}$			110	A
Peak repetitive reverse surge current, $T_J<175^\circ C$ (Note 1)	$I_{RRM}$			2.5	A
Maximum instantaneous reverse current at	$V_R=60V, T_C=25^\circ C$			10	$\mu A$
	$V_R=60V, T_C=125^\circ C$			10	mA
Voltage rate of change, (rated $V_R$ )	$dV/dt$			10,000	V/ $\mu s$
Typical junction capacitance @ $f=1MHz$ and applied 5V reverse voltage	$C_J$		110		pF
ESD susceptibility (Note 2)				8000	V
Storage temperature range	$T_{stg}$	-65		+175	$^\circ C$
Operating junction temperature range	$T_J$	-65		+175	$^\circ C$

Notes : 1. 2.0 $\mu s$  pulse width,  $f=1.0kHz$

2. Human body model, 1.5k $\Omega$  in series with 100pF

**Thermal Data**

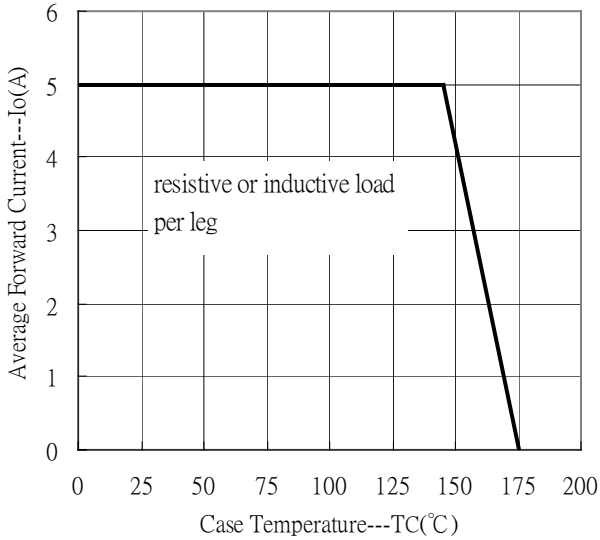
Parameter	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-case	$R_{th,j-c}$	3.5	$^\circ C/W$
Lead Temperature for Soldering Purposes : 1/8" from Case for 5seconds	$T_L$	260	$^\circ C$

**Ordering Information**

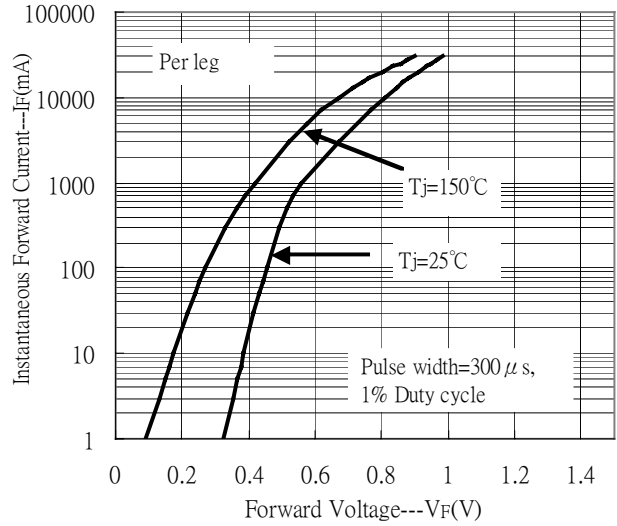
Device	Package	Shipping	Marking
MBR1060FP	TO-220FP (RoHS compliant package)	50 pcs / Tube, 40 Tubes/Box	1060

**Characteristic Curves**

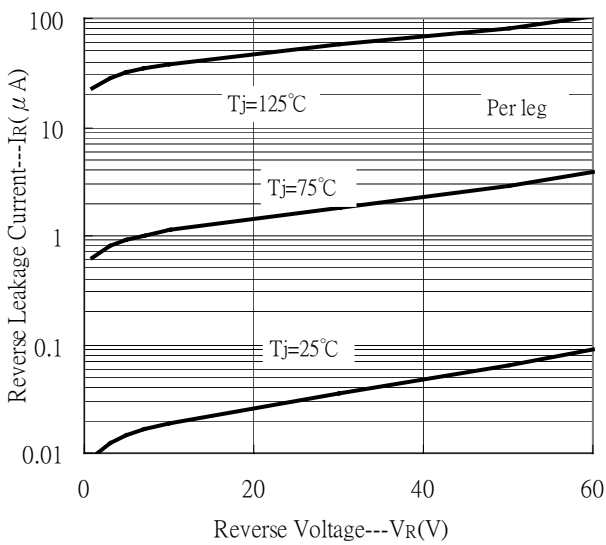
Forward Current Derating Curve



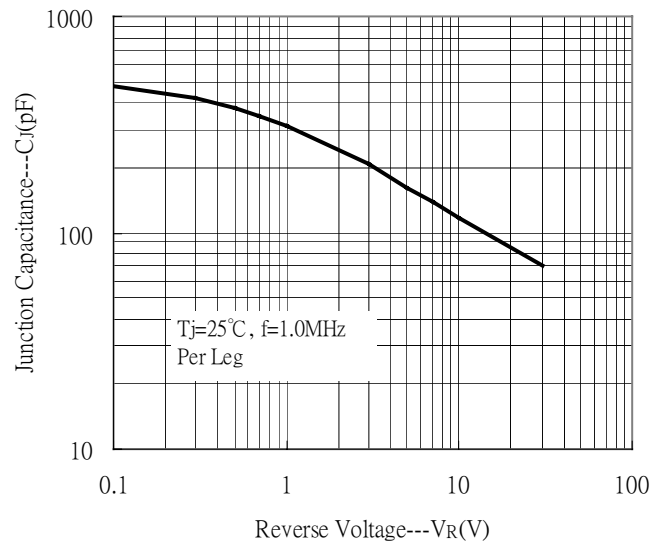
Forward Current vs Forward Voltage



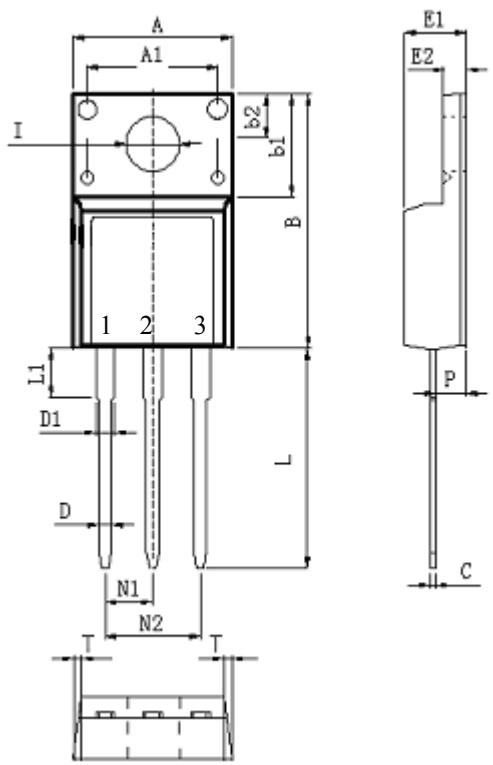
Reverse Leakage Current vs Reverse Voltage



Junction Capacitance vs Reverse Voltage

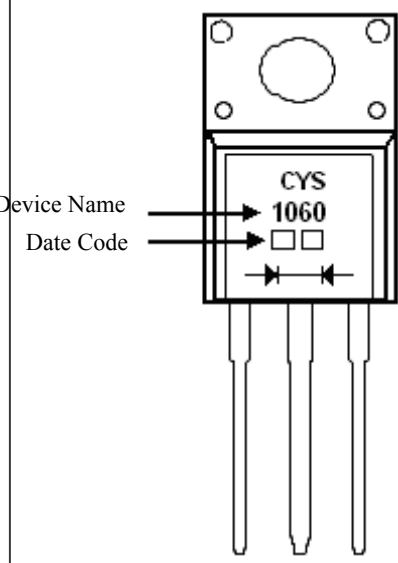


**TO-220FP (K Forming) Dimension**



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

Marking:



Device Name →  
Date Code →

A K A

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

\*: Typical

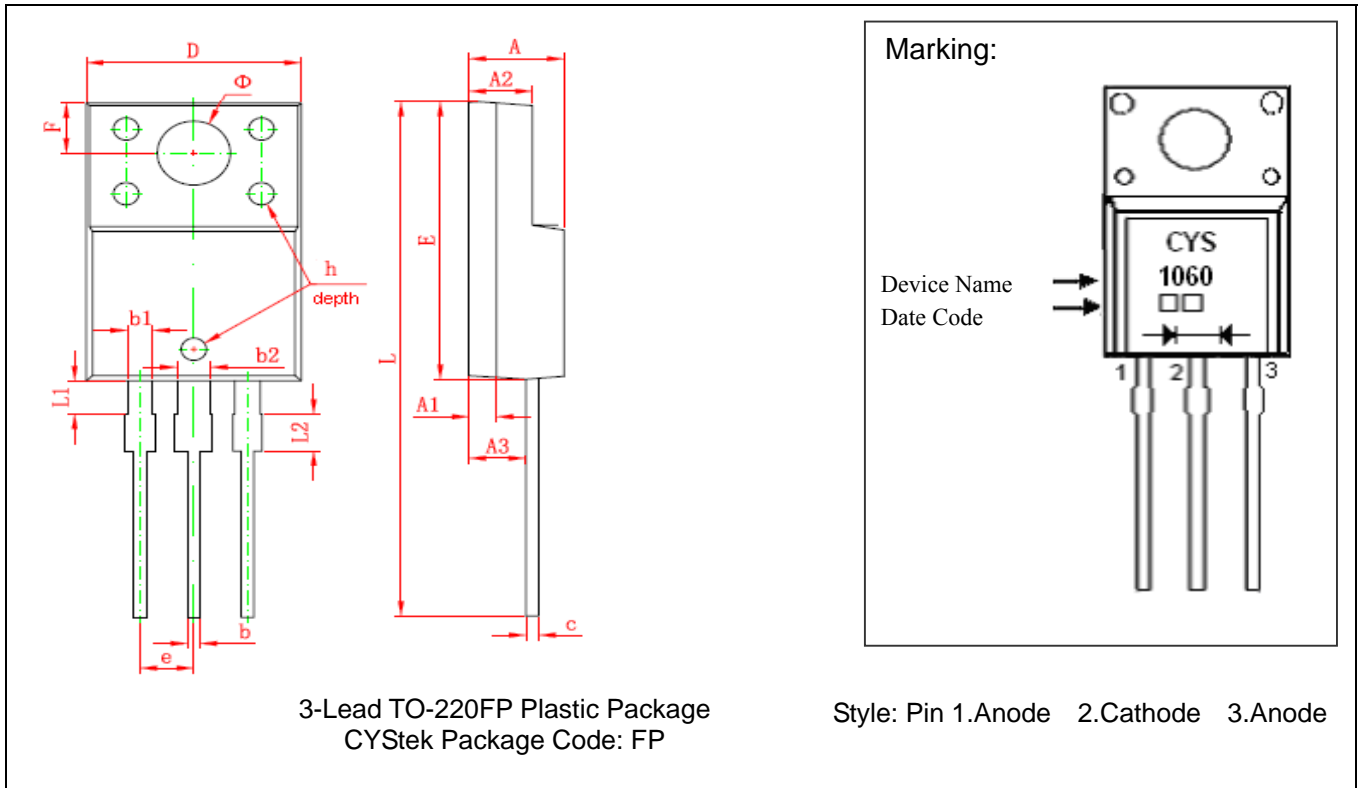
DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.3740	0.4134	9.50	10.50	E2	0.0984	0.1063	2.50	2.70
A1	*0.2756		*7.00		N1	0.0961	0.1039	2.44	2.64
B	0.6063	0.6299	15.40	16.00	N2	0.1921	0.2079	4.88	5.28
b1	0.2480	0.2717	6.30	6.90	P	0.0984	0.1142	2.50	2.90
b2	0.0984	0.1181	2.50	3.00	L	0.5039	0.5197	12.80	13.20
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	0.1772	0.1929	4.50	4.90					

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

**TO-220FP (C Forming) Dimension**



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

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

\*Typical

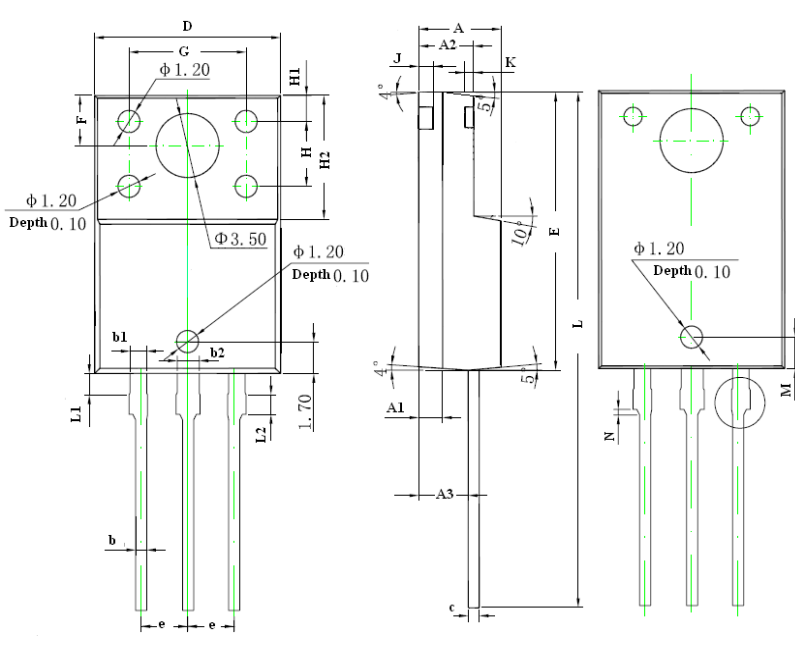
DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.169	0.185	4.300	4.700	E	0.583	0.598	14.800	15.200
A1	0.051 REF		1.300 REF		e	0.100*		2.540*	
A2	0.110	0.126	2.800	3.200	F	0.106	REF	2.700	REF
A3	0.098	0.114	2.500	2.900	Φ	0.138	REF	3.500	REF
b	0.020	0.030	0.500	0.750	h	0.000	0.012	0.000	0.300
b1	0.043	0.053	1.100	1.350	L	1.102	1.118	28.000	28.400
b2	0.059	0.069	1.500	1.750	L1	0.067	0.075	1.700	1.900
c	0.020	0.030	0.500	0.750	L2	0.075	0.083	1.900	2.100
D	0.392	0.408	9.960	10.360					

- 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: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

## TO-220FP (S Forming) Dimension



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

**Marking:**

Device Name → CYS  
 1060  
 Date Code → □ □

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

\*Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.171	0.183	4.35	4.65	G	0.246	0.258	6.25	6.55
A1	0.051 REF		1.300 REF		H	0.138 REF		3.50	REF
A2	0.112	0.124	2.85	3.15	H1	0.055 REF		1.40	REF
A3	0.102	0.110	2.60	2.80	H2	0.256	0.272	6.50	6.90
b	0.020	0.030	0.50	0.75	J	0.031 REF		0.80	REF
b1	0.031	0.041	0.80	1.05	K	0.020		0.50	REF
b2	0.047 REF		1.20 REF		L	1.102	1.118	28.00	28.40
c	0.020	0.030	0.500	0.750	L1	0.043	0.051	1.10	1.30
D	0.396	0.404	10.06	10.26	L2	0.036	0.043	0.92	1.08
E	0.583	0.598	14.80	15.20	M	0.067 REF		1.70	REF
e	0.100 *		2.54*		N	0.012	REF	0.30	REF
F	0.106 REF		2.70 REF						

- 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: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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