

20Amp. Schottky Barrier Rectifiers

MBR20150FP

$I_{F(AV)}$	$2 \times 10A$
V_{RRM}	150V
T_j	175°C
V_F	0.68V

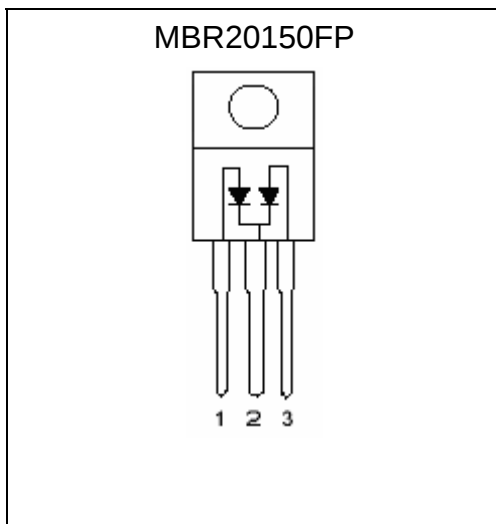
Features

- Low V_F and low I_r type
- High junction temperature capability
- High current capability
- High surge capability
- Good tradeoff between leakage current and forward voltage drop
- Low power loss, high efficiency
- Insulating package, insulating voltage=2000V DC, capacitance=45pF
- Dual center tap Schottky rectifier designed for high frequency miniature switched mode power supplies such as adaptors and on board DC/DC converters
- RoHS compliant package

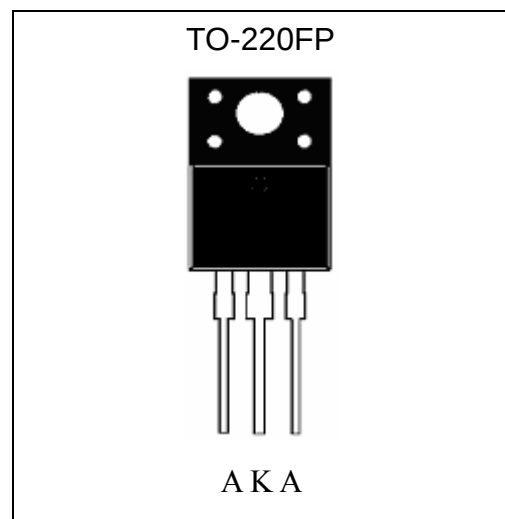
Mechanical Data

- Case: 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
- Lead temperature for soldering purpose : 260°C max. for 10 seconds

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}			150	V
Maximum RMS voltage		V_{RMS}			100	V
Maximum DC blocking voltage		V_{DC}			150	V
Maximum instantaneous forward voltage at (Note 1)	$I_F=10A, T_C=25^{\circ}C$	V_F			0.85	V
	$I_F=10A, T_C=125^{\circ}C$			0.68	0.72	
	$I_F=20A, T_C=25^{\circ}C$				0.95	
	$I_F=20A, T_C=125^{\circ}C$				0.85	
Maximum Average forward rectified current @ $T_C=134^{\circ}C$	Per Diode	$I_{F(AV)}$			10	A
	Per Device				20	
Non-repetitive peak forward surge current @ 8.3ms single half sine wave superimposed on rated load (JEDEC method)		I_{FSM}			150	A
Peak repetitive reverse surge current, $T_J<175^{\circ}C$ (Note 1)		I_{RRM}			3	A
Maximum instantaneous reverse current at	$V_R=150V, T_C=25^{\circ}C$	I_R			5	μA
	$V_R=150V, T_C=125^{\circ}C$				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		168		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 μs pulse width, $f=1.0kHz$

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

Thermal Data

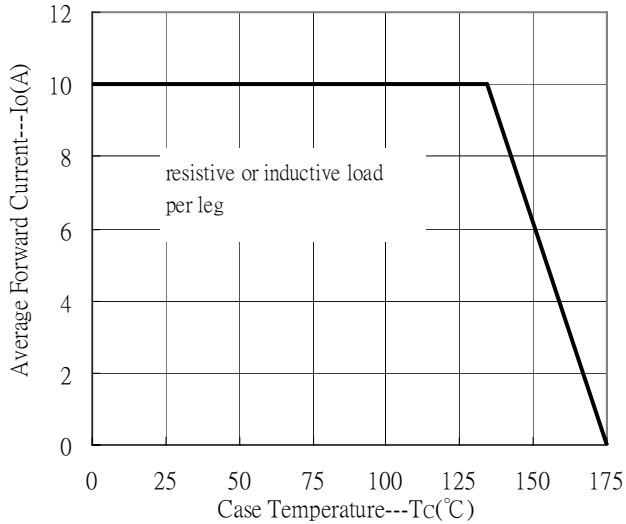
Parameter	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-case	$R_{th,j-c}$	3.5	$^{\circ}C/W$
Lead Temperature for Soldering Purposes : 1/8" from Case for 5seconds	T_L	260	$^{\circ}C$

Ordering Information

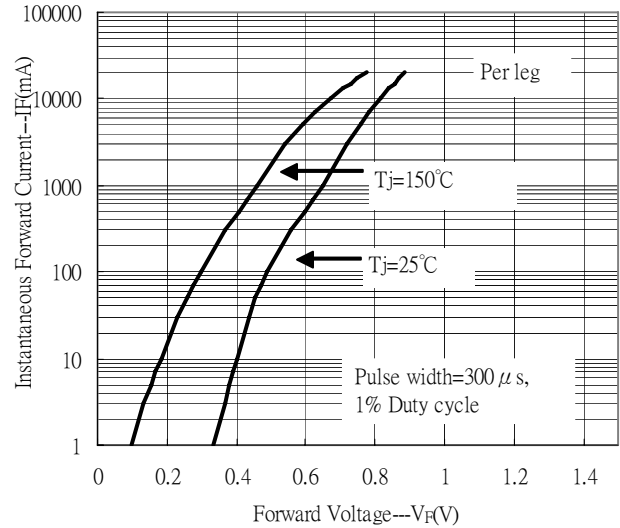
Device	Package	Shipping	Marking
MBR20150FP	TO-220FP (Pb-free)	50 pcs / Tube, 40 Tubes/Box	20150

Characteristic Curves

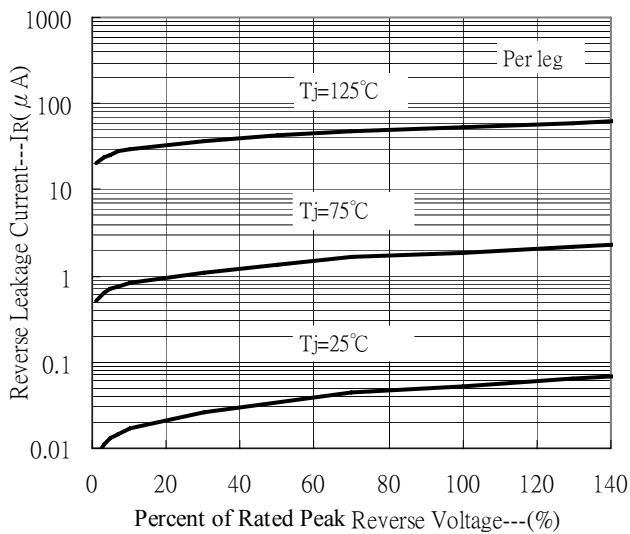
Forward Current Derating Curve



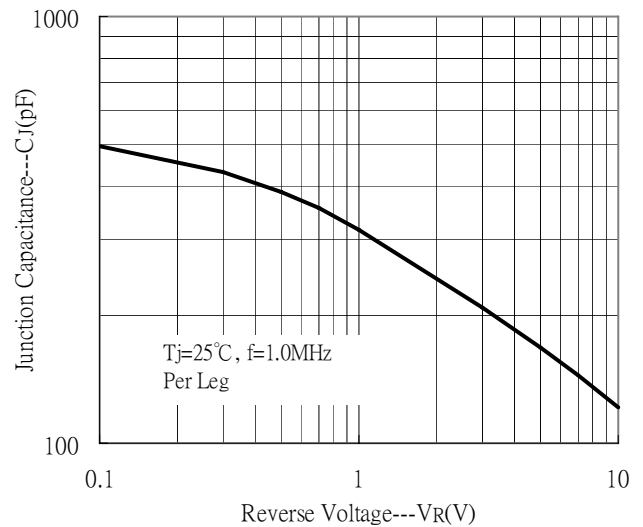
Forward Current vs Forward Voltage



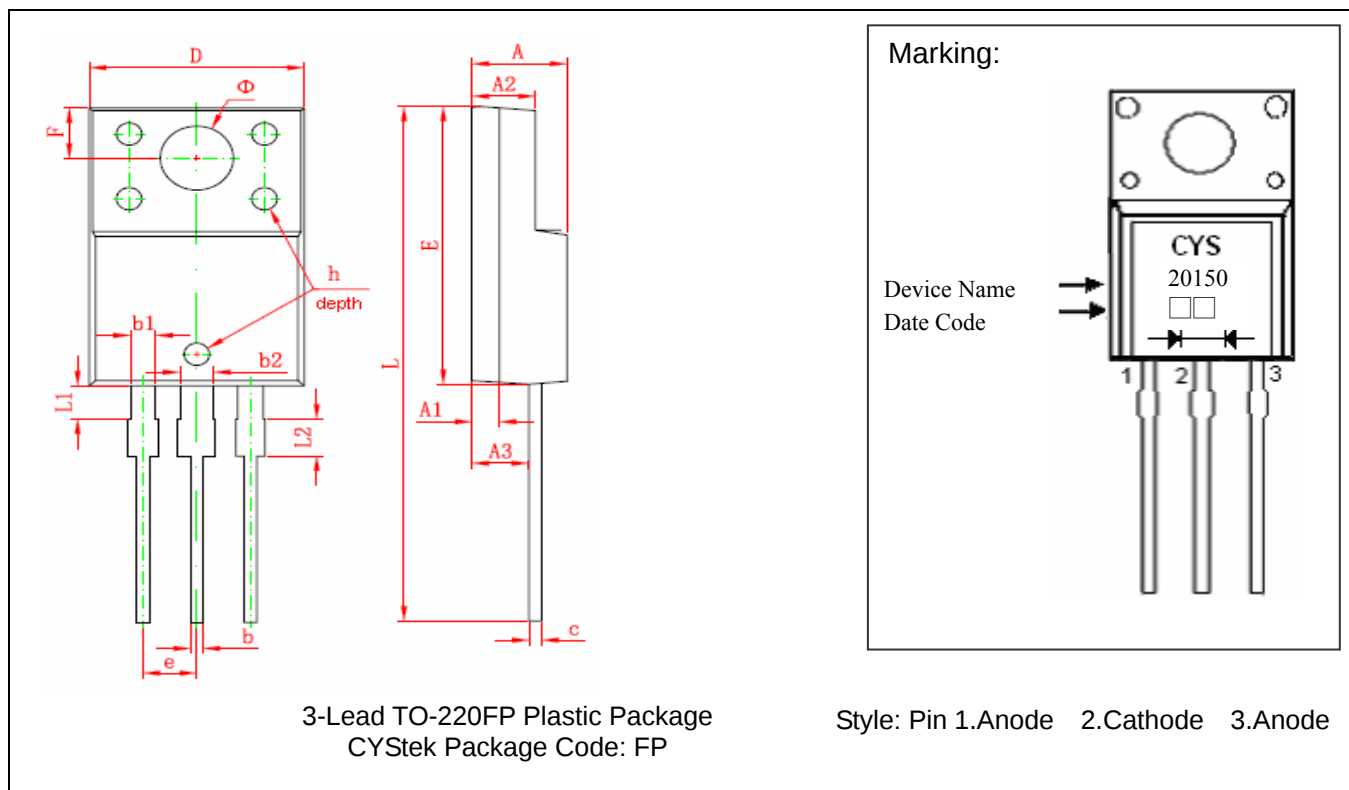
Reverse Leakage Current vs Reverse Voltage



Junction Capacitance vs Reverse Voltage



TO-220FP Dimension



*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.

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.