

## SCHOTTKY BARRIER RECTIFIER

Reverse Voltage - 45 V

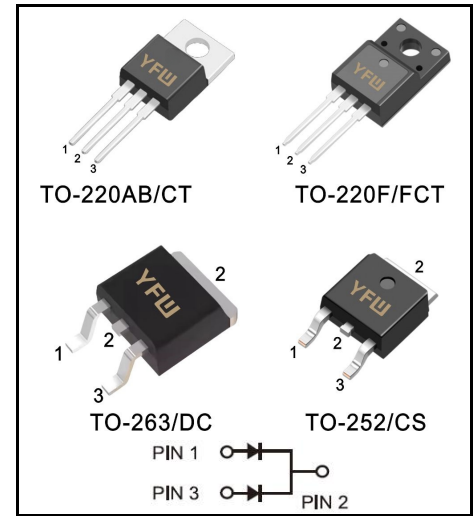
Forward Current - 20 A

### FEATURES

- ◆ Low forward voltage
- ◆ High current capability
- ◆ High forward surge capability
- ◆ Low power losses, High efficiency
- ◆ Guarding for over voltage protection
- ◆ Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- ◆ Case: TO-220AB/CT TO-220F/FCT TO-263/DC TO-252/CS
- ◆ Solder bath temperature 275°C maximum, 10s per JESD22-106



### Primary Characteristic

$I_o$	2*10A
$V_{RRM}$	45V
$I_{FSM}$	260A
$V_F$	0.49V
$T_J$ Max	150°C

### Maximum Ratings (Per Leg) at $T_a=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbols	Value	Units
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	45	V
Maximum RMS voltage	$V_{RMS}$	31.5	V
Maximum DC Blocking Voltage	$V_{DC}$	45	V
Maximum Average Forward Rectified Current	Per Leg	10	A
	Total	20	
Peak Forward Surge Current, 8.3ms Single Half Sine-wave	$I_{FSM}$	260	A
Operating Temperature Range	$T_J$	-55 ~ +150	°C
Storage Temperature Range	$T_{STG}$	-55 ~ +150	°C
Typical Thermal Resistance <sup>(Note1)</sup> TO-220AB, TO-263 TO-220F TO252	$R_{\theta JA}$ $R_{\theta JC}$	2/4	°C/W

Note1: Thermal resistance from Junction to case per leg mounted on heatsink.

### Electrical Characteristics (Per Leg) unless otherwise specified

Characteristics	Symbols	Value		Units	
		Typ	Max		
Forward Voltage Drop(Note2) at $I_F=3A$ at $I_F=5A$ at $I_F=10A$	$V_F$	TA=25°C	0.42	-	V
		TA=125°C	0.34	-	
		TA=25°C	0.46	-	
		TA=125°C	0.41	-	
		TA=25°C	0.56	0.60	
		TA=125°C	0.49	-	
Maximum Reverse Current at $V_R=45V$	$I_R$	TA=25°C	40	100	uA
		TA=125°C	12	-	mA

Note2: Pulse test: 300 μs pulse width, 1 % duty cycle

**RATINGS AND CHARACTERISTIC CURVES**

FIG.1 MAXIMUM FORWARD CURRENT DERATING CURVE

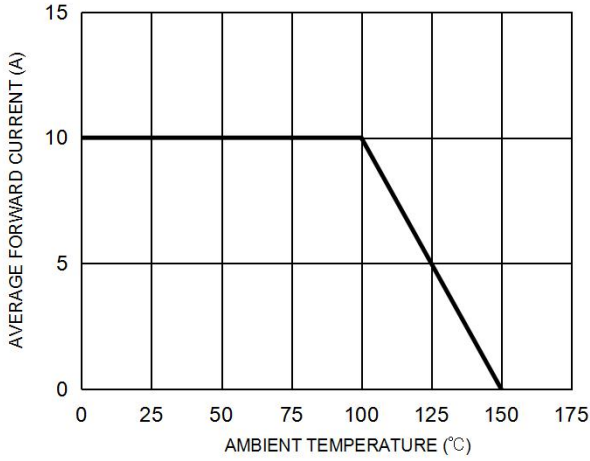


FIG. 2 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG

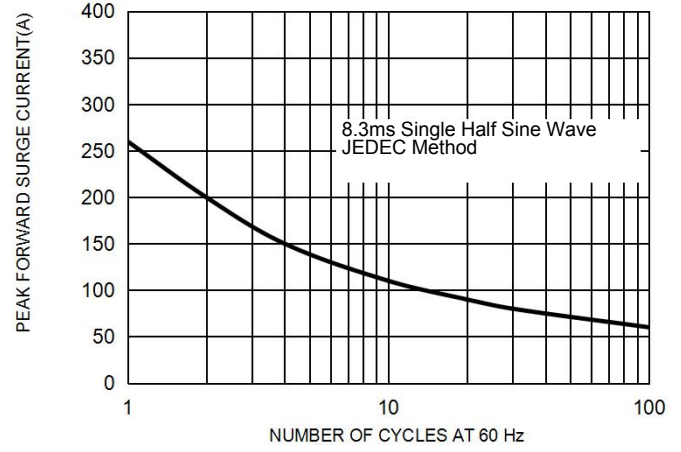


FIG. 3 TYPICAL FORWARD CHARACTERISTICS PER LEG

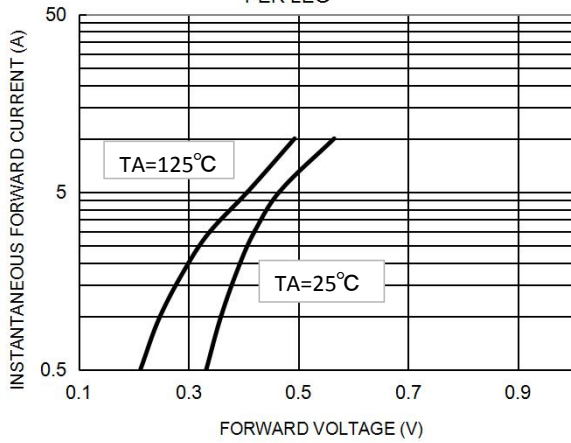
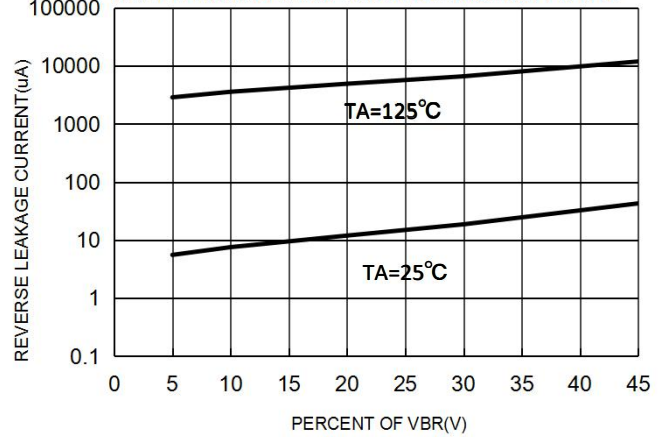
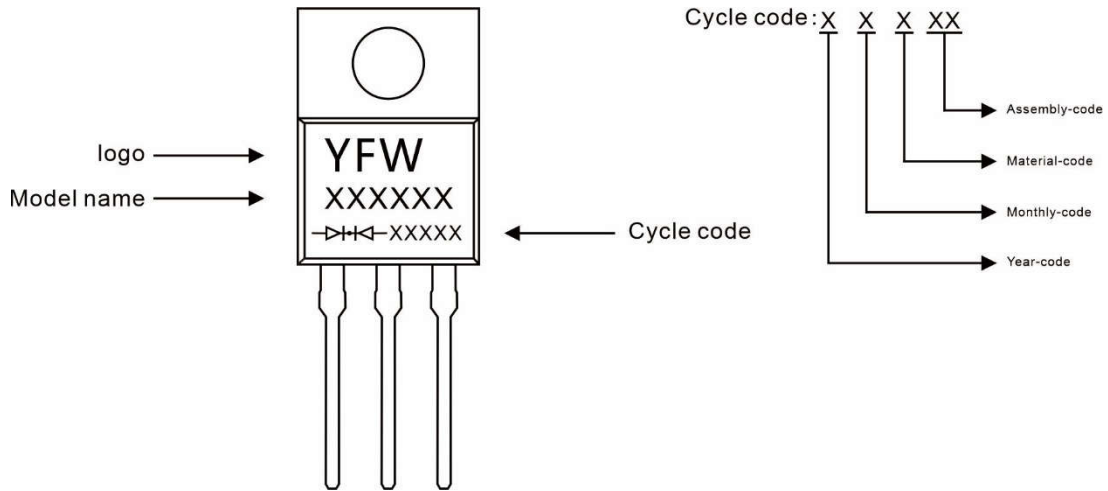


FIG. 4 TYPICAL REVERSE CHARACTERISTICS PER LEG



**Marking Diagram**



**Ordering information**

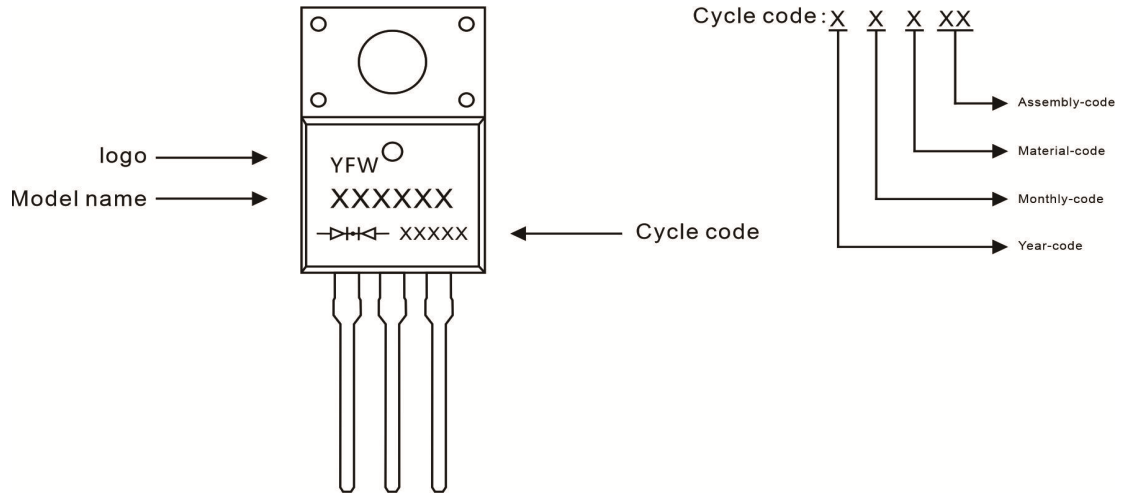
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
MBR2045CT	TO-220AB	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

**Package Dimensions**

**TO-220AB**

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	0.00	0.15	0.000	0.006
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
c	0.30	0.50	0.012	0.020
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
E1	12.00	12.50	0.472	0.492
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	2.60	2.80	0.102	0.110
L	13.20	13.80	0.520	0.543
L1	3.80	4.20	0.150	0.165
Φ	3.60	3.96	0.142	0.156

**Marking Diagram**



**Ordering information**

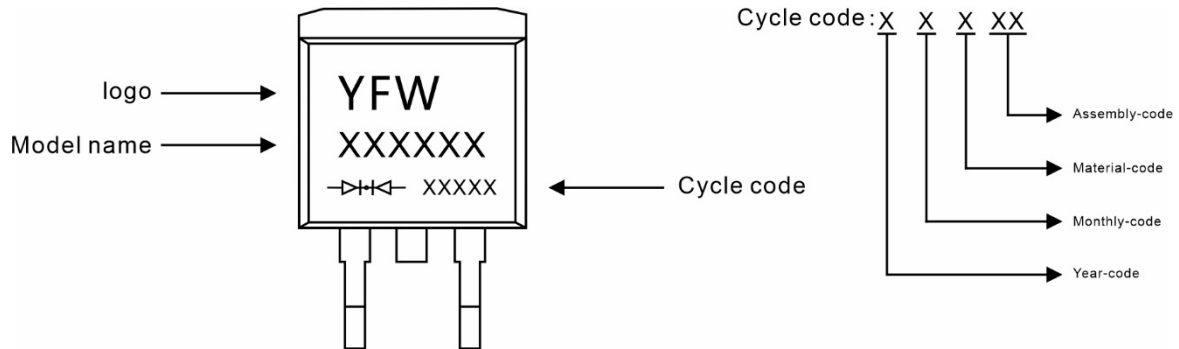
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
MBR2045FCT	TO-220F	0.06oz(1.74g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

**Package Dimensions**

**TO-220F**

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.66	2.86	0.105	0.113
b	0.75	0.85	0.030	0.033
b1	1.24	1.44	0.049	0.057
c	0.40	0.60	0.016	0.024
D	10.00	10.32	0.394	0.406
E	15.75	16.05	0.620	0.632
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	3.10	3.5	0.122	0.138
L	13.50	13.90	0.531	0.547
L1	2.90	3.30	0.114	0.130
Φ	3.10	3.30	0.122	0.130

**Marking Diagram**



**Ordering information**

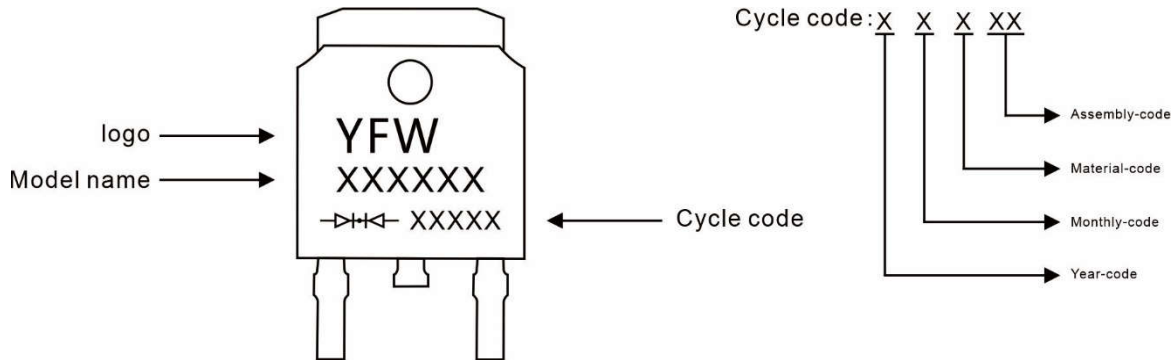
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
MBR2045DC	TO-263	0.04oz(1.16g)	800pcs/reel	1600pcs/box 8000pcs/Carton

**Package Dimensions**

TO-263

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	0.00	0.15	0.000	0.006
A2	4.30	4.55	0.169	0.179
B	1.10	1.50	0.043	0.059
b	0.70	0.90	0.028	0.035
b1	1.20	1.50	0.047	0.059
c	0.30	0.60	0.012	0.024
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
L	15.00	15.30	0.591	0.602
L1	5.20	5.40	0.205	0.213
L2	2.40	2.60	0.094	0.102
L3	1.60	1.80	0.063	0.071

**Marking Diagram**



**Ordering information**

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
MBR2045CS	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Cartron

**Package Dimensions**  
**TO-252**

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	10.00	11.00	0.393	0.433
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059

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