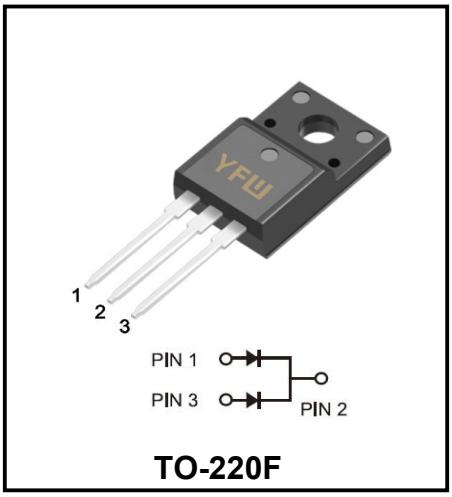
SiC Schottky Barrier Rectifier

Reverse Voltage - 650V

Forward Current - 10A



TO-220F

Features

- Reverse withstand voltage 650V
- Zero reverse recovery current
- High working frequency
- Switch characteristics are not affected by temperature
- Fast switching speed
- Positive temperature coefficient of positive pressure drop

Advantages

- Very low switching loss
- Higher efficiency
- Low dependence of the system on the heat sink
- No thermal collapse in parallel devices

Application

- Switching mode power supply, AC/DC converter
- Power factor correction
- Motor drive
- PV inverter and wind turbine

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Test conditions	Value	Unit
Peak repetitive reverse voltage	V_{RRM}		650	V
Working Peak Reverse voltage	V_{RWM}		650	V
DC Blocking Voltage	V_{DC}		650	V
Average rectified output current	$I_{F(AV)}$	Ta=25℃ Ta=125℃ Ta=150℃	33 15 10	A
Forward repetitive peak current	I_{FRM}	T_C=25℃, tp=10ms,Half Sine Wave T_C=110℃,tp=10ms,Half Sine Wave	50 28	A
Forward surge current	I_{FSM}	T_C=25℃, tp=10ms,Half Sine Wave T_C=110℃,tp=10ms,Half Sine Wave	90 65	A
Power dissipation	P_{tot}	Ta=25℃ Ta=110℃	98 45	W
Junction temperature	T_j		-55 ~ +175	℃
Storage temperature	T_{stg}		-55 ~ +175	℃

Thermal characteristics

Parameter	Symbol	Vaule	Unit
Thermal Resistance - Junction to Case	$R_{\theta JC}$	2.03	°C/ W

Electrical Characteristics (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	V_F	I_F = 10 A, T_j=25℃ I_F = 10 A, T_j=175℃		1.45 1.61	1.6 1.8	V
Reverse current	I_R	V_R = 650V, T_j=25℃ V_R = 650V, T_j=175℃		1 12	60 220	μA
Total capacitive charge	Q_C	V_R = 400V, I_F = 10A di/dt=500A/μs, ,T_j=25℃		39		nC
Total capacitance	C	V_R = 0V, T_j=25℃, f=1MHz V_R = 200V, T_j=25℃, f=1MHz V_R = 400V, T_j=25℃, f=1MHz		762 75 54		pF

Typical Characteristics

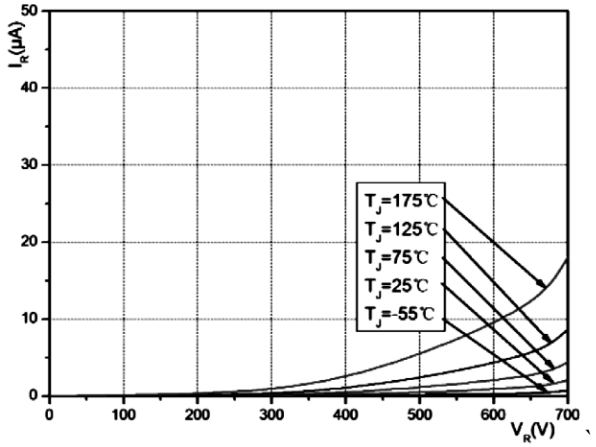


Figure 1. Forward Characteristics

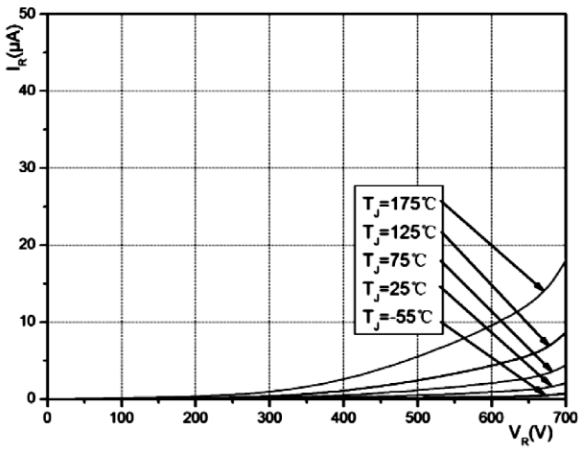


Figure 2. Reverse Characteristics

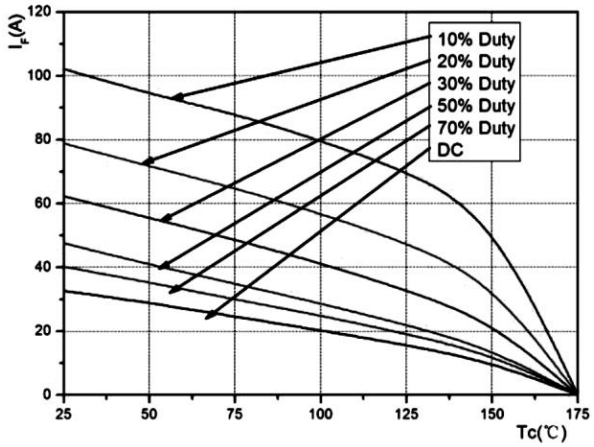


Figure 3. Load current

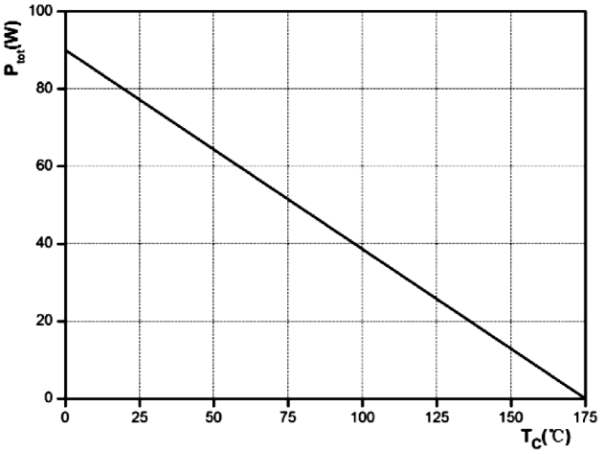


Figure 4. Dissipated power curve

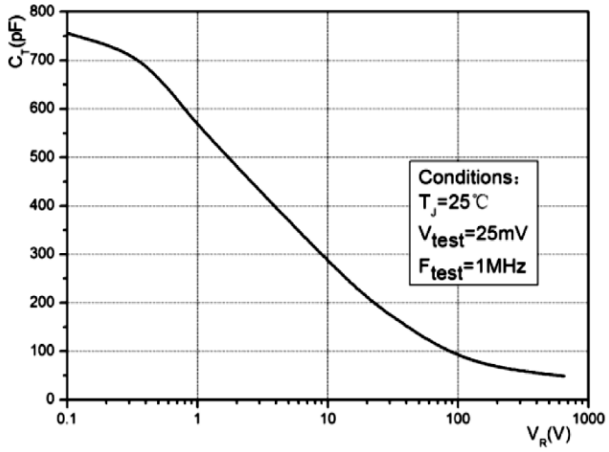


Figure 5. Capacitance vs reverse voltage

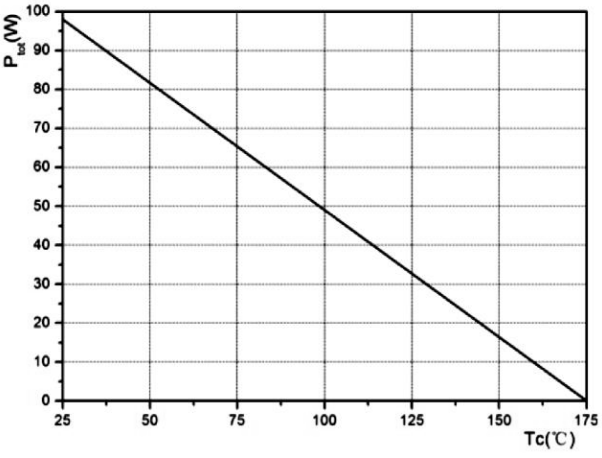
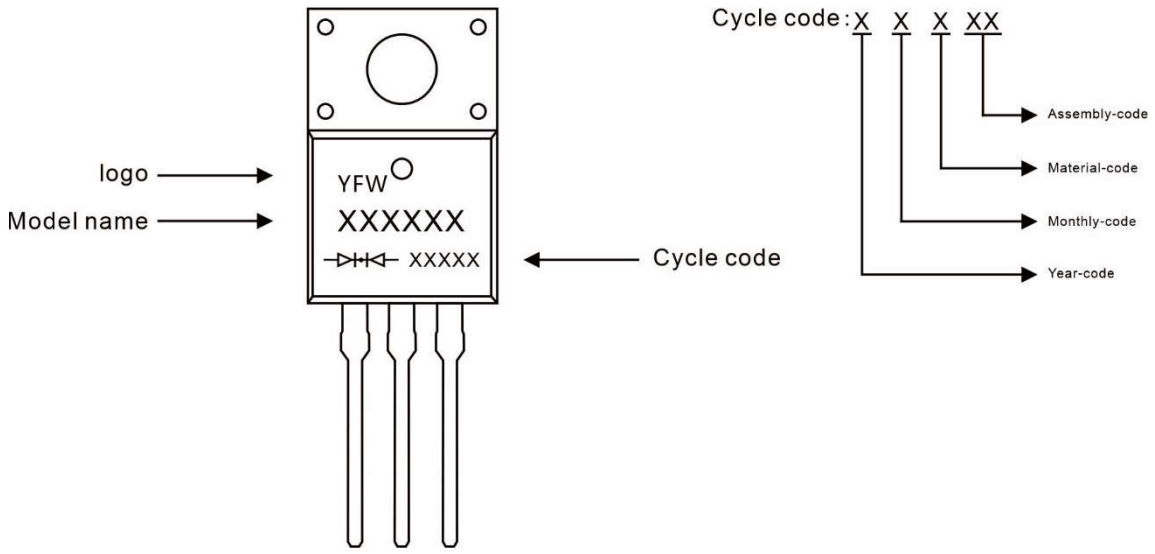


Figure 6. Thermal ImpedanceJunction-to-Case

Marking Diagram

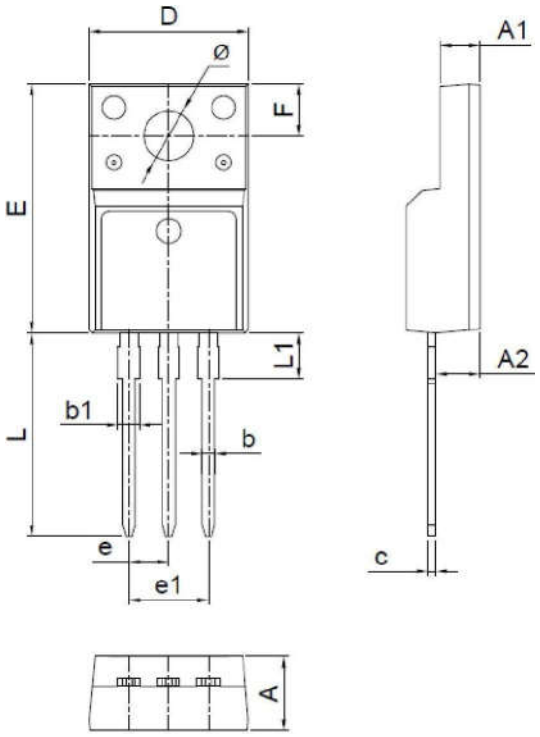


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWD310065FCT	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

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