

SiC Schottky Barrier Rectifier

Reverse Voltage - 1200V

Forward Current - 20A

FEATURES

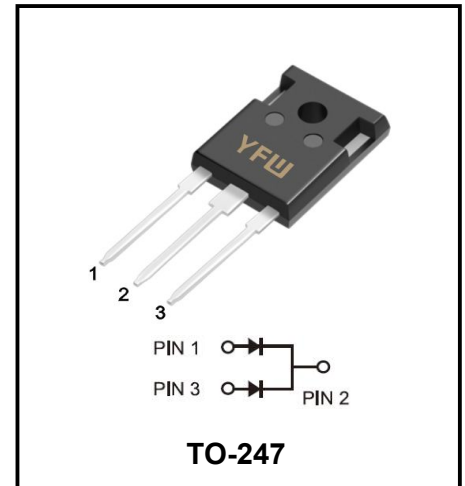
- ◆ Reverse withstand voltage 1200V
- ◆ Zero reverse recovery current
- ◆ High working frequency
- ◆ Switch characteristics are not affected by temperature
- ◆ Fast switching speed
- ◆ Positive temperature coefficient of positive pressure drop

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 Rating (Ta=25°C unless otherwise specied)

Parameter	Symbol	Test conditions	Value	Unit
Peak repetitive reverse voltage	V_{RRM}		1200	V
Working Peak Reverse voltage	V_{RWM}		1200	V
DC Blocking Voltage	V_{DC}		1200	V
Average rectified output current (Per Leg / Device)	$I_{F(AV)}$	Ta=25°C Ta=125°C Ta=150°C	34/68 16.5/33 10/20	A
Forward repetitive peak current	I_{FRM}	T _C =25°C, tp=10ms, Half Sine Wave T _C =110°C, tp=10ms, Half Sine Wave	47* 31.5*	A
Forward surge current	I_{FSM}	T _C =25°C, tp=10ms, Half Sine Wave T _C =110°C, tp=10ms, Half Sine Wave	71* 59.5*	A
Power dissipation	P_{tot}	Ta=25°C Ta=110°C	176/352 76/152	W
Junction temperature	T_j		-55 ~ +175	°C
Storage temperature	T_{stg}		-55 ~ +175	°C
Mounting Torque		M3 Screw 6-32 Screw	1 8.8	Nm lbf-in

Thermal characteristics

Parameter	Symbol	Vaule	Unit
Thermal Resistance - Junction to Case	$R_{\theta JC}$	0.85* 0.43**	°C/ W

*Per Leg, ** Device

Electrical Characteristics (Per Leg, Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 10\text{ A}, T_j = 25^\circ\text{C}$ $I_F = 10\text{ A}, T_j = 175^\circ\text{C}$		1.5 2.0	1.6 2.8	V
Reverse current	I_R	$V_R = 1200\text{V}, T_j = 25^\circ\text{C}$ $V_R = 1200\text{V}, T_j = 175^\circ\text{C}$		30 55	250 350	μA
Total capacitive charge	Q_C	$V_R = 800\text{V}, I_F = 10\text{ A}$ $di/dt = 200\text{A}/\mu\text{s}, T_j = 25^\circ\text{C}$		52		nC
Total capacitance	C	$V_R = 0\text{V}, T_j = 25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 400\text{V}, T_j = 25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 800\text{V}, T_j = 25^\circ\text{C}, f = 1\text{MHz}$		754 45 38		pF
Capacitance stored energy	E_C	$V_R = 800\text{V}$		14.5		μJ

Typical Characteristics (Per leg)

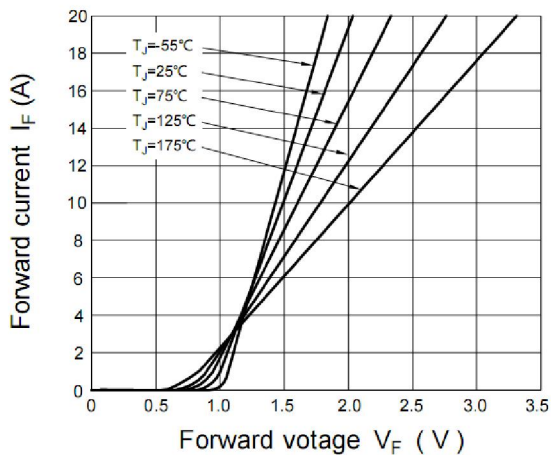


Figure 1. Forward Characteristics

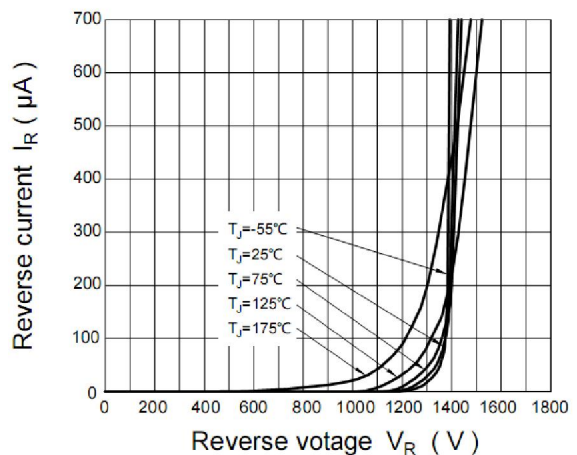


Figure 2. Reverse Characteristics

Typical Characteristics

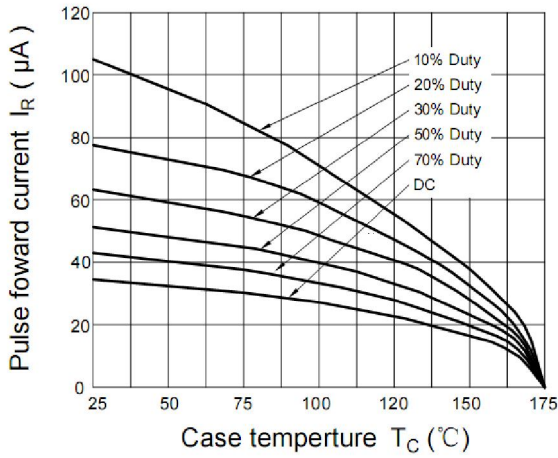


Figure 3. Load current

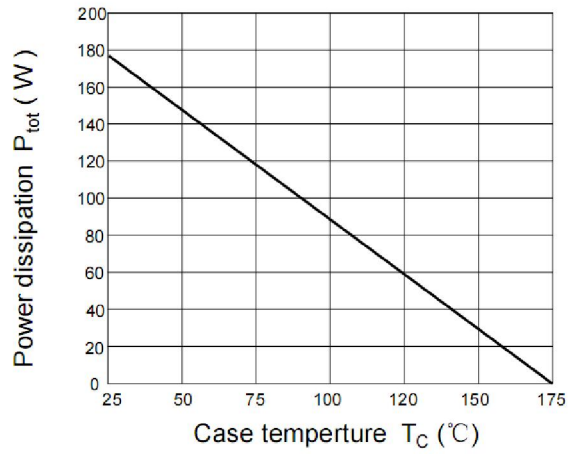


Figure 4. Dissipated power curve

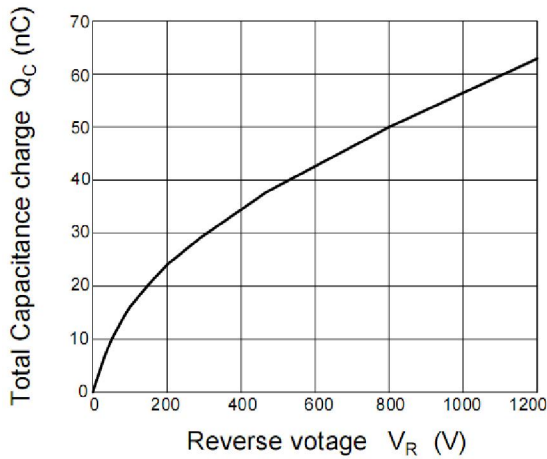


Figure 5. Capacitance vs. reverse voltage

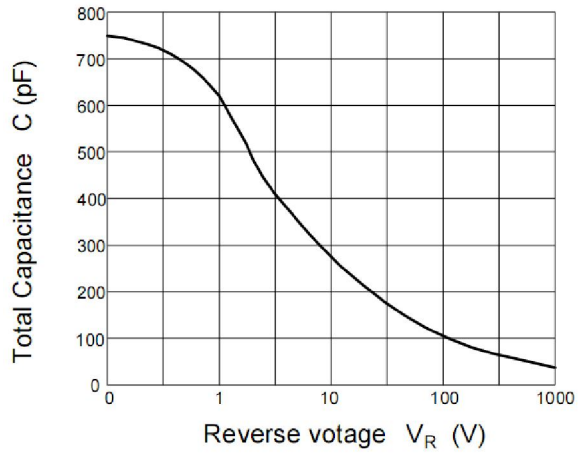


Figure 6. Capacitance vs reverse voltage

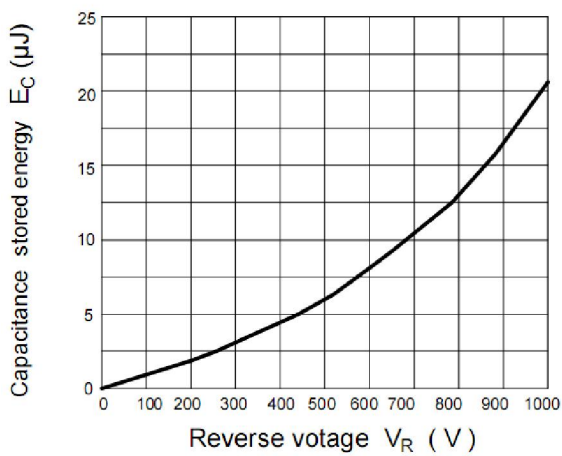


Figure 7. Capacitance stored energy

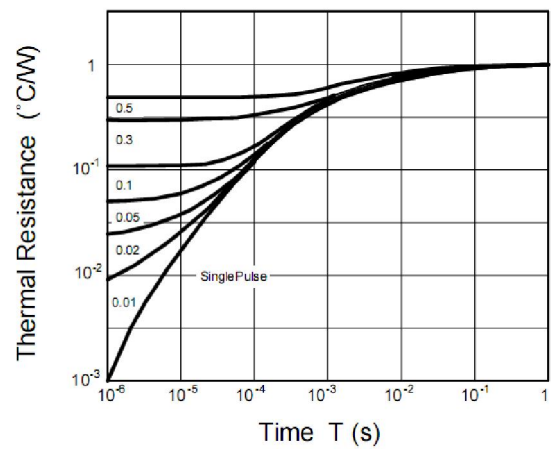
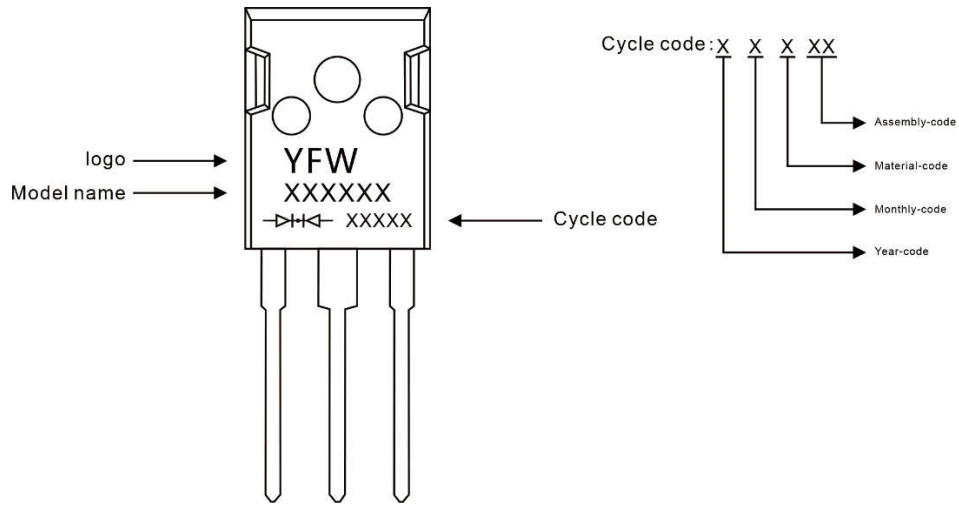


Figure 8. Transient Thermal Impedance

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWD320120PT	TO-247	0.209oz(5.93g)	30pcs/tube	600PCS/Box 2400PCS/Carton

Package Dimensions

TO-247

Symbol	Dimensions in mm		Dimensions in Inch	
	Min.	Max.	Min.	Max.
A	4.90	5.10	0.193	0.201
A1	1.90	2.10	0.075	0.083
A2	2.29	2.54	0.090	0.100
b	1.00	1.40	0.039	0.055
b1	2.00	2.20	0.079	0.087
b2	3.00	3.20	0.118	0.126
c	0.50	0.70	0.020	0.028
D	15.75	16.05	0.620	0.632
E	20.20	20.80	0.795	0.819
e	5.45 (BSC)		0.215 (BSC)	
e1	10.90 (BSC)		0.429 (BSC)	
F	6.05	6.25	0.238	0.246
F1	5.80	6.00	0.228	0.236
L	20.10	20.40	0.791	0.803
L1	4.05	4.35	0.159	0.171
Φ	3.50	3.70	0.138	0.146

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