

SIC SCHOTTKY BARRIER DIODE

Reverse Voltage - 1200 V

Forward Current - 10A

FEATURES

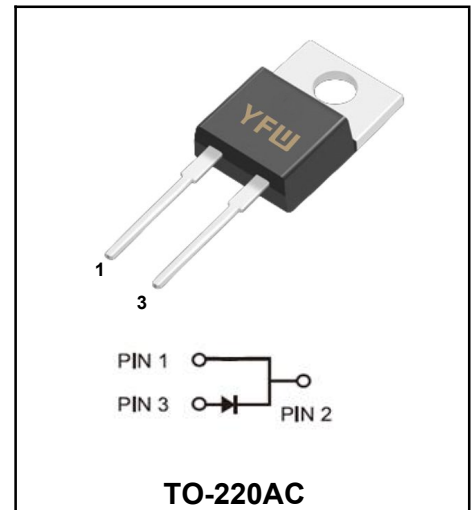
- ◆1200V Schottky Rectifier
- ◆Zero Reverse Recovery Current
- ◆High-Frequency Operation
- ◆Temperature-Independent Switching Behavior
- ◆Extremely Fast Switching

APPLICATIONS

- ◆Replace Bipolar with Unipolar Rectifiers
- ◆Essentially No Switching Losses
- ◆Higher Efficiency
- ◆Reduction of Heat Sink Requirements
- ◆Parallel Devices Without Thermal Runaway

BENEFITS

- ◆High-speed switching
- ◆Low heat dissipation requirements
- ◆Reduced EMI
- ◆High-reliability



Maximum Ratings at Ta=25°C unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	$T_C = 25^{\circ}\text{C}$	V_{RRM}	1200	V
Continuous Forward Current for $R_{th(j-c,max)}$	$T_C = 25^{\circ}\text{C}$	I_F	37	A
	$T_C = 135^{\circ}\text{C}$		18	
	$T_C = 150^{\circ}\text{C}$		10	
Non-Repetitive Forward Surge Current, Sine Half-Wave	$T_C = 25^{\circ}\text{C}$, $t_p = 10\text{ms}$	I_{FSM}	52	A
	$T_C = 110^{\circ}\text{C}$, $t_p = 10\text{ms}$		43	
Repetitive Forward Surge Current, Sine Half-Wave	$T_C = 25^{\circ}\text{C}$, $t_p = 10\text{ms}$	I_{FRM}	75	A
	$T_C = 110^{\circ}\text{C}$, $t_p = 10\text{ms}$		62	
Power Dissipation	$T_C = 25^{\circ}\text{C}$	P_{tot}	234	W
	$T_C = 110^{\circ}\text{C}$		102	
Operating Temperature Range	-	T_J	-55 to +175	$^{\circ}\text{C}$
Storage Temperature Range	-	T_{STG}	-55 to +175	$^{\circ}\text{C}$
Typical Thermal Resistance (Note1)	-	$R_{\theta JC}$	0.64	$^{\circ}\text{C/W}$

Note1: Pulse test: 300 μs pulse width, 2 % duty cycle

Electrical Characteristics unless otherwise specified

Parameter		Symbol	Value			Unit
Forward Voltage Drop(Note2)			Min	Typ	Max	
I _R = 100μA		V _{DC}	1200	-	-	V
at I _F =10A	T _A =25°C	V _F	-	1.4	1.8	V
	T _A =175°C		-	2.1	3	
Maximum Reverse Current at V _R =1200V	T _A =25°C	I _R	-	2.4	250	μA
	T _A =175°C		-	73	350	
Total capacitive charge	V _R = 800V	Q _C	-	51	-	nC
Total capacitance	V _R = 0V, f = 1MHz	C	-	770	-	pF
	V _R = 400V, f = 1MHz		-	47	-	
	V _R = 800V, f = 1MHz		-	46	-	
Capacitance stored energy	V _R = 800V	E _C	-	12.6	-	μJ

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

RATINGS AND CHARACTERISTIC CURVES

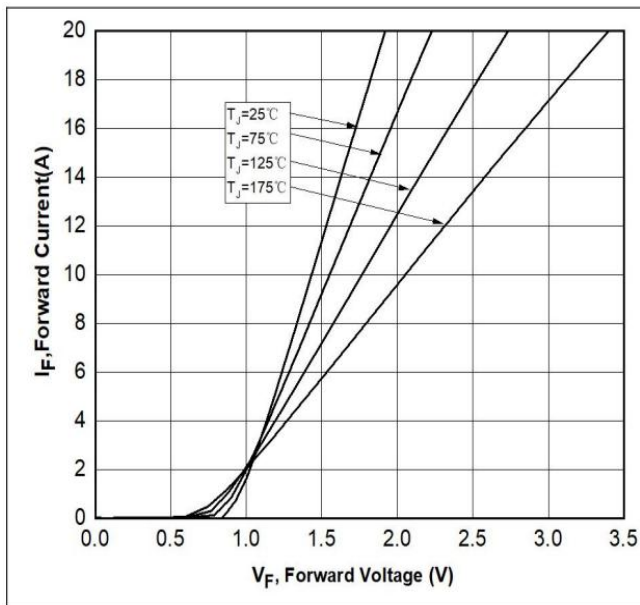


Figure 1. Forward Characteristics

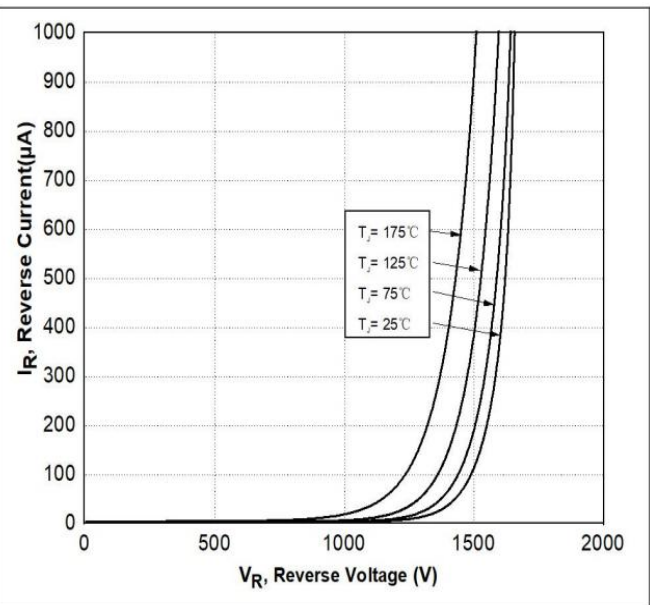


Figure 2. Reverse Characteristics

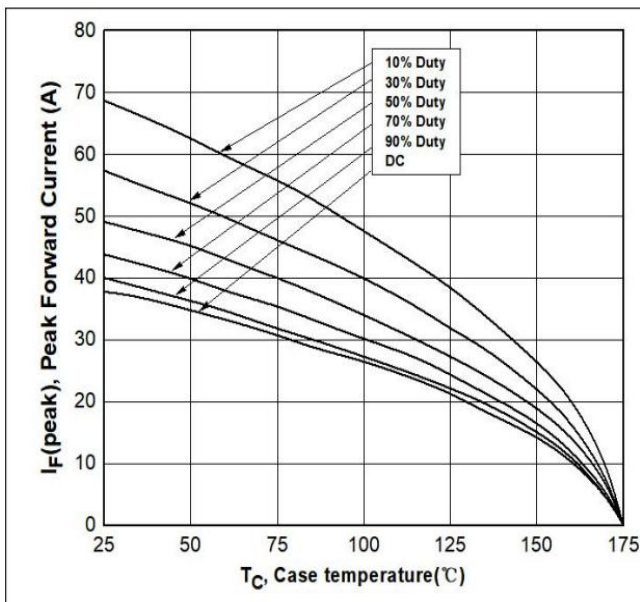


Figure 3. Current Derating

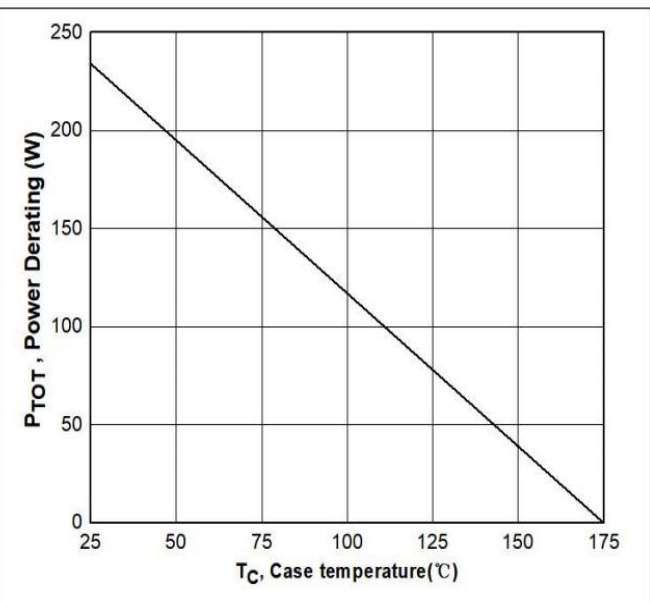


Figure 4. Power Derating

RATINGS AND CHARACTERISTIC CURVES

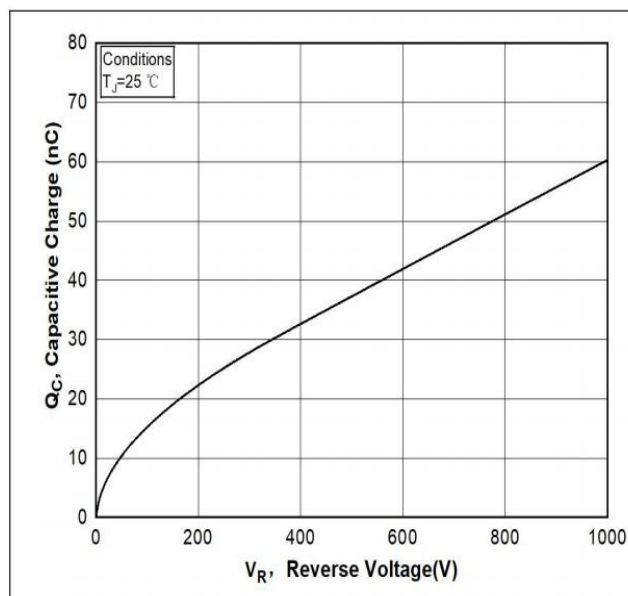


Figure 5. Capacitance Charge Vs. Reverse Voltage

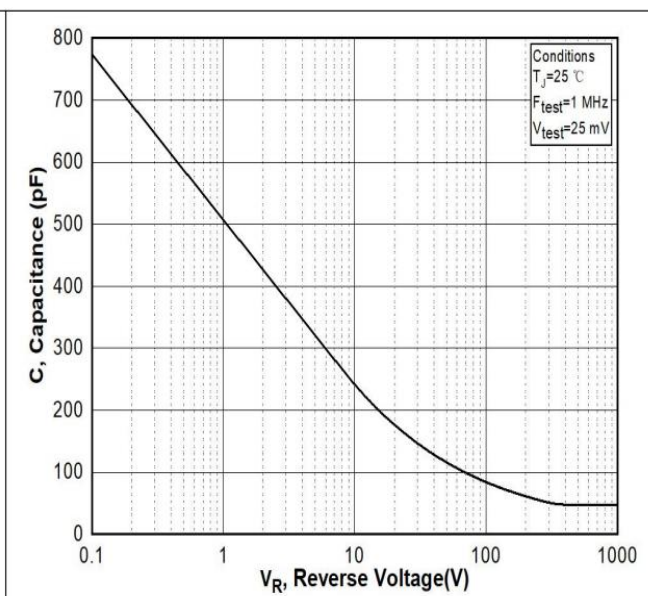


Figure 6. Capacitance Vs. Reverse Voltage

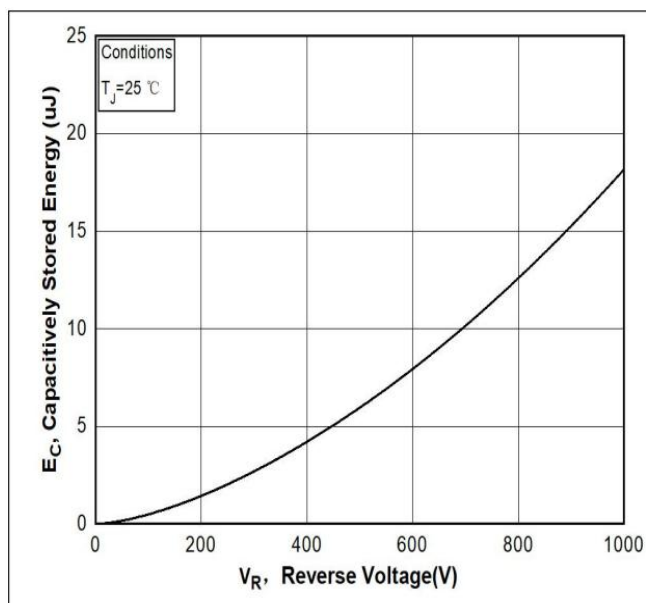


Figure 7. Capacitance Stored Energy

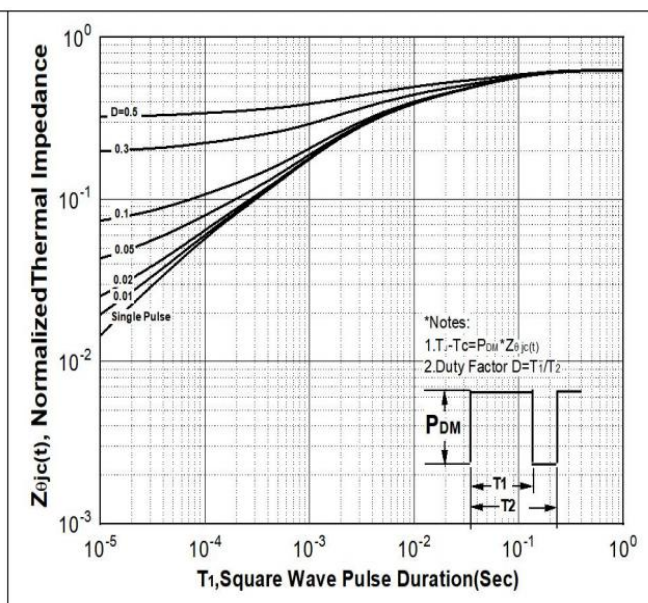
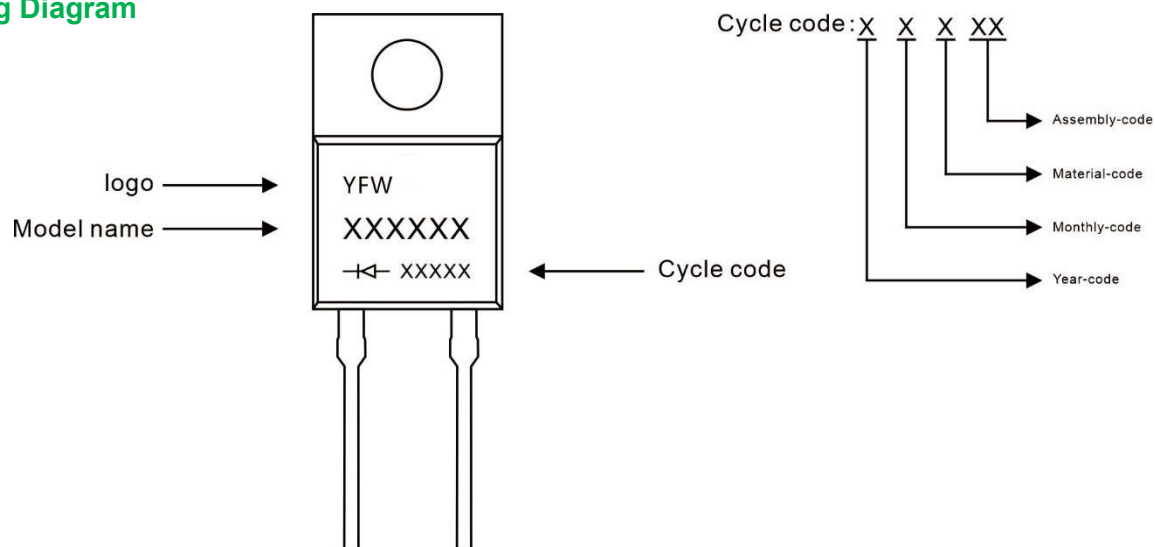


Figure 8. Transient Thermal Response Curve(Junction-to-Case)

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWD310120AC	TO-220AC	0.067oz(1.9g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220AC

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.34	4.67	0.171	0.184
A1	2.52	2.82	0.099	0.111
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	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

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