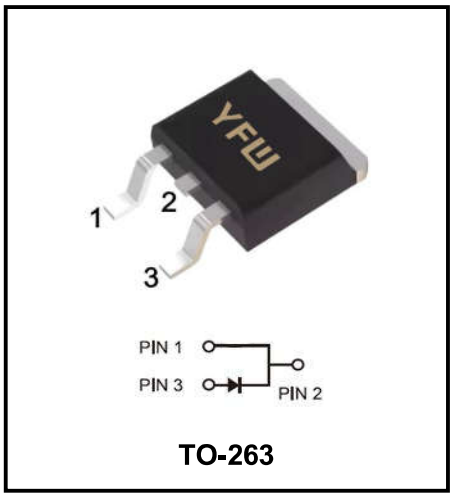
SIC SCHOTTKY BARRIER DIODE

Reverse Voltage - 650V

Forward Current - 10A



TO-263

FEATURES

- 650-Volt SiC JBS Rectifier
- Zero Reverse Recovery
- Positive Temperature Coefficient on VF
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Extremely Low Leakage Current

APPLICATIONS

- Uninterruptible power supply
- Switch mode power supply
- Power factor correction
- Solar inverter

Maximum Ratings at Ta=25°C unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	–	V_{RRM}	650	V
Continuous Forward Current for Rth(j-c,max)	T_C = 25℃	I_F	27	A
	T_C = 110℃		17	
	T_C = 147℃		10	
Peak Forward Surge Current,8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	-	I_{FSM}	75	A
	-		66	
Repetitive Forward Surge Current, Sine Half-Wave(Freq= 0.1Hz, 50cycles)	-	I_{FRM}	69	A
	-		61	
Operating Temperature Range	-	T_J	175	℃
Storage Temperature Range	-	T_{STG}	-55 to +175	℃
Typical Thermal Resistance (Note1)	-	$R_{\theta JC}$	1.55	℃/W

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

Electrical Characteristics unless otherwise specified

Parameter		Symbol	Value			Unit
Forward Voltage Drop(Note2)			Min	Typ	Max	
I_R = 100μA		V_{DC}	-	650	-	V
at I_F=10A	T_A=25°C	V_F	-	1.36	1.65	V
	T_A=175°C		-	1.66	-	
Maximum Reverse Current at V_R=650V	T_A=25°C	I_R	-	1	40	μA
	T_A=175°C		-	8.5	-	
Total capacitive charge	V_R = 400V	Q_C	-	29	-	nC
Total capacitance	V_R = 1V, f = 1MHz	C	-	390	-	pF
	V_R = 200V, f = 1MHz		-	56	-	
	V_R = 400V, f = 1MHz		-	41	-	
Capacitance stored energy	V_R = 400V	E_C	-	4.2	-	μJ

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

RATINGS AND CHARACTERISTIC CURVES

Figure 1. V_F Typical Forward Characteristics
I_F = 0~16A
T_{VJ} ranges from -55 ℃ to 175 ℃

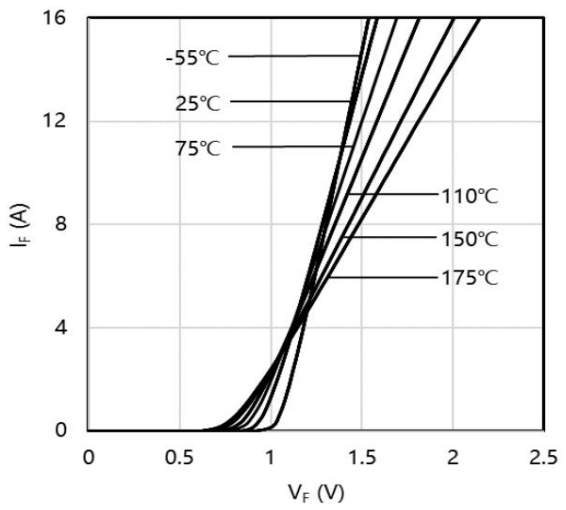


Figure 2. I_R Typical Reverse Characteristics
V_R = 300~700 V
T_{VJ} ranges from 25 ℃ to 175 ℃

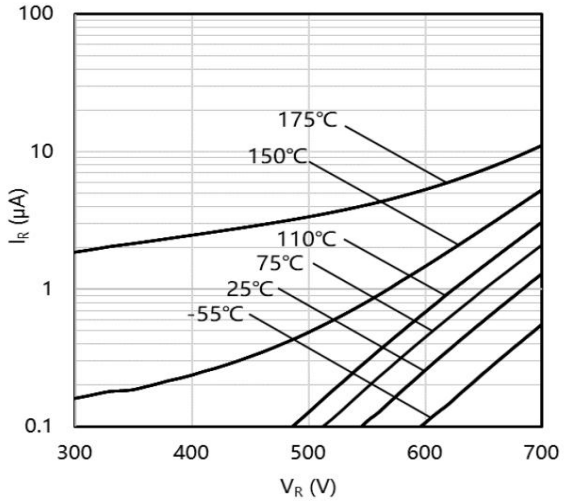


Figure 3. Total Capacitance Charge Characteristics
V_R = 0~650 V
T_{VJ} = 25 ℃

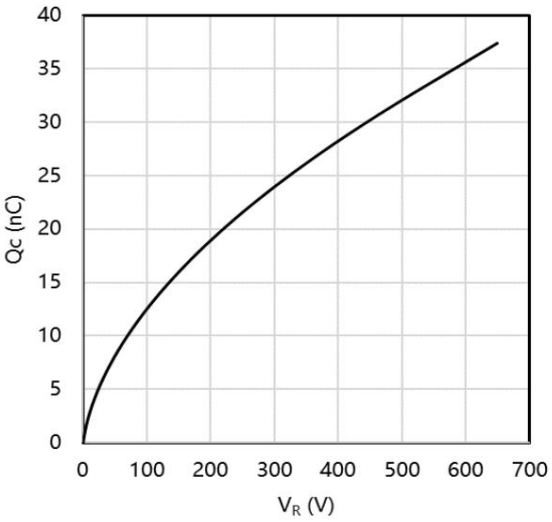
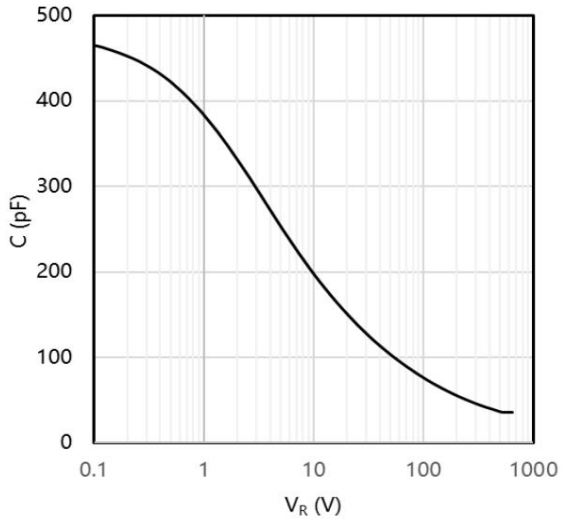


Figure 4. Total Capacitance Characteristics
V_R = 0~650 V
T_{VJ} = 25℃



RATINGS AND CHARACTERISTIC CURVES

Figure 5. Power dissipation as function of case temperature

T_{VJ} ranges from 25 ℃ to 175 ℃

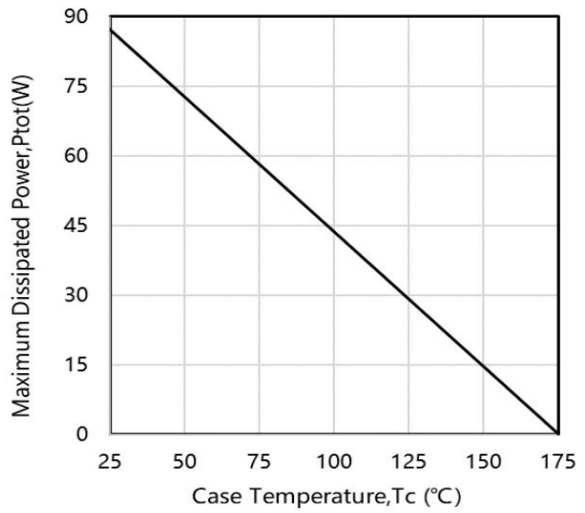


Figure 6. Capacitance Stored Energy

V_R = 0~650 V

T_{VJ} = 25 ℃

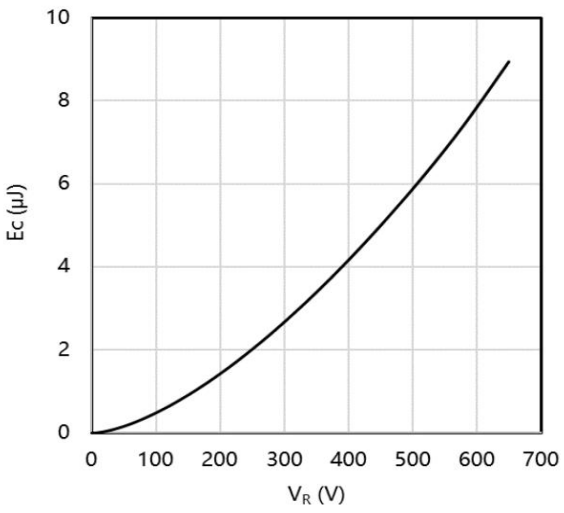
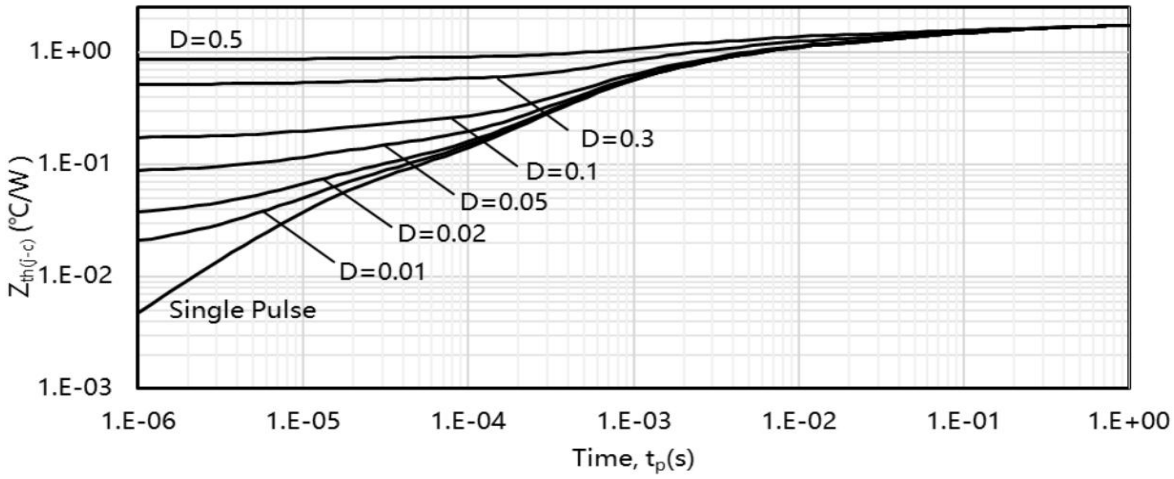
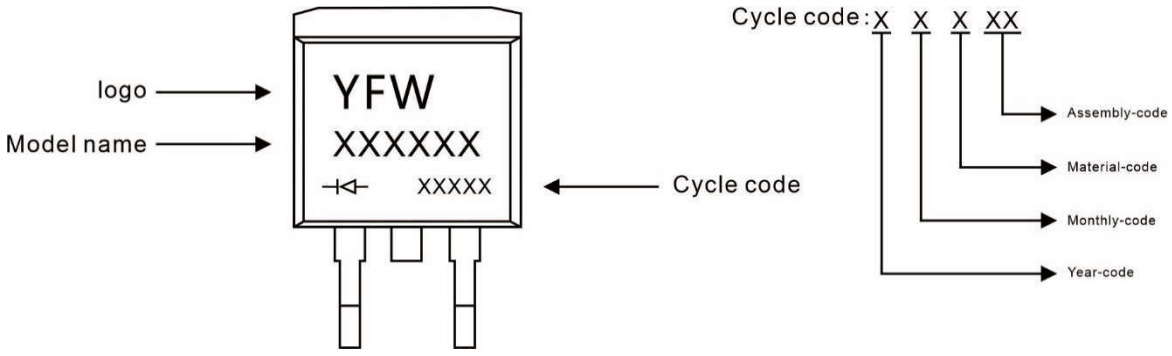


Figure 7. Max. transient thermal impedance, Zth, j-c=f(t_p), parameter: D=t_p/T



Marking Diagram

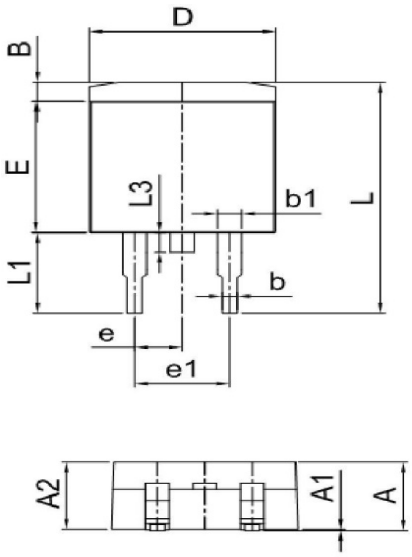


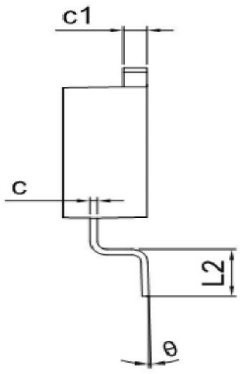
Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWD310065DC	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

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