

SiC Schottky Barrier Rectifier
Reverse Voltage - 650V
Forward Current -10A

Features

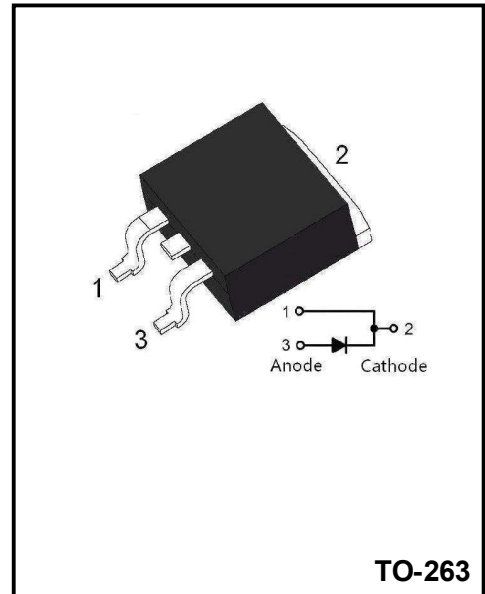
- ◆ Reverse withstand voltage 650V
- ◆ Zero reverse recovery current
- ◆ High working frequency
- ◆ Switch characteristics are not affected by temperature
- ◆ Fast switching speed
- ◆ Positive temperature coefficient of positive pressure drop

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 Rating (Ta=25°C)

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)}	T _a =25°C	33	A
		T _a =125°C	15	
		T _a =150°C	10	
Forward repetitive peak current	I _{FRM}	T _C =25°C, tp=10ms, Half Sine Wave	50	A
		T _C =110°C, tp=10ms, Half Sine Wave	28	
Forward surge current	I _{FSM}	T _C =25°C, tp=10ms, Half Sine Wave	90	A
		T _C =110°C, tp=10ms, Half Sine Wave	65	
Power dissipation	P _{tot}	T _a =25°C	98	W
		T _a =110°C	45	
Junction temperature	T _j		-55 ~ +175	°C
Storage temperature	T _{stg}		-55 ~ +175	°C

Thermal characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance - Junction to Case	$R_{\theta JC}$	2.03	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

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

Typical Characteristics

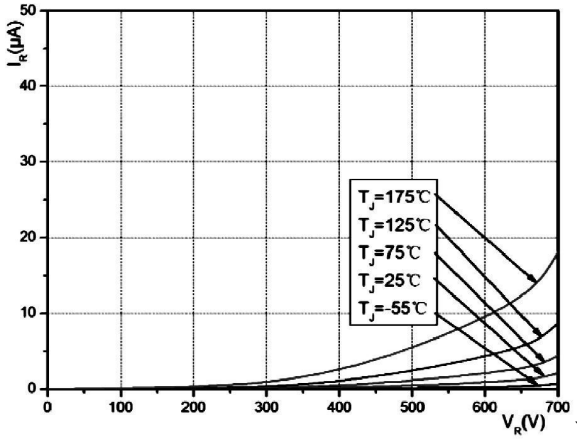


Figure 1. Forward Characteristics

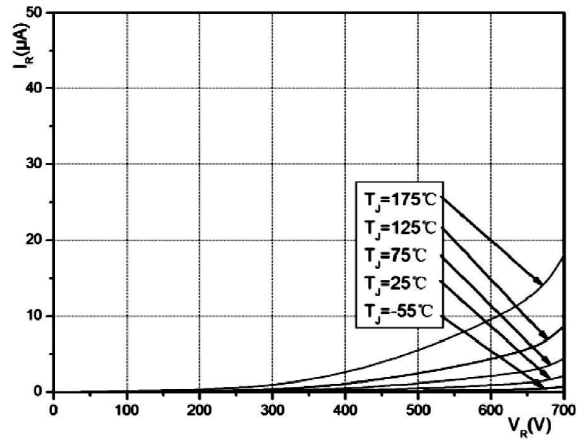


Figure 2. Reverse Characteristics

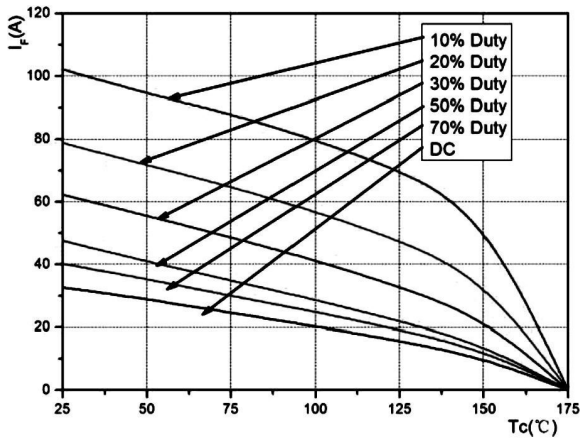


Figure 3. Load current

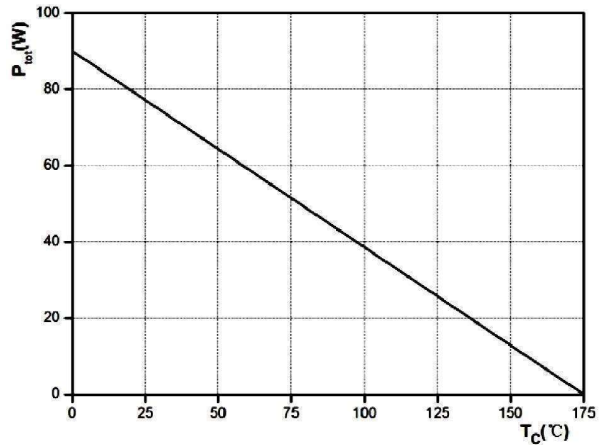


Figure 4. Dissipated power curve

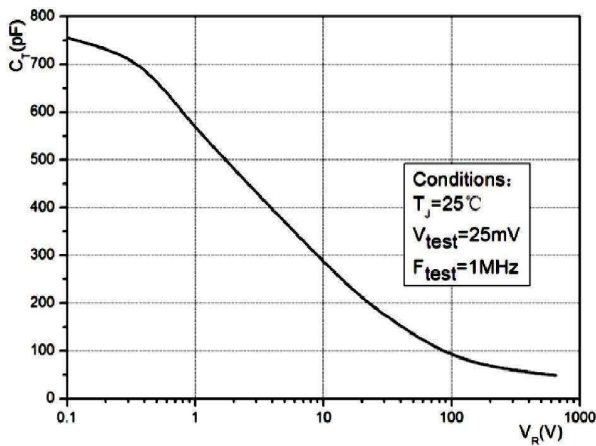


Figure 5. Capacitance vs reverse voltage

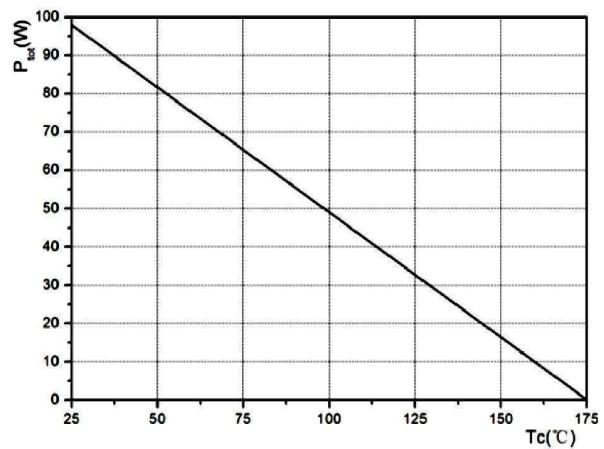


Figure 6. Thermal Impedance Junction-to-Case

Package Dimensions

TO-263

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
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

Product Specification Classification

Part Number	Package	Marking	Pack
YFWD310065DC	TO-263	YFW D310065DC XXXX	800PCS/Reel