

**SiC Schottky Barrier Rectifier**

**Reverse Voltage - 650V**

**Forward Current - 8A**

**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

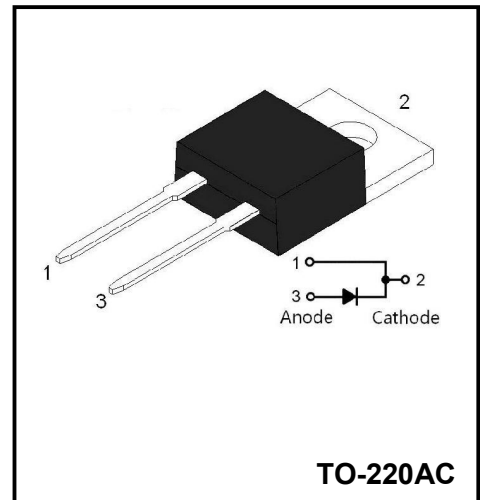
**Advantages**

- ◆ 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	$I_{F(AV)}$	Ta=25°C Ta=125°C Ta=150°C	30 14 8	A
Forward repetitive peak current	$I_{FRM}$	T <sub>C</sub> =25°C, tp=10ms, Half Sine Wave T <sub>C</sub> =110°C, tp=10ms, Half Sine Wave	45 21.5	A
Forward surge current	$I_{FSM}$	T <sub>C</sub> =25°C, tp=10ms, Half Sine Wave T <sub>C</sub> =110°C, tp=10ms, Half Sine Wave	72 55	A
Power dissipation	$P_{tot}$	Ta=25°C Ta=110°C	90 38	W
Junction temperature	T <sub>j</sub>		-55 ~ +175	°C
Storage temperature	T <sub>stg</sub>		-55 ~ +175	°C

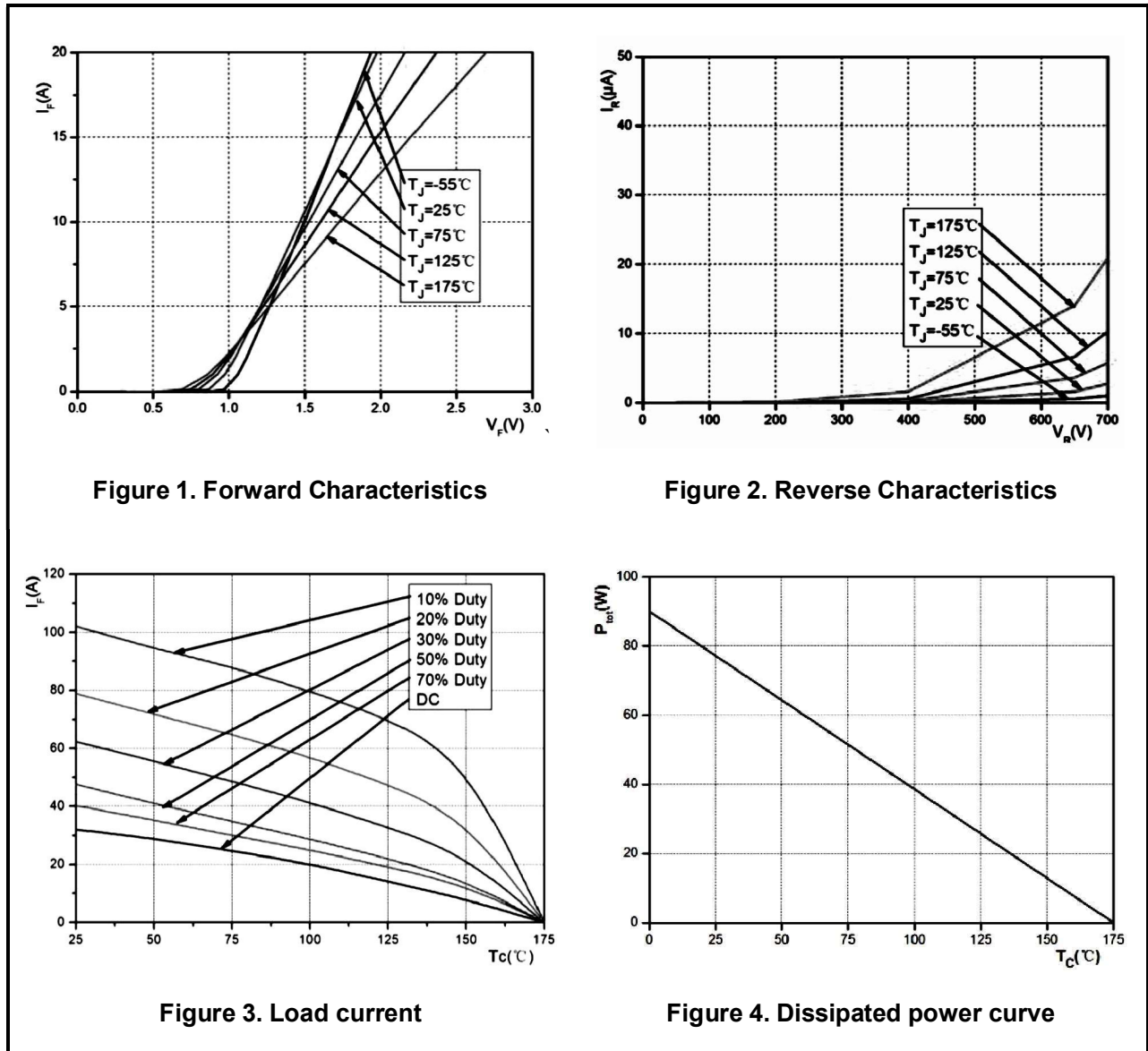
**Thermal characteristics**

Parameter	Symbol	Value	Unit
Thermal Resistance - Junction to Case	R <sub>θJC</sub>	2.3	°C/W

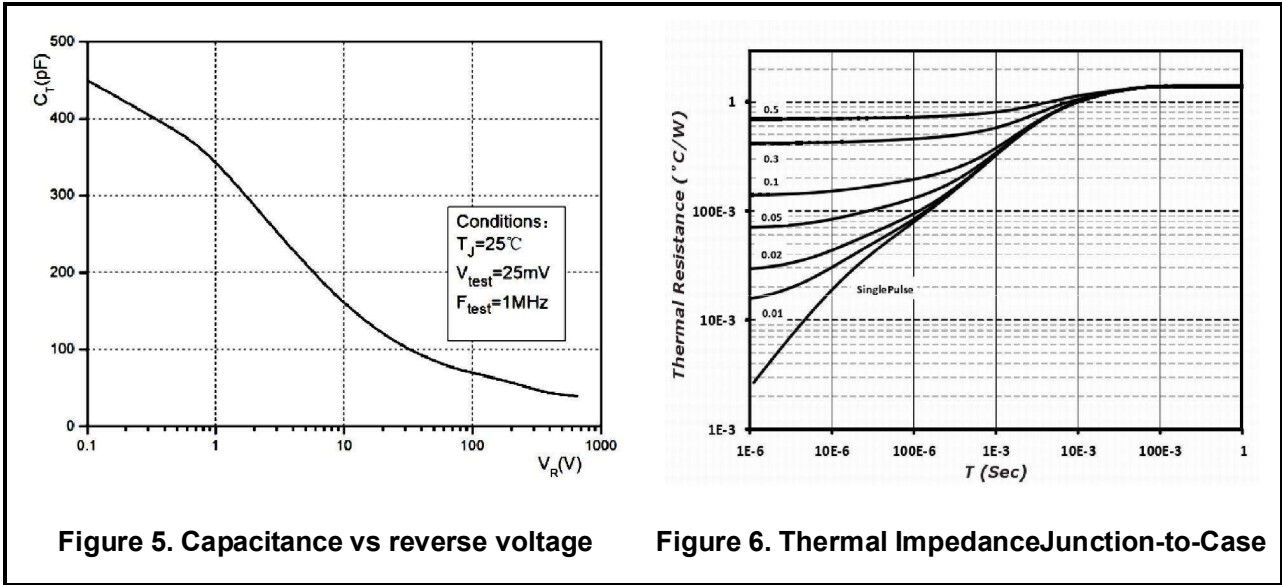
**Electrical Characteristics (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	$V_F$	$I_F = 8\text{ A}, T_J = 25^\circ\text{C}$ $I_F = 8\text{ A}, T_J = 175^\circ\text{C}$		1.4 1.57	1.8 2.4	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 15	20 200	$\mu\text{A}$
Total capacitive charge	$Q_C$	$V_R = 400\text{V}, I_F = 8\text{ A}$ $di/dt = 500\text{A}/\mu\text{s}, T_J = 25^\circ\text{C}$		11		nC
Total capacitance	C	$V_R = 0\text{V}, T_J = 25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 200\text{V}, T_J = 25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 400\text{V}, T_J = 25^\circ\text{C}, f = 1\text{MHz}$		580 58 42		pF

**Typical Characteristics**



Typical Characteristics



Package Dimensions

TO-220AC

Symbol	Dimensions in mm		Dimensions in Inch	
	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	2.44	2.64	0.096	0.104
e1	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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