

## SiC Schottky Barrier Rectifier

### Features

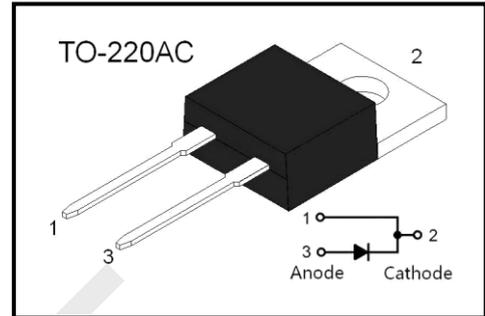
- Reverse withstand voltage 650V
- Zero reverse recovery current
- High working frequency
- Switch characteristics are not affected by temperature
- Fast switching speed
- Positive temperature coefficient of positive pressure drop

### 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)

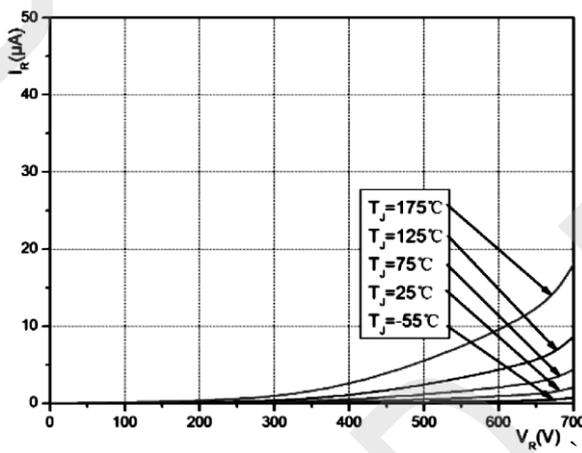
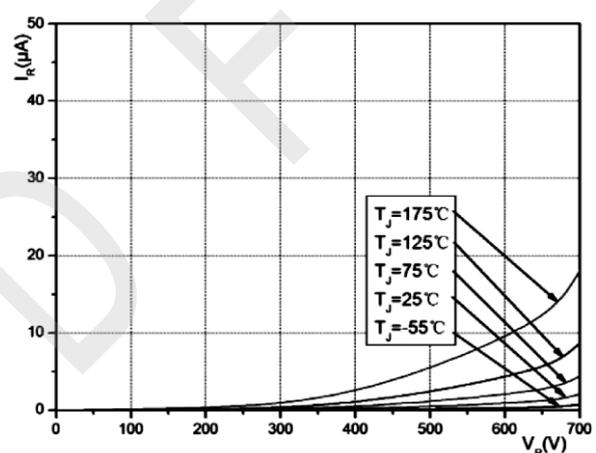
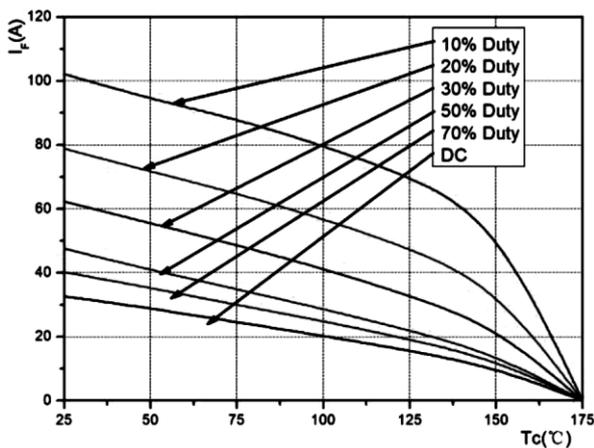
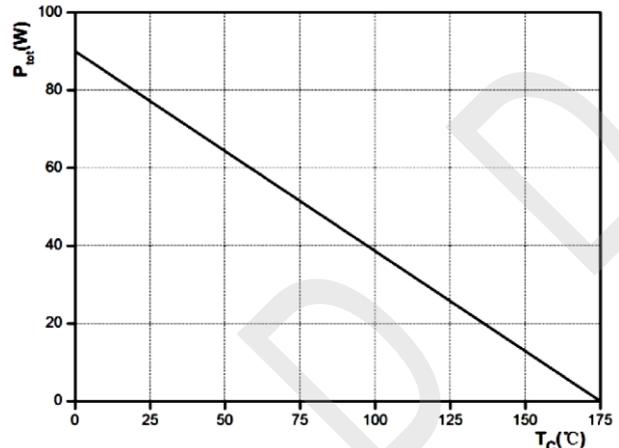
Parameter	Symbol	Test conditions	Value	Unit
Peak repetitive reverse voltage	$V_{RRM}$		650	V
Working peak reverse voltage	$V_{RWM}$		650	V
DC blocking voltage	$V_{DC}$		650	V
Average rectified output current	$I_{F(AV)}$	$T_C = 25^\circ\text{C}$	33	A
		$T_C = 110^\circ\text{C}$	15	
		$T_C = 150^\circ\text{C}$	10	
Forward repetitive peak current	$I_{FRM}$	$T_C = 25^\circ\text{C}, t_p = 10\text{ms}, \text{Half Sine Wave}$	50	A
		$T_C = 110^\circ\text{C}, t_p = 10\text{ms}, \text{Half Sine Wave}$	28	
Forward surge current	$I_{FSM}$	$T_C = 25^\circ\text{C}, t_p = 10\text{ms}, \text{Half Sine Wave}$	90	A
		$T_C = 110^\circ\text{C}, t_p = 10\text{ms}, \text{Half Sine Wave}$	65	
Power dissipation	$P_{tot}$	$T_C = 25^\circ\text{C}$	95	W
		$T_C = 110^\circ\text{C}$	42	
Junction temperature	$T_j$		-55 ~ +175	°C
Storage temperature	$T_{stg}$		-55 ~ +175	°C

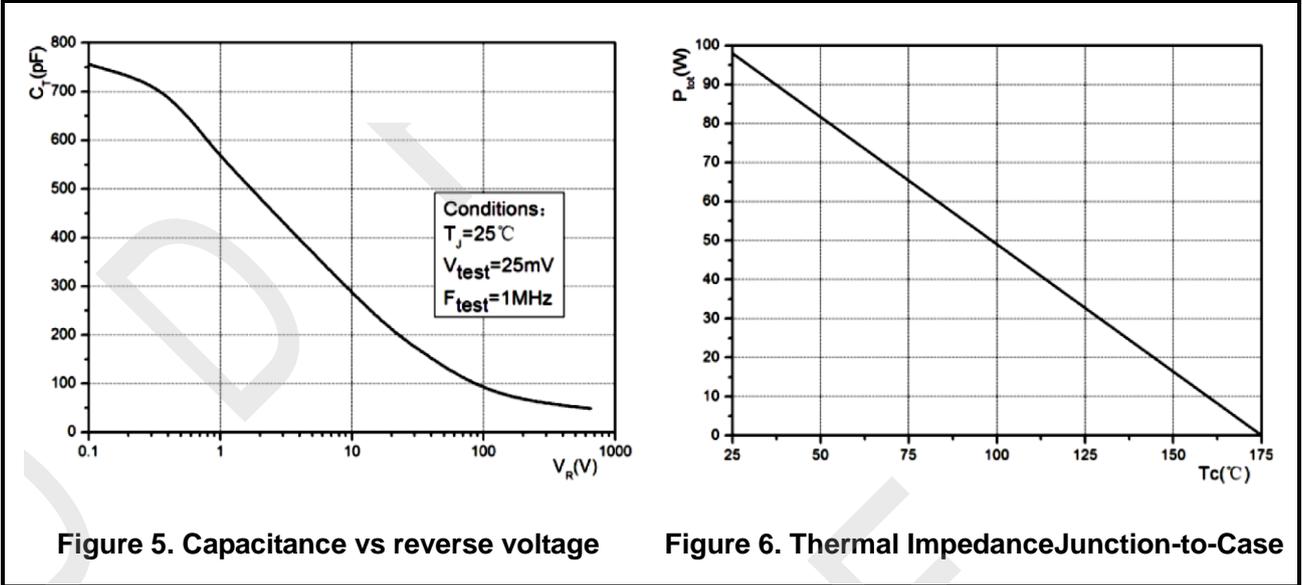
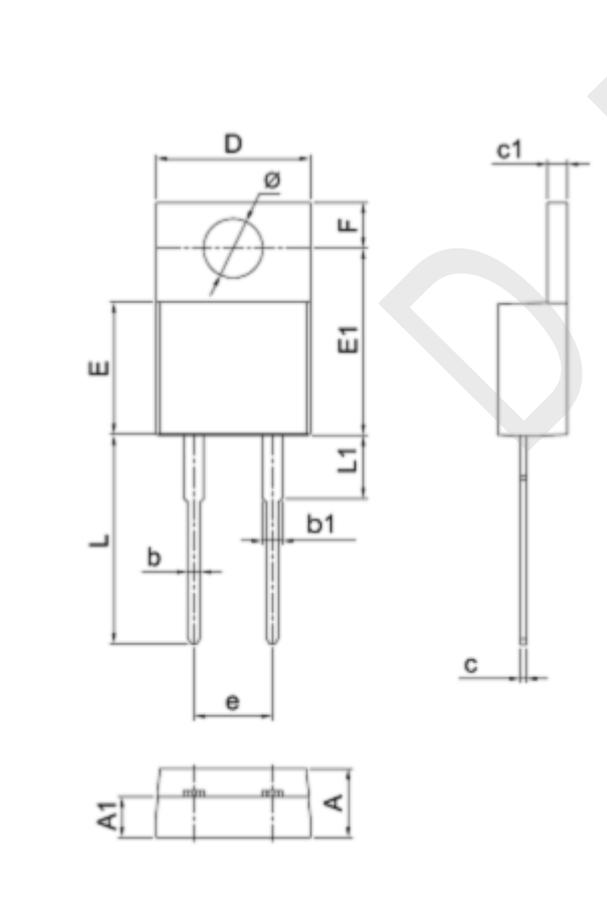
### Thermal characteristics

Parameter	Symbol	Value	Unit
Thermal resistance - junction to case	$R_{\theta JC}$	2.03	°C/W

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	$V_F$	$I_F = 10\text{ A}, T_j = 25^\circ\text{C}$ $I_F = 10\text{ A}, T_j = 175^\circ\text{C}$		1.45 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	$\mu\text{A}$
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**

**Typical Characteristics**

**Figure 5. Capacitance vs reverse voltage**
**Figure 6. Thermal Impedance Junction-to-Case**
**Package Dimensions**


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	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