

SiC Schottky Barrier Rectifier

Features

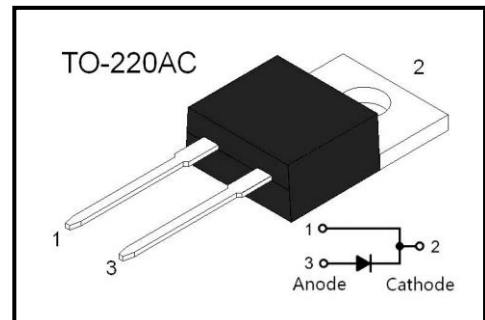
- Reverse withstand voltage 650V
- Zero reverse recovery current
- High working frequency
- Switch characteristics are not affected by temperature
- Fast switching speed
- Positive temperature coefficient of positive pressure drop

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	$I_{F(AV)}$	Ta=25°C	21	A
		Ta=125°C	11	
		Ta=150°C	6	
Forward repetitive peak current	I_{FRM}	T _C =25°C, tp=10ms, Half Sine Wave	35	A
		T _C =110°C, tp=10ms, Half Sine Wave	18	
Forward surge current	I_{FSM}	T _C =25°C, tp=10ms, Half Sine Wave	50	A
		T _C =110°C, tp=10ms, Half Sine Wave	42	
Power dissipation	P_{tot}	Ta=25°C	70	W
		Ta=110°C	26	
Junction temperature	T_j		-55 ~ +175	°C
Storage temperature	T_{stg}		-55 ~ +175	°C

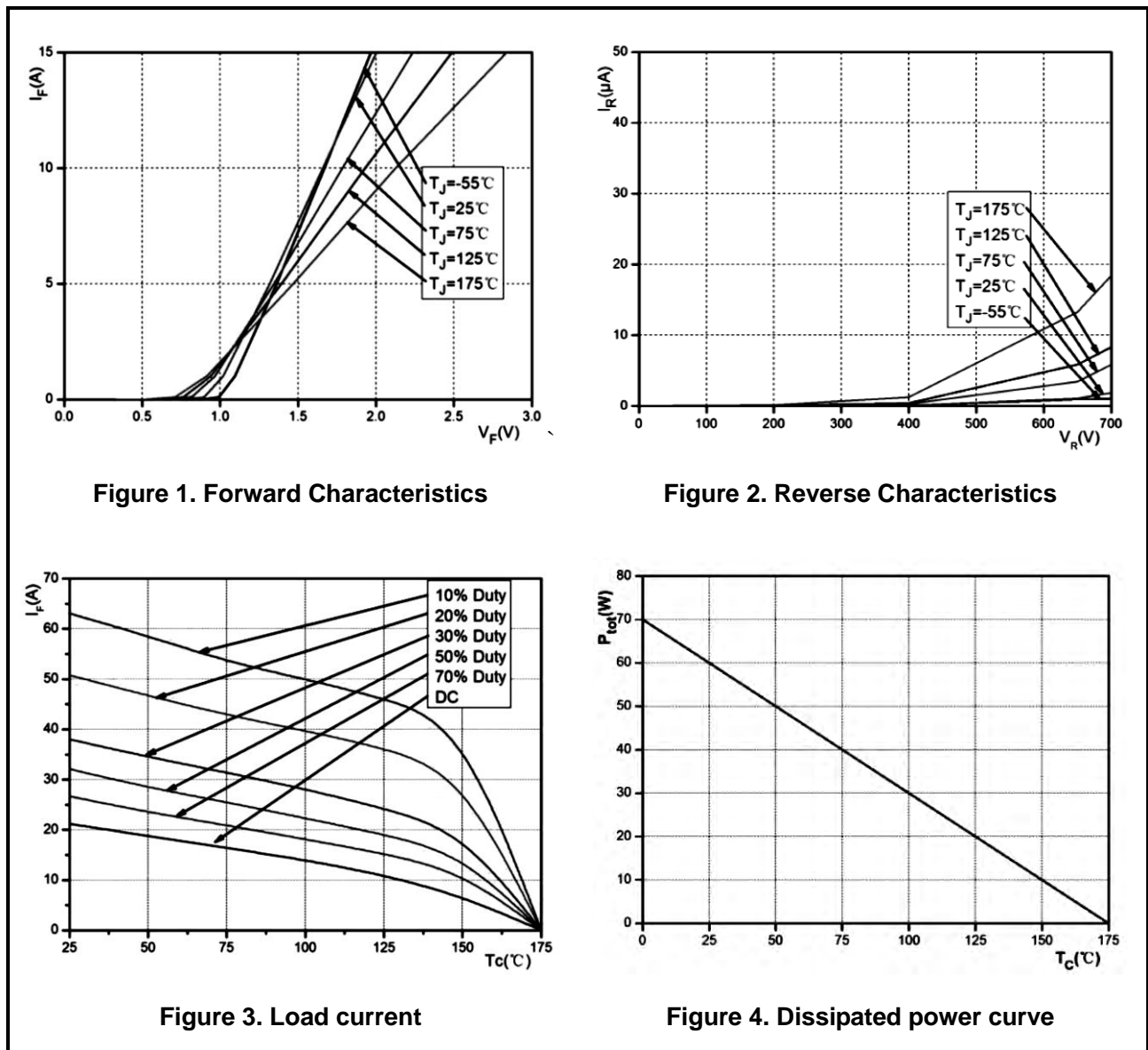
Thermal characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance - Junction to Case	$R_{\theta JC}$	2.3	°C / W

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 6\text{ A}, T_j = 25^\circ\text{C}$ $I_F = 6\text{ A}, T_j = 175^\circ\text{C}$		1.42 1.59	1.6 1.8	V
Reverse current	I_R	$V_R = 650\text{V}, T_j = 25^\circ\text{C}$ $V_R = 650\text{V}, T_j = 175^\circ\text{C}$		2 15	30 120	μA
Total capacitive charge	Q_C	$V_R = 400\text{V}, I_F = 6\text{ A}$ $di/dt = 500\text{A}/\mu\text{s}, T_j = 25^\circ\text{C}$		23		nC
Total capacitance	C	$V_R = 0\text{V}, T_j = 25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 200\text{V}, T_j = 25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 400\text{V}, T_j = 25^\circ\text{C}, f = 1\text{MHz}$		423 44 37		pF

Typical Characteristics



Typical Characteristics

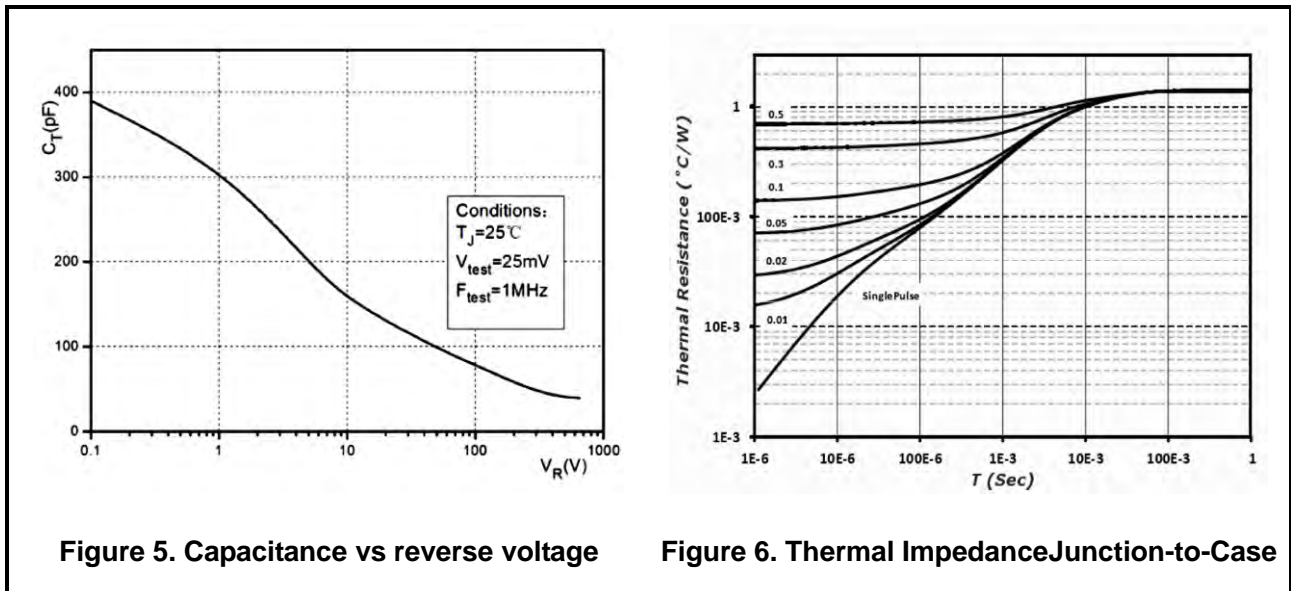


Figure 5. Capacitance vs reverse voltage

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
Ø	3.60	3.96	0.142	0.156