

SiC Schottky Barrier Rectifier
Features

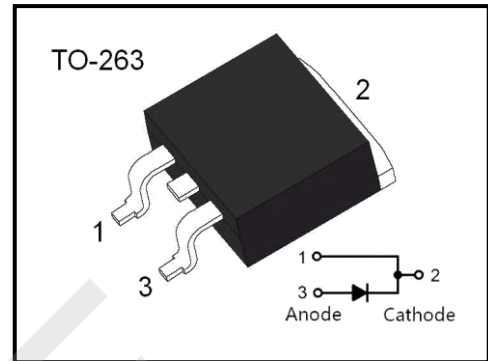
- Reverse withstand voltage 650V
- Zero reverse recovery current
- High working frequency
- Switch characteristics are not affected by temperature
- Fast switching speed
- Positive temperature coefficient of positive pressure drop

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)

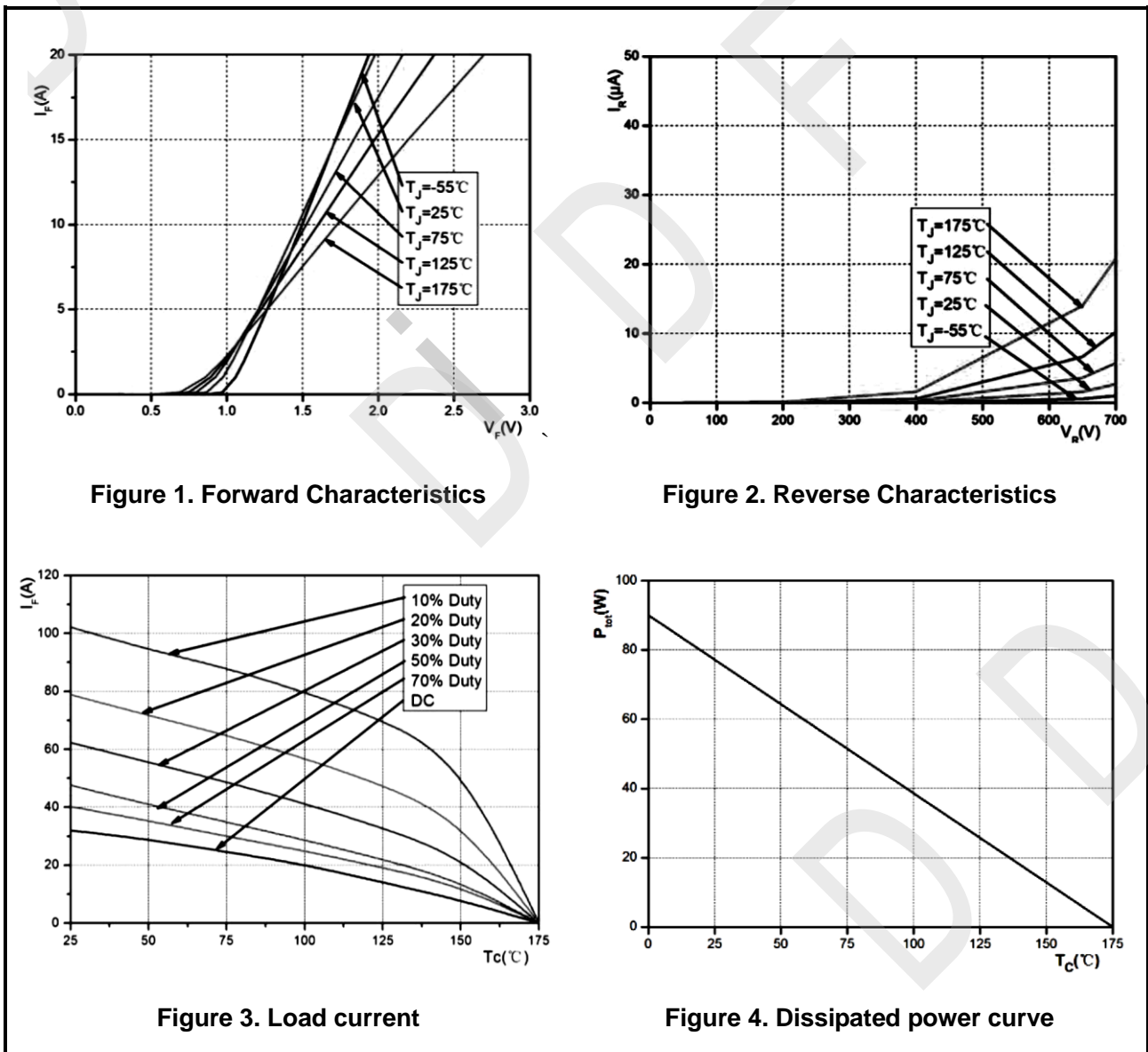
Parameter	Symbol	Test conditions	Value	Unit
Peak repetitive reverse voltage	V_{RRM}		650	V
Working peak reverse voltage	V_{RWM}		650	V
DC blocking voltage	V_{DC}		650	V
Average rectified output current	$I_{F(AV)}$	$T_C = 25^\circ\text{C}$	30	A
		$T_C = 110^\circ\text{C}$	14	
		$T_C = 150^\circ\text{C}$	8	
Forward repetitive peak current	I_{FRM}	$T_C = 25^\circ\text{C}, t_p = 10\text{ms}, \text{Half Sine Wave}$	45	A
		$T_C = 110^\circ\text{C}, t_p = 10\text{ms}, \text{Half Sine Wave}$	21.5	
Forward surge current	I_{FSM}	$T_C = 25^\circ\text{C}, t_p = 10\text{ms}, \text{Half Sine Wave}$	72	A
		$T_C = 110^\circ\text{C}, t_p = 10\text{ms}, \text{Half Sine Wave}$	55	
Power dissipation	P_{tot}	$T_C = 25^\circ\text{C}$	90	W
		$T_C = 110^\circ\text{C}$	38	
Junction temperature	T_j		-55 ~ +175	°C
Storage temperature	T_{stg}		-55 ~ +175	°C

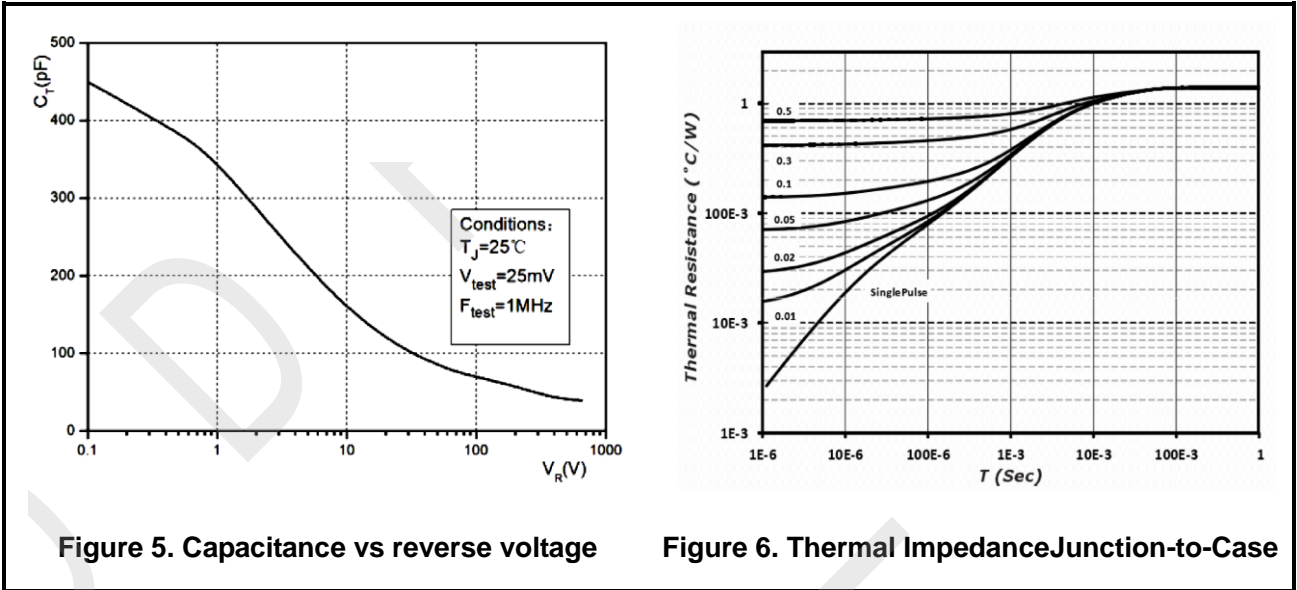
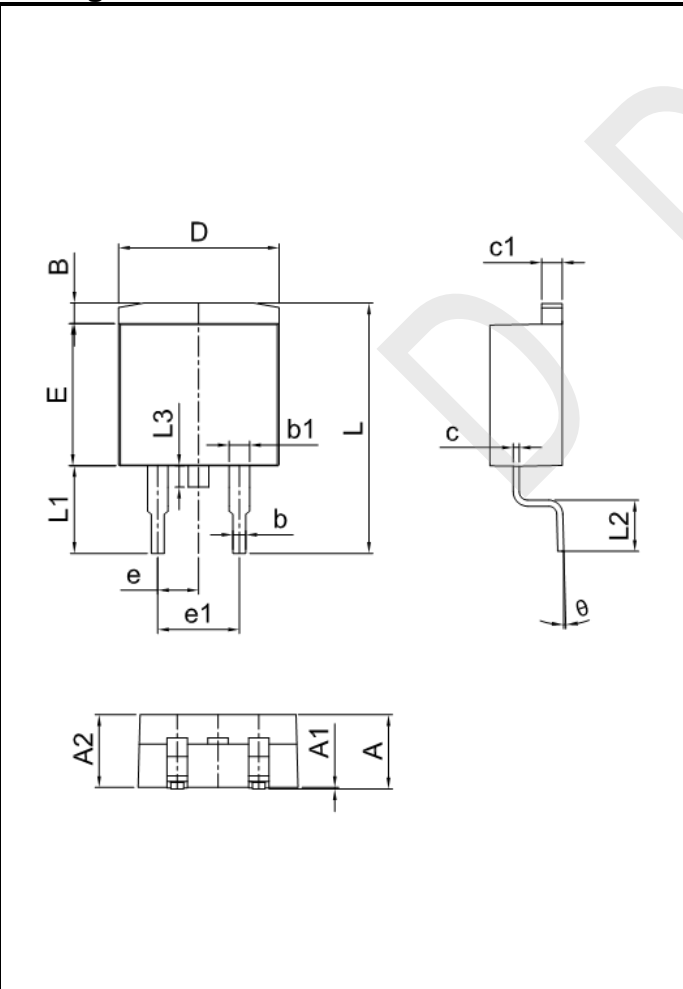
Thermal characteristics

Parameter	Symbol	Value	Unit
Thermal resistance -junction to case	$R_{\theta JC}$	2.55	°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	μA
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


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


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