

### SiC Schottky Barrier Rectifier

#### Features

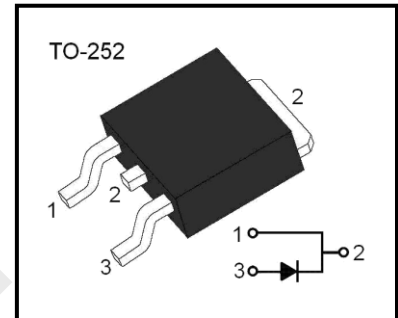
- Reverse withstand voltage 1200V
- Zero reverse recovery current
- High working frequency
- Switch characteristics are not affected by temperature
- Fast switching speed
- Positive temperature coefficient of positive pressure drop

#### 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)

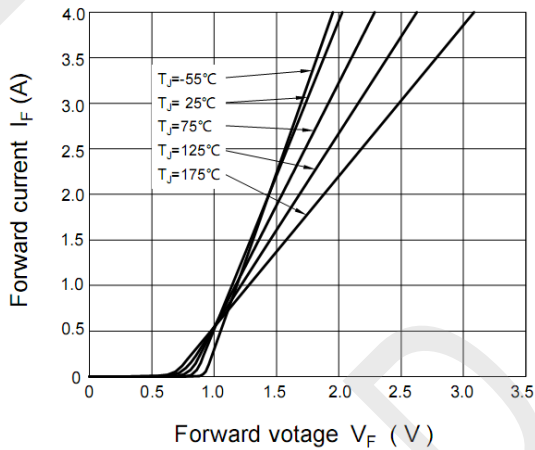
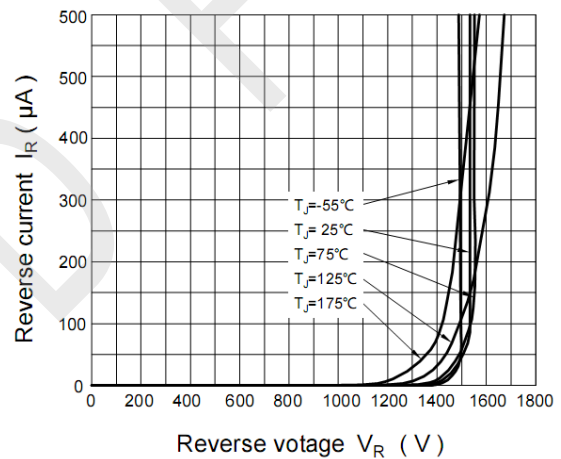
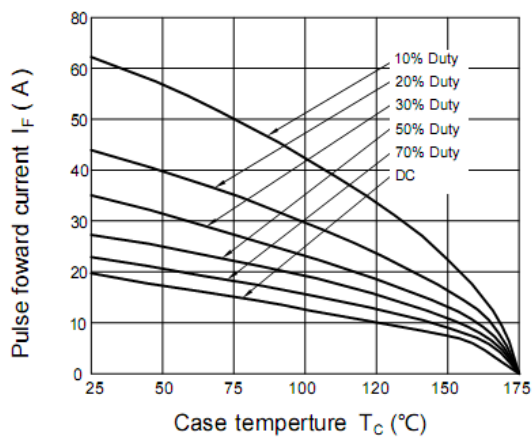
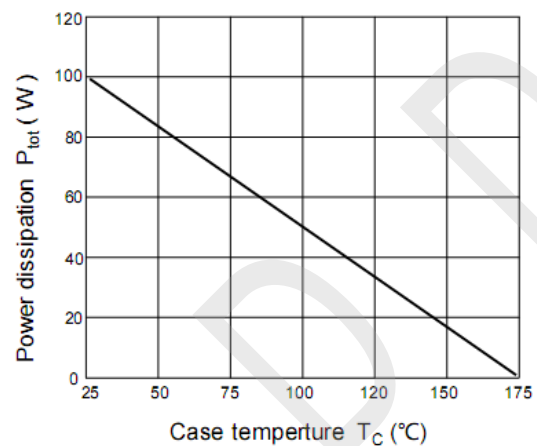
Parameter	Symbol	Test conditions	Value	Unit
Peak repetitive reverse voltage	$V_{RRM}$		1200	V
Working Peak Reverse voltage	$V_{RWM}$		1200	V
DC Blocking Voltage	$V_{DC}$		1200	V
Average rectified output current	$I_{F(AV)}$	$T_C=25^\circ\text{C}$ $T_C=125^\circ\text{C}$ $T_C=150^\circ\text{C}$	19 9.5 5	A
Forward repetitive peak current	$I_{FRM}$	$T_C=25^\circ\text{C}$ , tp=10ms, Half Sine Wave $T_C=110^\circ\text{C}$ , tp=10ms, Half Sine Wave	26 18	A
Forward surge current	$I_{FSM}$	$T_C=25^\circ\text{C}$ , tp=10ms, Half Sine Wave $T_C=110^\circ\text{C}$ , tp=10ms, Half Sine Wave	46 36	A
Power dissipation	$P_{tot}$	$T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$	100 43	W
Diode dV/dt ruggedness	dV/dt	$V_R=0\sim 960\text{V}$	200	V/ns
Junction temperature	$T_j$		-55~+175	°C
Storage temperature	$T_{stg}$		-55 ~ +175	°C

#### Thermal characteristics

Parameter	Symbol	Vaule	Unit
Thermal resistance - junction to case	$R_{\theta JC}$	2.5	°C/W

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	$V_F$	$I_F = 5A, T_j = 25^\circ C$ $I_F = 5A, T_j = 175^\circ C$		1.4 1.9	1.8 3	V
Reverse current	$I_R$	$V_R = 1200V, T_j = 25^\circ C$ $V_R = 1200V, T_j = 175^\circ C$		10 40	50 150	$\mu A$
Total capacitive charge	$Q_C$	$V_R = 800V, I_F = 5A$ $di/dt = 200A/\mu s, T_j = 25^\circ C$		27		nC
Total capacitance	C	$V_R = 0V, T_j = 25^\circ C, f = 1MHz$ $V_R = 400V, T_j = 25^\circ C, f = 1MHz$ $V_R = 800V, T_j = 25^\circ C, f = 1MHz$		390 27 208		pF
Capacitance stored energy	$E_C$	$V_R = 800V$		8.0		$\mu J$

**Typical Characteristics**

**Figure 1. Forward Characteristics**

**Figure 2. Reverse Characteristics**

**Figure 3. Current Derating**

**Figure 4. Power Derating**

Typical Characteristics

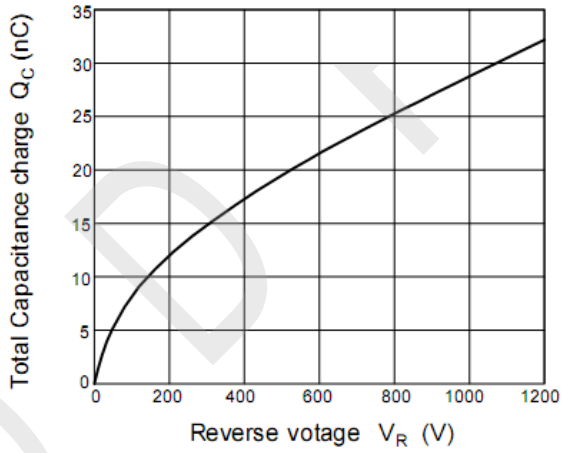


Figure 5. Total Capacitance charge vs. reverse voltage

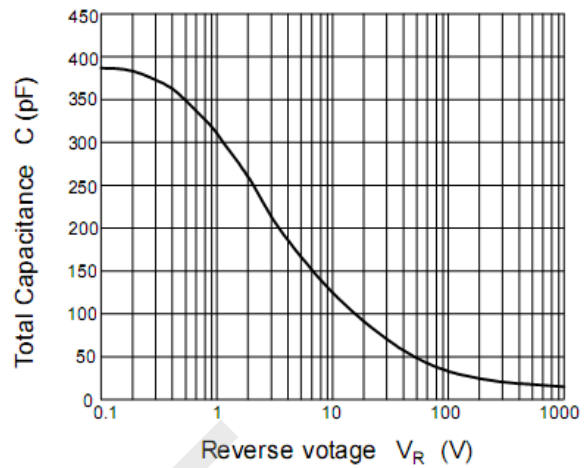


Figure 6. Capacitance vs. reverse voltage

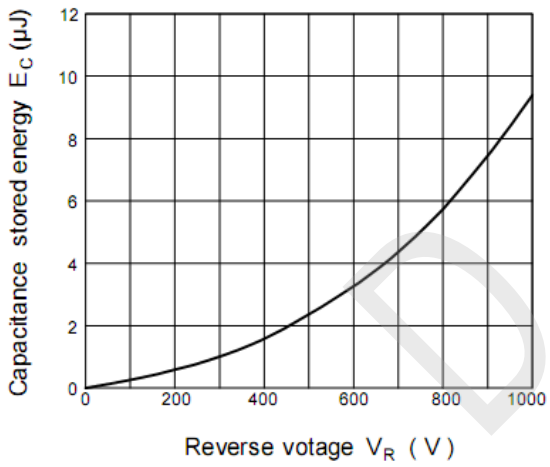


Figure 7. Capacitance stored energy

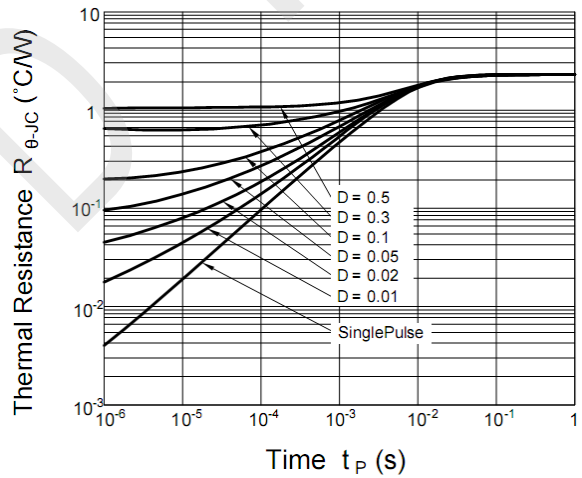
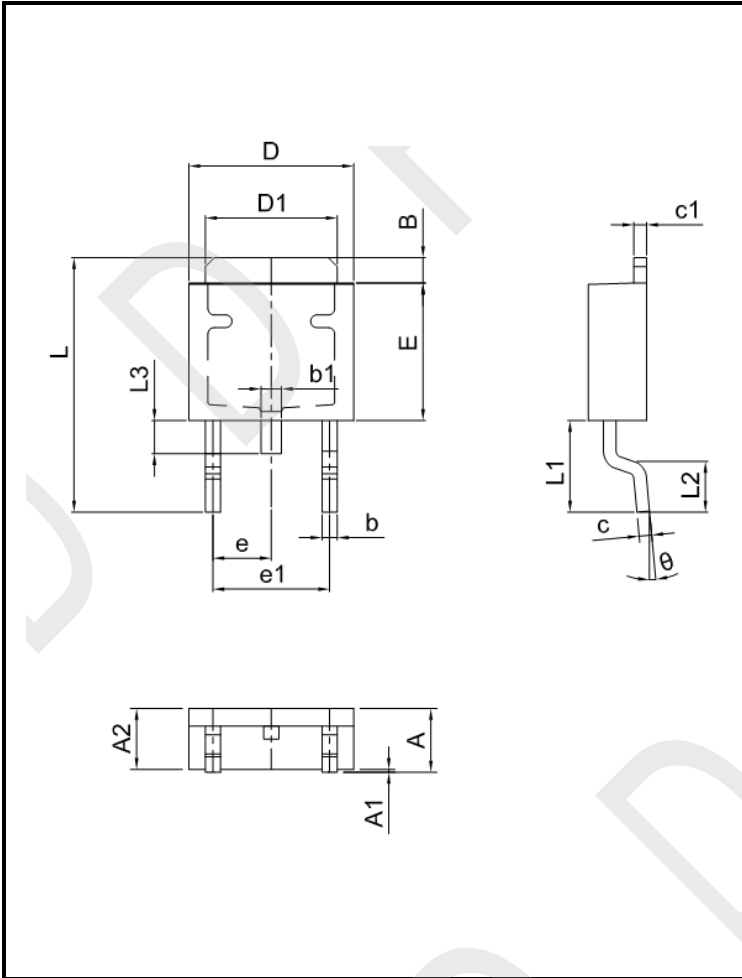


Figure 8. Transient Thermal Impedance

**Package Dimensions**


Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	9.60	10.20	0.378	0.402
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059