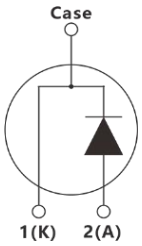
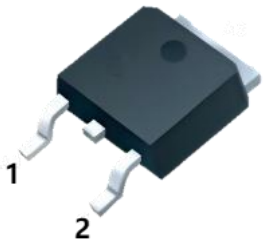
Silicon Carbide Schottky Diode

Parameter	Value	Unit
V_{RRM}	650	V
I_F	6	A
Q_C	25	nC





TO-252

Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

Applications

- Fast charging
- Switched-Mode Power Supply
- Power Factor Correction
- LED lighting driver

Maximum Ratings (at T_J=25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
DC Peak Reverse Voltage	V_R	650	V
Continuous Forward Current T_C=25℃ T_C=135℃ T_C=160℃	I_F	 18 8 6	A
Non-Repetitive Forward Surge Current T_C=25℃,tp =8.3ms,Half Sine Pulse T_C=110℃,tp =8.3ms,Half Sine Pulse	I_{FSM}	 60 32	A
Non-Repetitive Forward Surge Current T_C= 25℃,tp =8.3ms,Half Sine Pulse T_C=110℃,tp =8.3ms,Half Sine Pulse	$\int i^2 dt$	 14.95 4.25	A^2s
Power dissipation T_C=25℃ T_C=110℃	P_{tot}	 73.5 32	W
Operating junction Range	T_j	-55 to +175	℃
Storage temperature Range	T_{stg}	-55 to +150	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	1.70	℃/W

Electrical Characteristics(at T_J=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Value			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V_{DC}	T_j=25℃	650			V
Diode forward voltage	V_F	I_F=6A T_j=25℃ I_F=6A T_j=135℃ I_F=6A T_j=175℃		1.25 1.32 1.38	1.48 1.74 1.90	V
Reverse current	I_R	V_R=650V T_j=25℃ V_R=650V T_j=175℃		0.5 15	50 200	μA
Total capacitive charge	Q_C	V_R=400V T_j=25℃ Q_C= $\int_0^{VR}$ C(V)dV		25		nC
Total capacitance	C	V_R=1V f=1MHz V_R=300V f=1MHz V_R=600V f=1MHz		350 42 36		pF
Capacitance stored energy	E_C	V_R=400V		3.8		μJ

Typical Characteristics

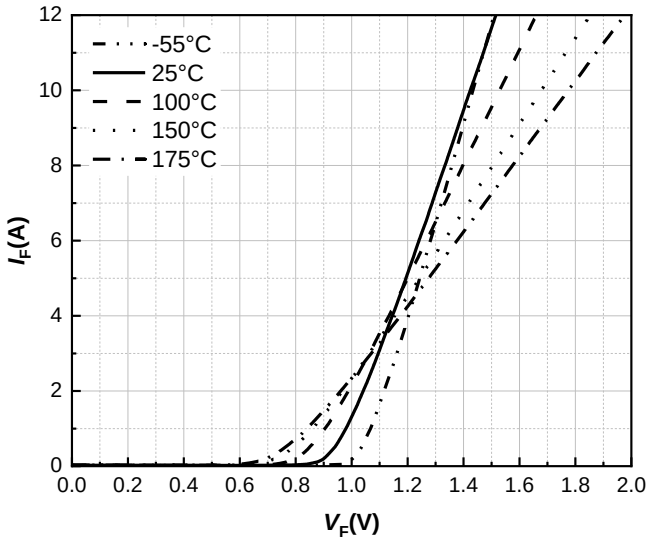


Fig 1. Typical forward characteristics

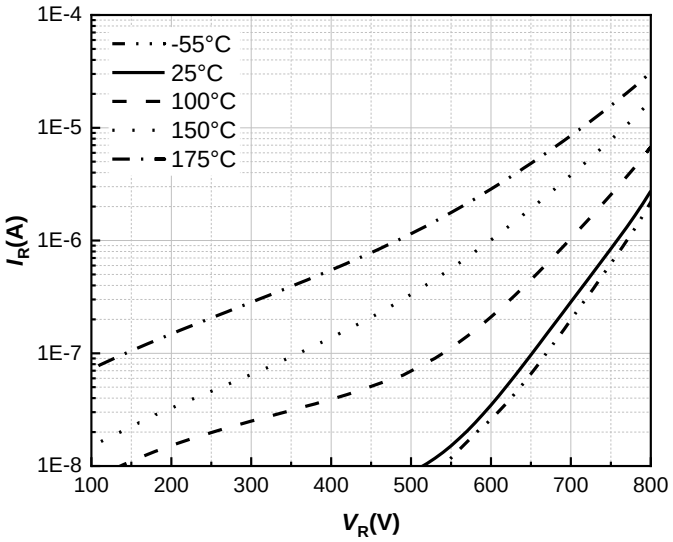


Fig 2. Typical reverse current as function of reverse voltage

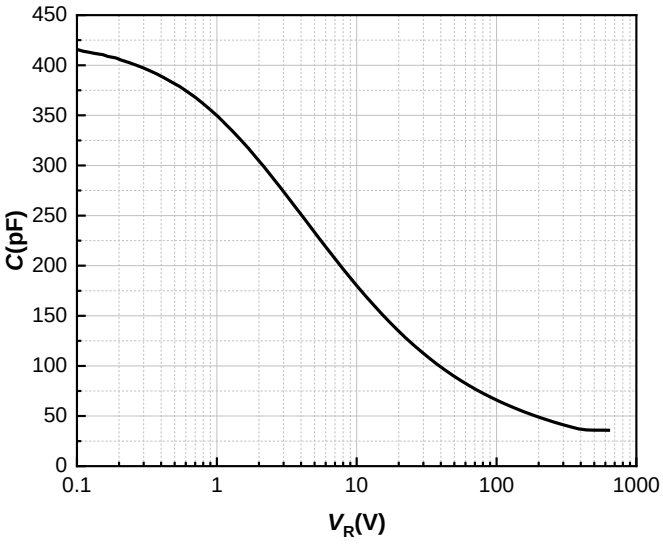


Fig 3. Typical capacitance as function of reverse voltage, C=f(V_R); T_j=25°C; f=1 MHz

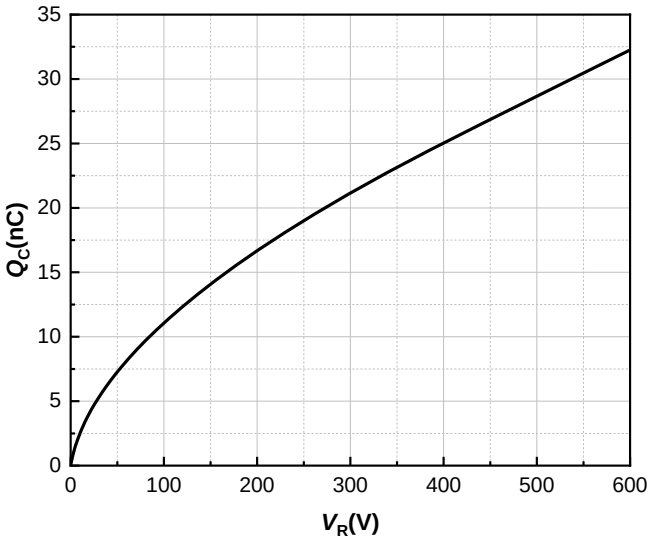
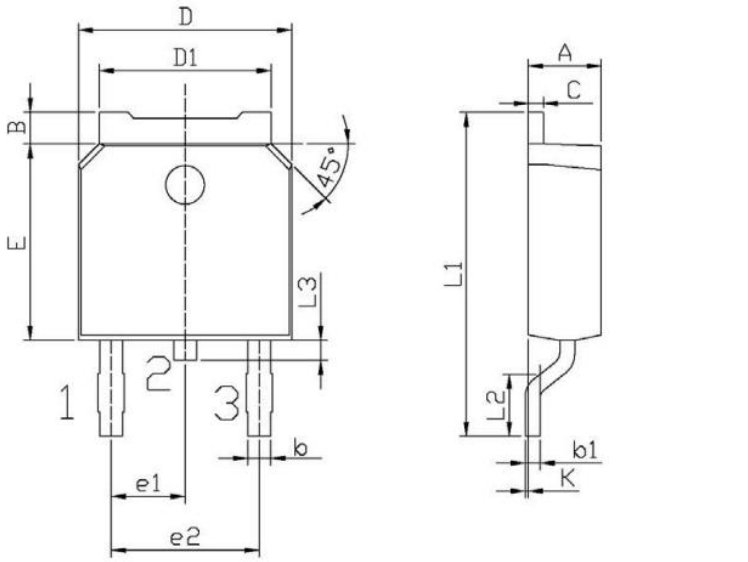


Fig 4. Typical reverse charge as function of reverse voltage

Package Outlines(Unit:mm)

TO-252

Unit: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.70	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.85	10.35
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.20	5.40	K	0.00	0.10

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