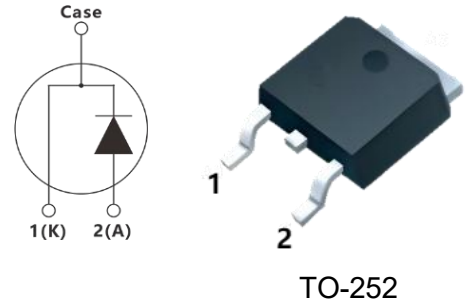


Silicon Carbide Schottky Diode

Parameter	Value	Unit
V_{RRM}	650	V
I_F	15	A
Q_C	32	nC



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 $T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
Continuous Forward Current $T_C = 25^\circ\text{C}$ $T_C = 125^\circ\text{C}$ $T_C = 133.5^\circ\text{C}$	I_F	31.3 16.8 15	A
Repetitive Peak Forward Surge Current $T_C = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse, $D=0.1$, 1000Cycle	I_{FRM}	50	A
Non-Repetitive Forward Surge Current $T_C = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse	I_{FSM}	100	A
i^2t Value $T_C = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse	$\int i^2 dt$	50	A^2s
Power dissipation $T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$	P_{tot}	116 50	W
Operating junction Range	T_J	-55 to +175	$^\circ\text{C}$
Storage temperature Range	T_{stg}	-55 to +175	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	1.29	°C/W

Electrical Characteristics(at $T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Blocking Voltage	V_{DC}		650			V
Instantaneous forward voltage per leg	V_F	$I_F=15\text{A}$ $T_J=25^\circ\text{C}$ $T_J=175^\circ\text{C}$		1.5 2.1	1.7 2.5	V
Reverse current per leg	I_R	$V_R=650\text{V}$ $T_J=25^\circ\text{C}$ $T_J=175^\circ\text{C}$		0.35 2.4	50 100	uA
Total Capacitance	C	$f=1\text{MHZ}$ $V_R=0\text{V}$ $V_R=200\text{V}$ $V_R=400\text{V}$		618 62 56		pF
Total Capacitive Charge	Q_C	$V_R=400\text{V}$ $T_J=25^\circ\text{C}$		32		nC
Capacitance Stored Energy	E_C	$V_R=400\text{V}$		8		uJ

Typical Characteristics

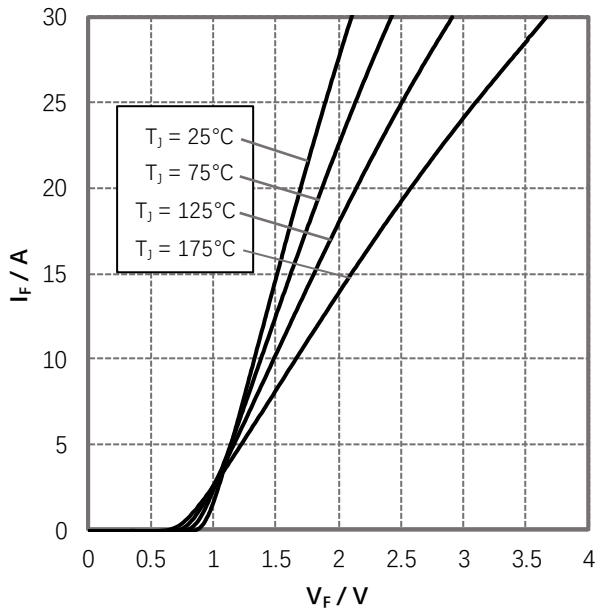


Figure 1. Forward Characteristics

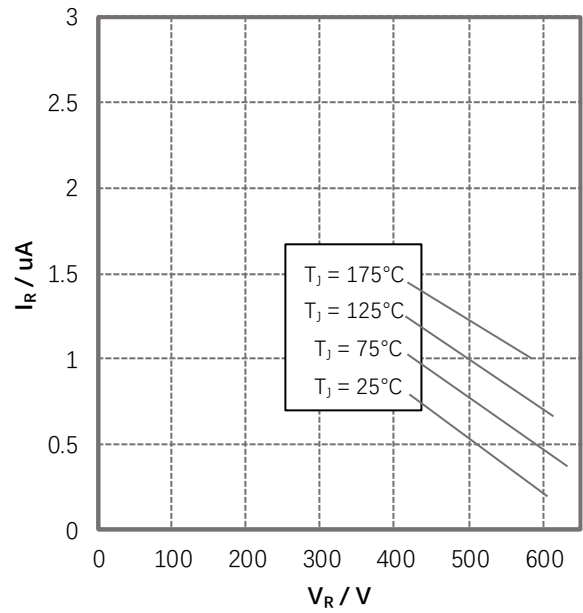


Figure 2. Reverse Characteristics

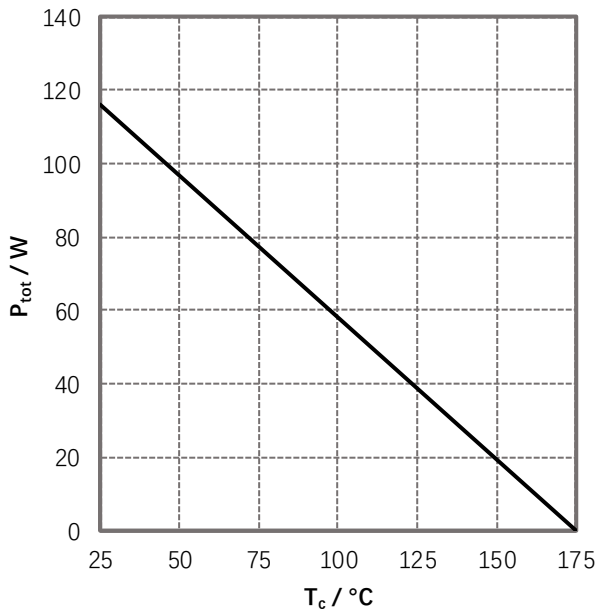


Figure 3. Power Derating

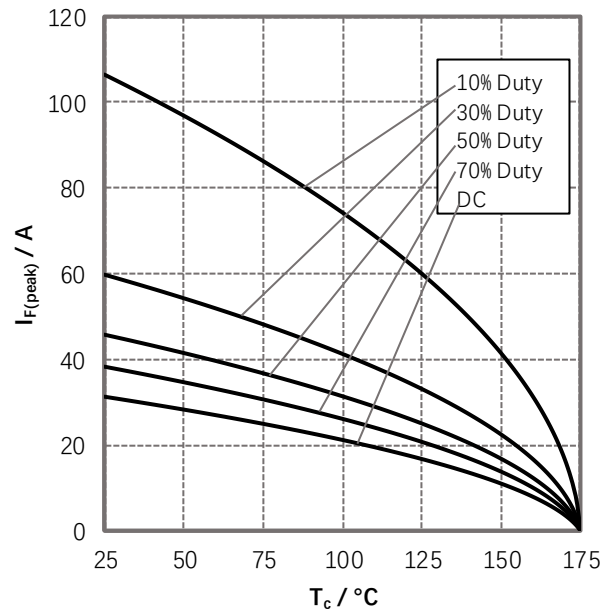


Figure 4. Current Derating

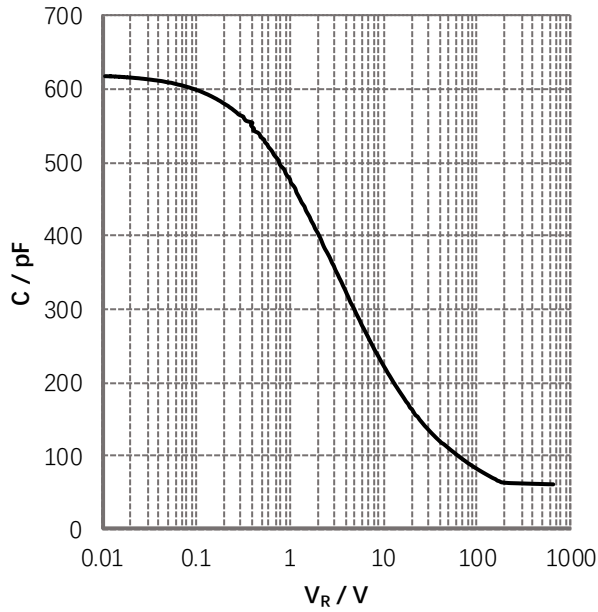


Figure 5. Capacitance vs. Reverse Voltage

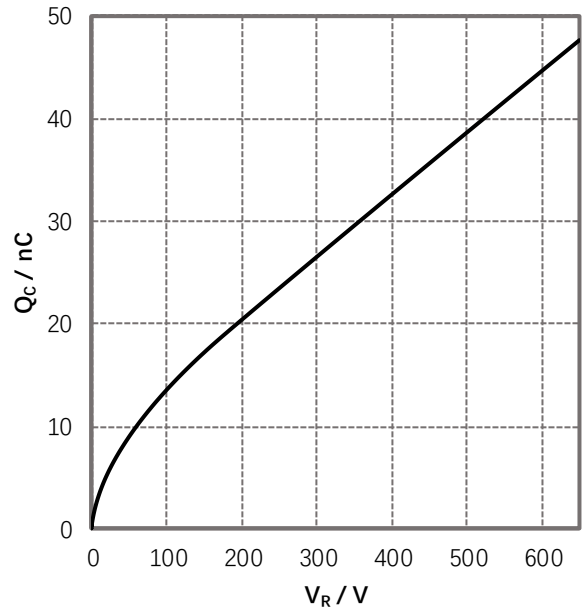


Figure 6. Reverse Charge vs. Reverse Voltage

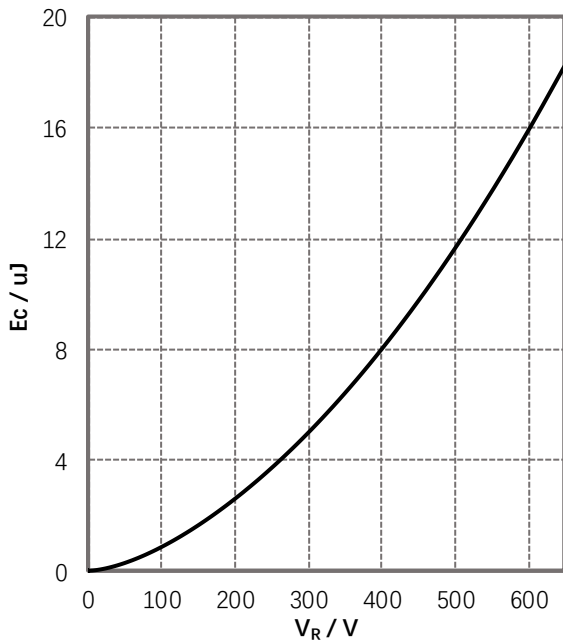


Figure 7. Capacitance Stored Energy

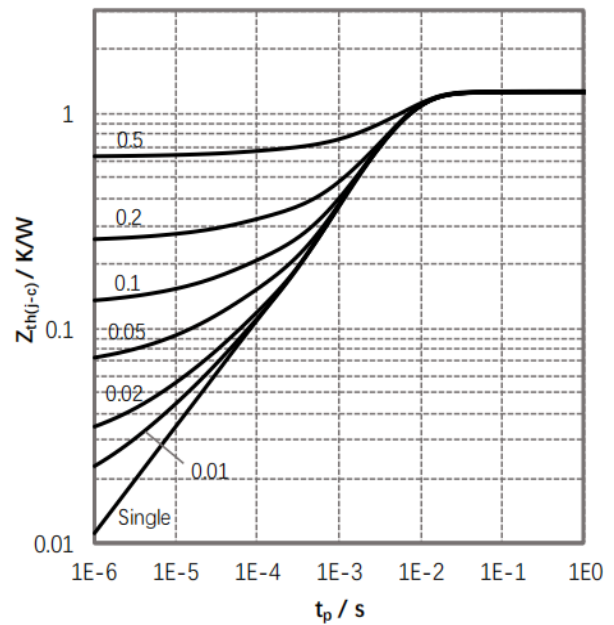
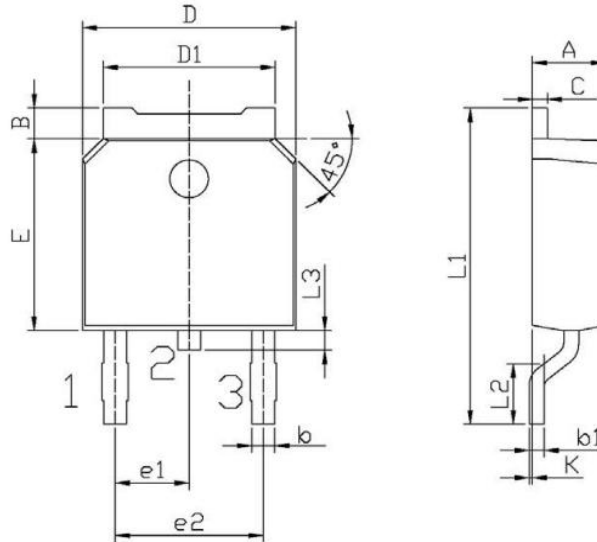


Figure 8. Transient Thermal Impedance

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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