

1200V Silicon Carbide Schottky Diode

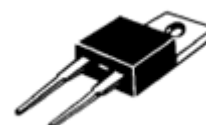
DESCRIPTION :

- Negligible reverse recovery
- High Speed Switching
- Positive temperature Coefficient
- Temperature Independent Switching
- RoHS Compliant

V_{RRM}	1200V
I_F	20A (TC=159°C)
Q_C	98nC

TYPICAL APPLICATIONS :

- Uninterruptible power supplies (UPS)
- Data Center
- Switch mode power supplies
- Solar inverters



TO-220AC

MAXIMUM RATINGS (at $T_C = 25^\circ\text{C}$, unless otherwise specified)

Characteristic	Condition	Symbol	Value	Unit
Repetitive Peak Reverse Voltage		V_{RRM}	1200	V
Continuous Forward Current	$T_C=25^\circ\text{C}$ $T_C=135^\circ\text{C}$ $T_C=159^\circ\text{C}$	I_F	73 35 20	A
Non-Repetitive Forward Surge Current	$T_C=25^\circ\text{C}$, $t_P=10\text{ms}$, Half sine pulse $T_C=110^\circ\text{C}$, $t_P=10\text{ms}$, Half sine pulse	I_{FSM}	120 94	A
Repetitive Peak Forward Surge Current	$T_C=25^\circ\text{C}$, $t_P=10\text{ms}$, Half sine pulse $T_C=110^\circ\text{C}$, $t_P=10\text{ms}$, Half sine pulse	I_{FRM}	105 80	A
i^2t value	$T_C=25^\circ\text{C}$, $t_P=10\text{ms}$ $T_C=110^\circ\text{C}$, $t_P=10\text{ms}$	$\int i^2 dt$	72 44	A^2S
Power dissipation	$T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$ $T_C=150^\circ\text{C}$	P_{tot}	348 151 58	W
Operation Junction temperature		T_J	-55~+175	$^\circ\text{C}$
Storage temperature		T_{STG}	-55~+175	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Typical	Unit
Thermal resistance, junction - case		$R_{th(j-c)}$	0.43	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS (at $T_c = 25^{\circ}\text{C}$, unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
DC Blocking Voltage	V_{DC}	1200			V
Forward Voltage IF = 10A IF = 20A, $T_c = 25^{\circ}\text{C}$ IF = 20A, $T_c = 150^{\circ}\text{C}$ IF = 20A, $T_c = 150$	V_F		1.22 1.45 1.80 1.90	1.70	V
Reverse Current VR = 1200V, $T_c = 25^{\circ}\text{C}$ VR = 1200V, $T_c = 150^{\circ}\text{C}$ VR = 1200V, $T_c = 175^{\circ}\text{C}$	I_R		2 110 160	150	μA
Total Capacitive Charge VR = 800V	Q_C		98		nC
Total capacitance VR = 1V, f = 1MHz VR = 400V, f = 1MHz VR = 800V, f = 1MHz	C		1100 92 78		pF
Capacitance Stored Energy VR = 800 V	E_C		30		μJ

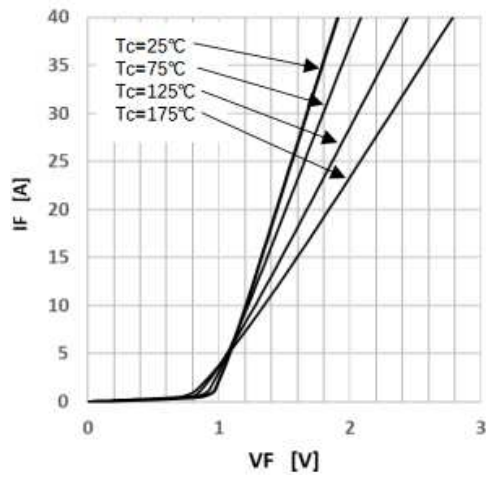


Figure 1. Forward characteristics

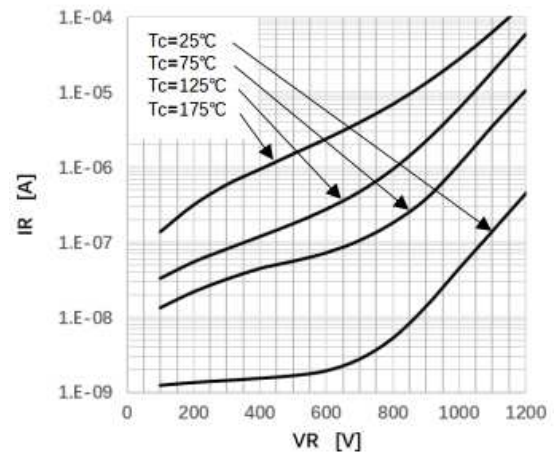


Figure 2. Reverse characteristics

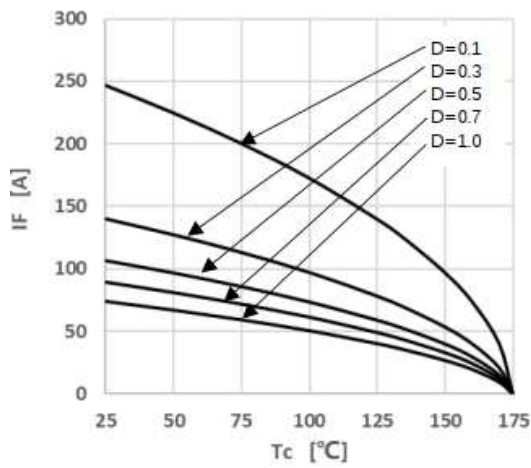


Figure 3. Peak Forward Current Derating

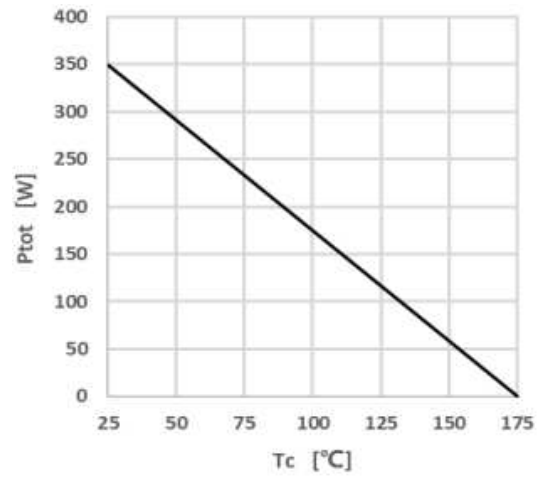


Figure 4. Power Dissipation

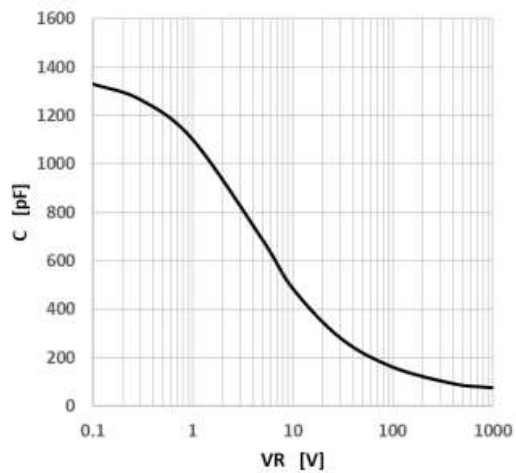


Figure 5. Capacitance vs. Reverse Voltage

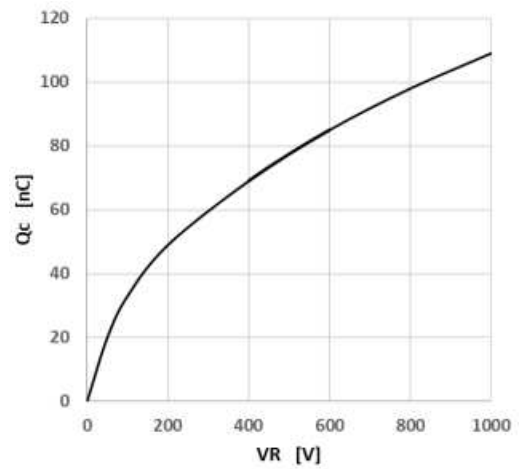


Figure 6. Capacitance Charge vs. Reverse Voltage

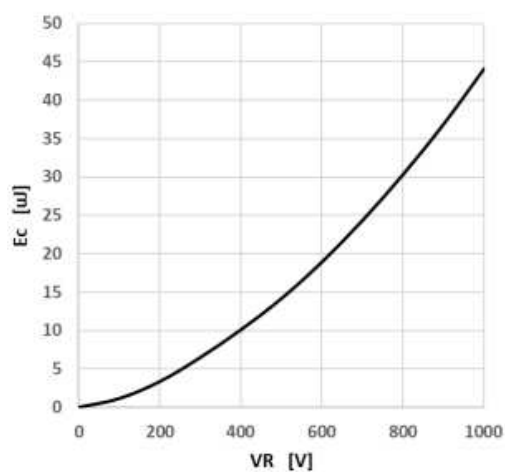


Figure 7. Capacitance Stored Energy

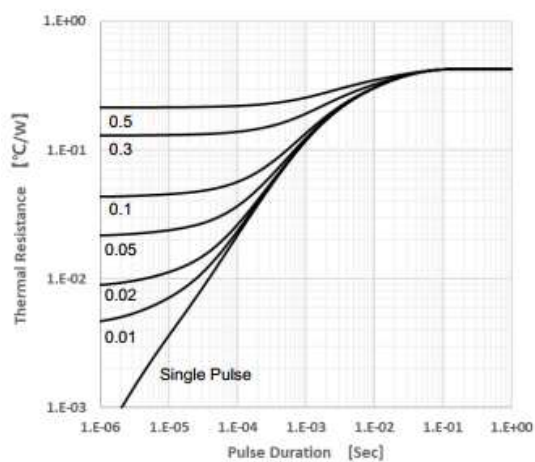
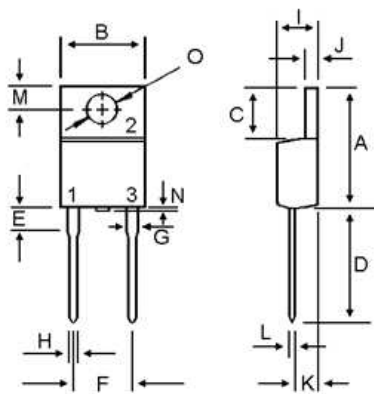


Figure 8. Transient Thermal Impedance

- Circuit diagram



- TO-220AC Package outlines : Dimensions in (mm)



DIM	MILLIMETERS	
	MIN	MAX
A	14.68	16.00
B	9.78	10.42
C	5.02	6.60
D	13.00	14.62
E	3.10	4.19
F	4.82	5.34
G	1.10	1.67
H	0.69	1.01
I	4.22	4.98
J	1.14	1.40
K	2.20	3.30
L	0.28	0.61
M	2.48	3.00
N	---	2.00
O	3.50	4.00

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