

1200V Silicon Carbide Schottky Diode

DESCRIPTION :

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

V_{RRM}	1200V
I_F	10/20A (TC=159°C)
Q_C	52/104nC



TO-247AB

TYPICAL APPLICATIONS :

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

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	36 / 72 18 / 36 10 / 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}	60 / 120 45 / 90	A
Repetitive Peak Forward Surge Current	$T_C=25^\circ\text{C}$, $t_P=10\text{ms}$, Half sine pulse	I_{FRM}	55 / 110	A
i^2t value	$T_C=25^\circ\text{C}$, $t_P=10\text{ms}$ $T_C=110^\circ\text{C}$, $t_P=10\text{ms}$	$\int i^2 dt$	18 / 72 10 / 41	A^2S
Power dissipation	$T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$ $T_C=150^\circ\text{C}$	P_{tot}	204 / 408 88 / 176 34 / 68	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		$R_{th(j-c)}$	0.736	$^{\circ}\text{C}/\text{W}$

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 = 5A IF = 10A, $T_c = 25^{\circ}\text{C}$ IF = 10A, $T_c = 175^{\circ}\text{C}$	V_F		1.20 1.43 2.00	1.7	V
Reverse Current VR = 1200V, $T_c = 25^{\circ}\text{C}$ VR = 1200V, $T_c = 175^{\circ}\text{C}$	I_R		2 4	60	μA
Total Capacitive Charge VR = 800V	Q_C		52		nC
Total capacitance VR = 1V, f = 1MHz VR = 400V, f = 1MHz VR = 800V, f = 1MHz	C		546 47 41		pF
Capacitance Stored Energy VR = 800 V	E_C		15.86		μJ

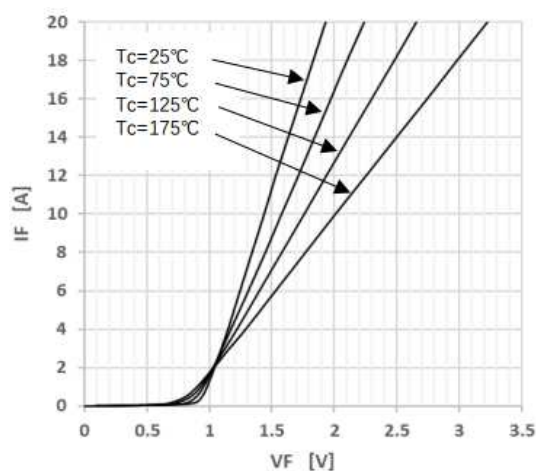


Figure 1. Forward characteristics

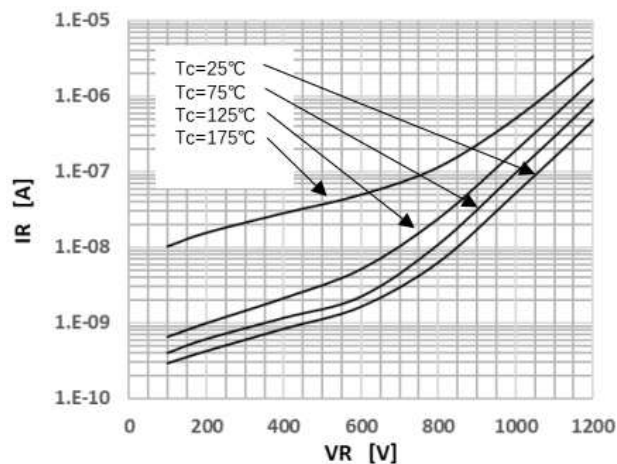


Figure 2. Reverse characteristics

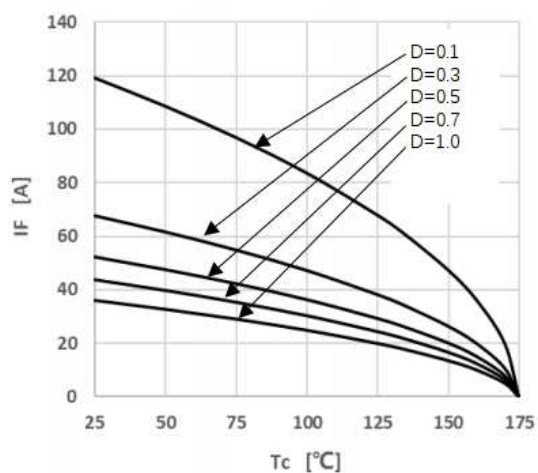


Figure 3. Peak Forward Current Derating

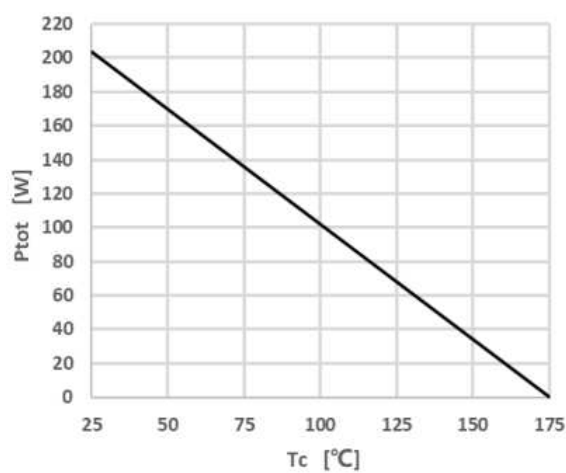


Figure 4. Power Dissipation

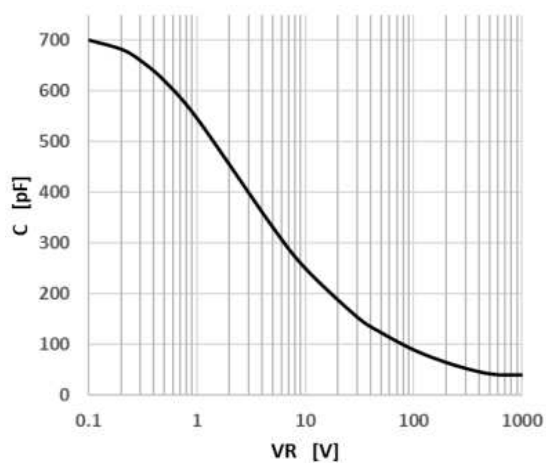


Figure 5. Capacitance vs. Reverse Voltage

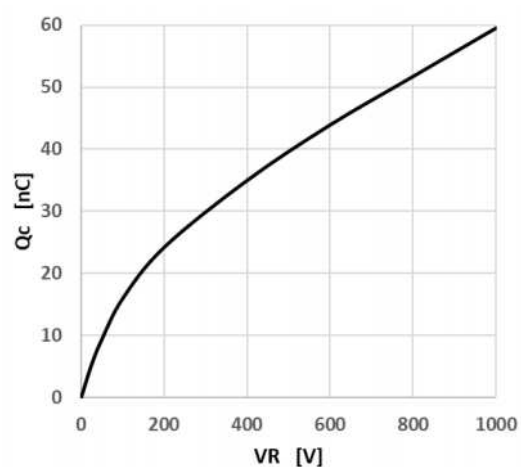


Figure 6. Capacitance Charge vs. Reverse Voltage

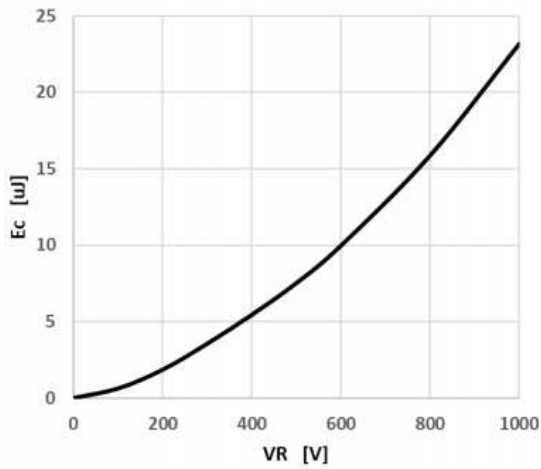


Figure 7. Capacitance Stored Energy

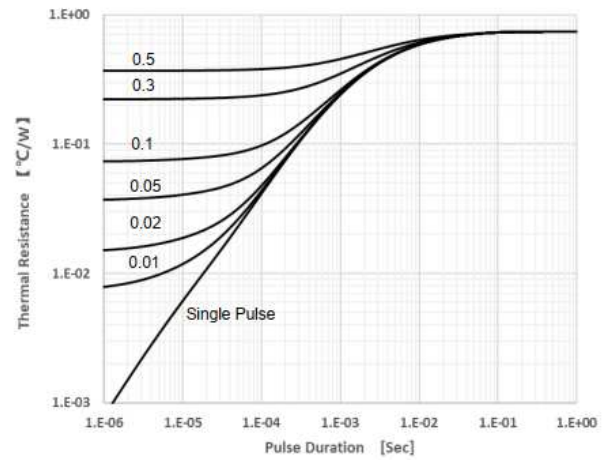
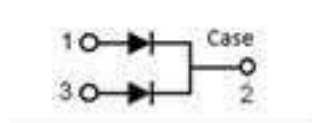
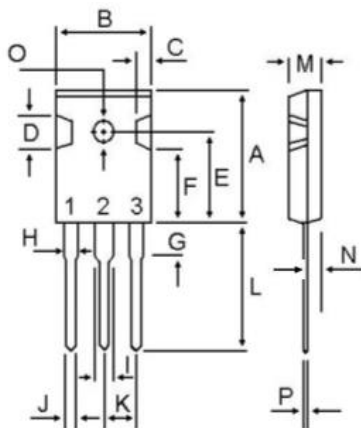


Figure 8. Transient Thermal Impedance

- Circuit diagram



- TO-247AB Package outlines : Dimensions in (mm)



DIM	MILLIMETERS	
	MIN	MAX
A	20.80	21.80
B	15.38	16.20
C	1.90	2.70
D	5.10	6.10
E	14.50	15.50
F	11.20	13.20
G	3.75	4.35
H	1.90	2.30
I	2.90	3.30
J	1.00	1.40
K	5.26	5.66
L	19.50	20.50
M	4.68	5.36
N	2.30	2.60
O	3.45	3.85
P	0.48	0.72

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