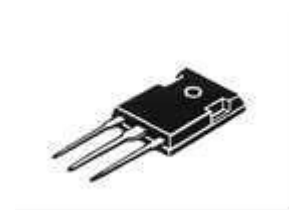


## 1200V Silicon Carbide Schottky Diode

### DESCRIPTION :

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

$V_{RRM}$	1200V
$I_F$	20/40A (TC=158°C)
$Q_C$	98/196nC



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	$T_C=25^\circ\text{C}$ $T_C=135^\circ\text{C}$ $T_C=158^\circ\text{C}$	$I_F$	71 / 142 34 / 68 20 / 40	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	$I_{FSM}$	110 / 200 88 / 176	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	$I_{FRM}$	98 / 196 82 / 164	A
$i^2t$ value	$T_C=25^\circ\text{C}$ , $t_P=10\text{ms}$ $T_C=110^\circ\text{C}$ , $t_P=10\text{ms}$	$\int i^2 dt$	60 / 242 38 / 154	$\text{A}^2\text{S}$
Power dissipation	$T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$ $T_C=150^\circ\text{C}$	$P_{tot}$	308 / 616 133 / 266 51 / 103	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		$R_{th(j-c)}$	0.486	$^{\circ}\text{C}/\text{W}$

**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, $T_c = 175^{\circ}\text{C}$	$V_F$		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	$\mu\text{A}$
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		$\mu\text{J}$

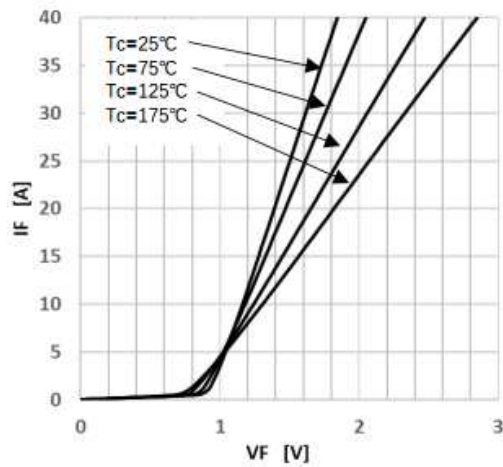


Figure 1. Forward characteristics

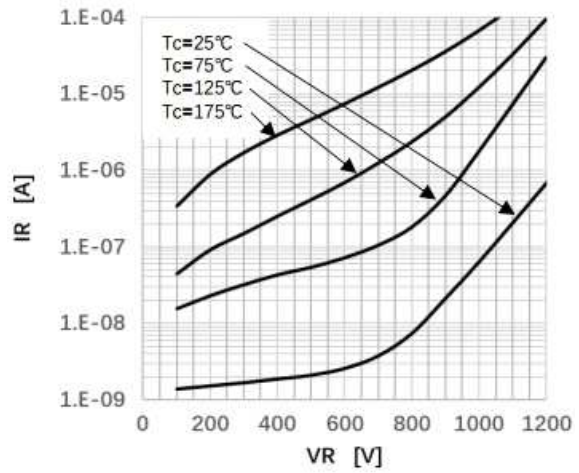


Figure 2. Reverse characteristics

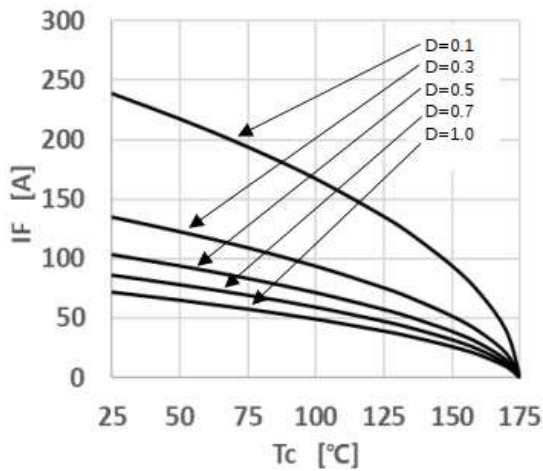


Figure 3. Peak Forward Current Derating

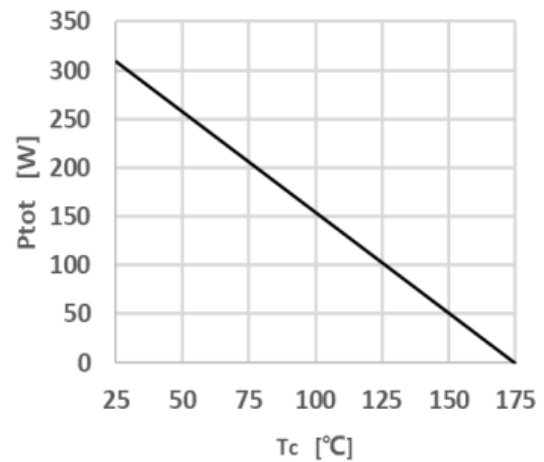


Figure 4. Power Dissipation

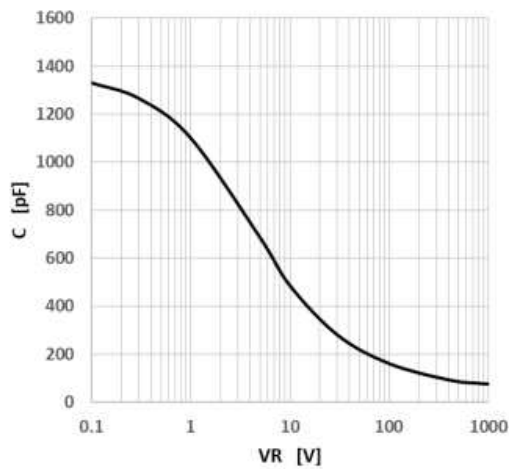


Figure 5. Capacitance vs. Reverse Voltage

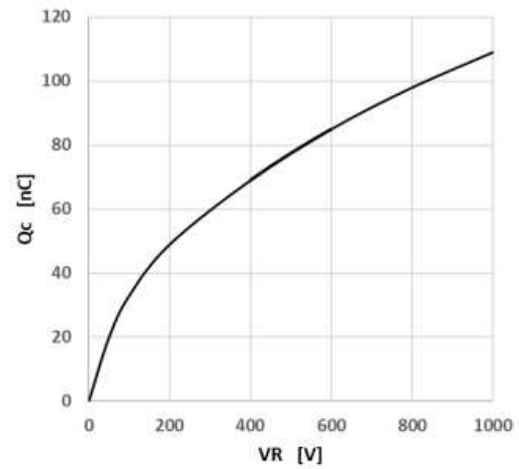


Figure 6. Capacitance Charge vs. Reverse Voltage

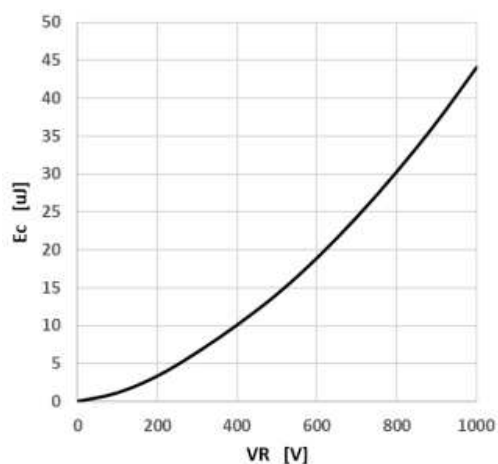


Figure 7. Capacitance Stored Energy

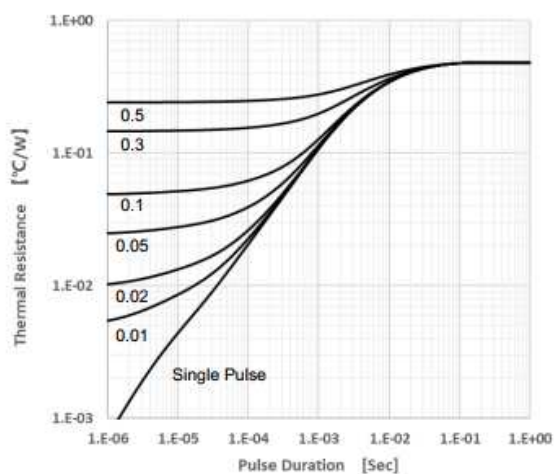
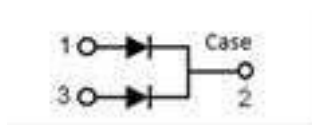
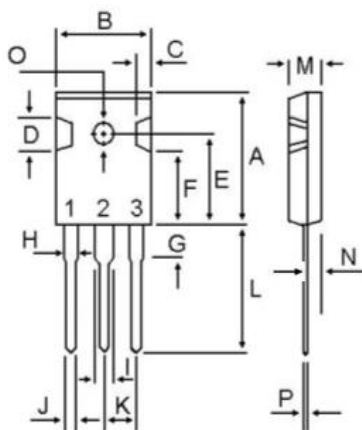


Figure 8. Transient Thermal Impedance

- 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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