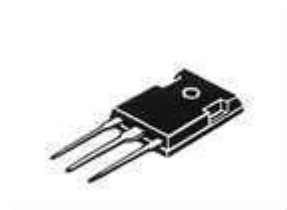


## 900V Silicon Carbide Schottky Diode

### DESCRIPTION :

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

$V_{RRM}$	900V
$I_F$	20/40A (TC=155°C)
$Q_C$	106/212nC



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		$V_{RRM}$	900	V
Continuous Forward Current	$T_C=25^\circ\text{C}$ $T_C=135^\circ\text{C}$ $T_C=150^\circ\text{C}$	$I_F$	63 / 126 30 / 60 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	$I_{FSM}$	125 / 250 98 / 196	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	$I_{FRM}$	110 / 220 95 / 190	A
$i^2t$ value	$T_C=25^\circ\text{C}$ , $t_P=10\text{ms}$ $T_C=110^\circ\text{C}$ , $t_P=10\text{ms}$	$\int i^2 dt$	78 / 312 48 / 192	$\text{A}^2\text{S}$
Power dissipation	$T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$ $T_C=150^\circ\text{C}$	$P_{tot}$	297 / 594 128 / 256 49 / 98	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		$R_{th(j-c)}$	0.505	$^{\circ}\text{C}/\text{W}$

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

Characteristic	Symbol	Min.	Typ.	Max.	Unit
DC Blocking Voltage	$V_{DC}$	900			V
Forward Voltage IF = 10A IF = 20A, $T_c = 25^{\circ}\text{C}$ IF = 20A, $T_c = 125^{\circ}\text{C}$ IF = 20A, $T_c = 175^{\circ}\text{C}$	$V_F$		1.16 1.39 1.69 1.89	1.6	V
Reverse Current VR = 900V, $T_c = 25^{\circ}\text{C}$ VR = 900V, $T_c = 125^{\circ}\text{C}$ VR = 900V, $T_c = 175^{\circ}\text{C}$	$I_R$		6 10 20	200	$\mu\text{A}$
Total Capacitive Charge VR = 600V	$Q_C$		106		nC
Total capacitance VR = 1V, $f = 1\text{MHz}$ VR = 300V, $f = 1\text{MHz}$ VR = 600V, $f = 1\text{MHz}$	C		1362 126 90		pF
Capacitance Stored Energy VR = 600 V	$E_c$		22.5		$\mu\text{J}$

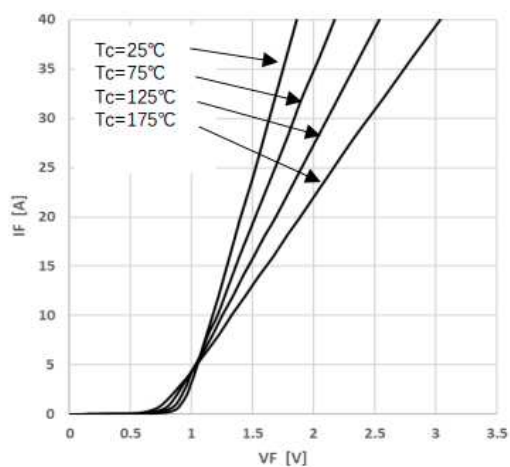


Figure 1. Forward characteristics

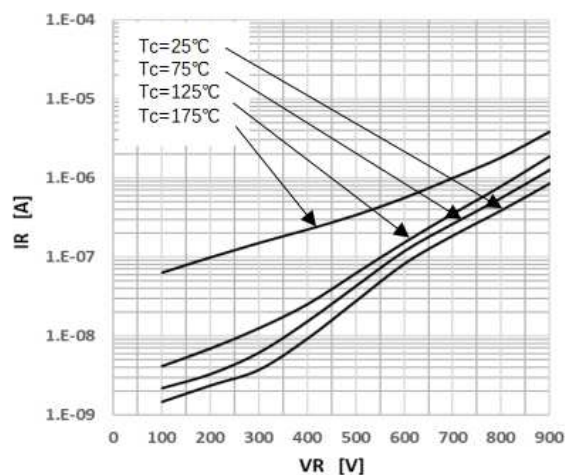


Figure 2. Reverse characteristics

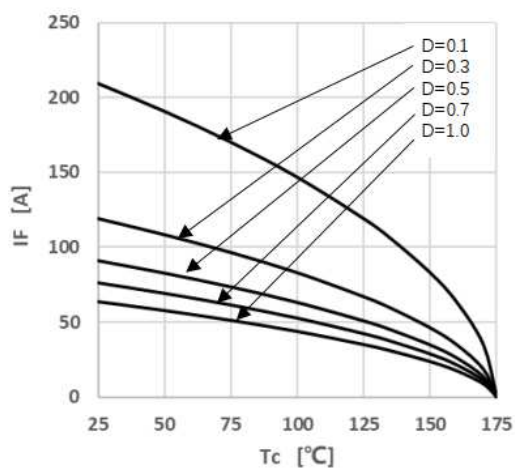


Figure 3. Peak Forward Current Derating

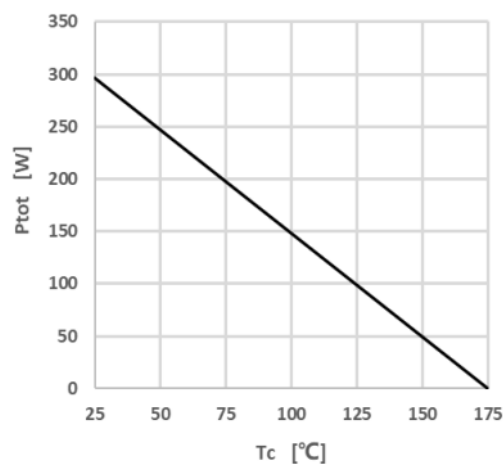


Figure 4. Power Dissipation

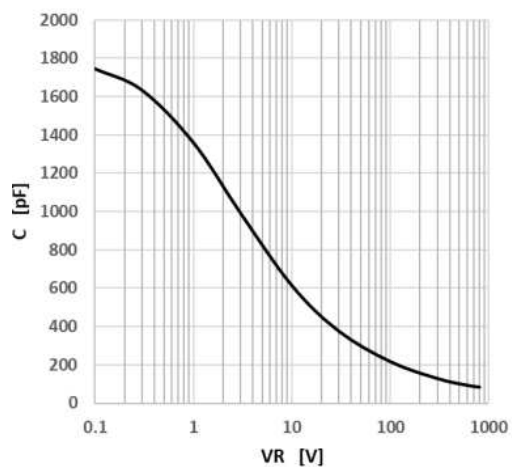


Figure 5. Capacitance vs. Reverse Voltage

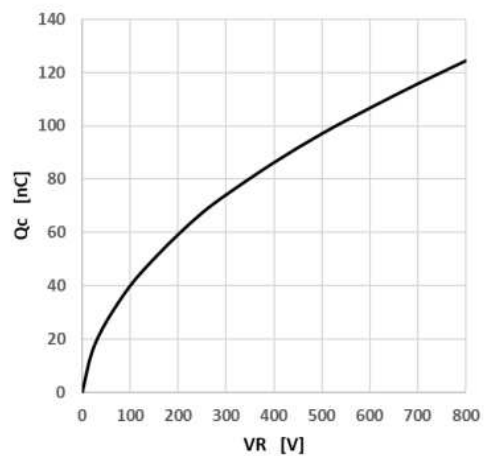


Figure 6. Capacitance Charge vs. Reverse Voltage

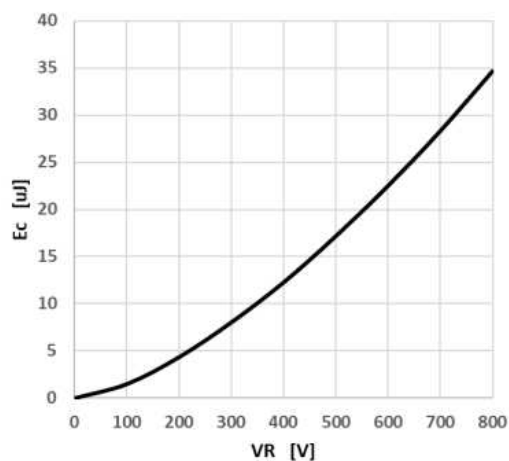


Figure 7. Capacitance Stored Energy

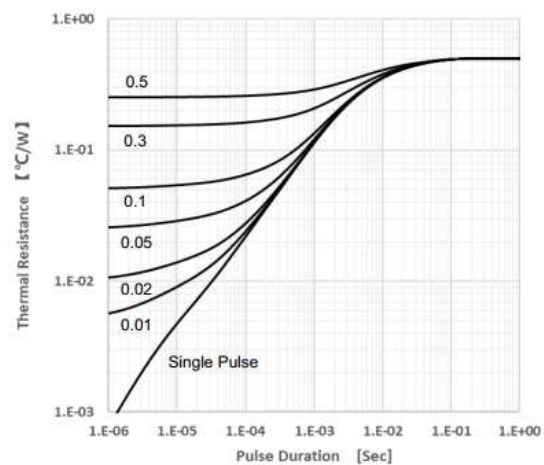
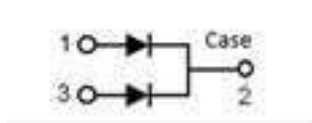
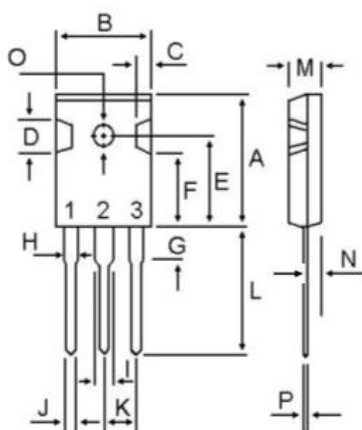


Figure 8. Transient Thermal Impedance

- 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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