

1200V Silicon Carbide Schottky Diode

DESCRIPTION :

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation
- RoHS Compliant

V_{RRM}	1200V
I_F	25A (Tc=152°C)*
Q_C	103nC*

*per leg

TYPICAL APPLICATIONS :

- SMPS, PFC
- Solar application, UPS, EV/HEV
- Motor drives, Wind turbine, Rail traction



TO-247AB

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

Characteristic	Condition	Symbol	Value	Unit
Repetitive Peak Reverse Voltage		V_{RRM}	1200	V
Surge Peak Reverse Voltage		V_{RSM}	1200	V
Continuous Forward Current	Tc=25°C Tc=135°C Tc=152°C	I_F	72.4* 34.5* 25*	A
Non-Repetitive Forward Surge Current	Tc=25°C , t _p =10ms, Half sine pulse	I_{FSM}	220*	A
Repetitive Peak Forward Surge Current	Tc=25°C , t _p =10ms, Half sine pulse	I_{FRM}	110*	A
i ² t value	Tc=25°C , t _p =10ms, Half sine pulse	$\int i^2 dt$	242*	A ² S
Power dissipation	Tc=25°C Tc=110°C	P_{tot}	341* 148*	W
Operation Junction temperature		T_j	-55~+175	°C
Storage temperature		T_{STG}	-55~+175	°C

* Per leg; **Per device

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Typical	Unit
Thermal resistance, junction - case		$R_{th(j-c)}$	0.44* 0.22**	$^{\circ}C/W$

* Per leg; **Per device

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

Characteristic	Symbol	Min.	Typ.	Max.	Unit
DC Blocking Voltage	V_{DC}	1200			V
Forward Voltage IF = 25A, $T_J = 25^{\circ}C$ IF = 25A, $T_J = 175^{\circ}C$	V_F		1.48 2.21	1.7 2.5	V
Reverse Current VR = 1200V, $T_J = 25^{\circ}C$ VR = 1200V, $T_J = 175^{\circ}C$	I_R		7.5 41	50 100	μA
Total Capacitive Charge VR = 800V	Q_C		103		nC
Total capacitance VR = 0V, f = 1MHz VR = 400V, f = 1MHz VR = 800V, f = 1MHz	C		1495.5 94.5 84		pF
Capacitance Stored Energy VR = 800 V	E_C		52.5		μJ

Typical Characteristics Curves (Per leg)

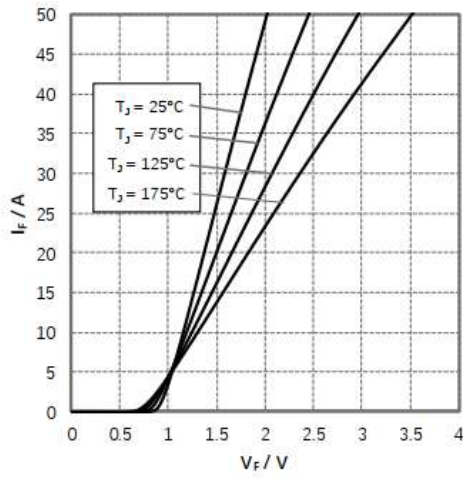


Figure 1. Forward characteristics

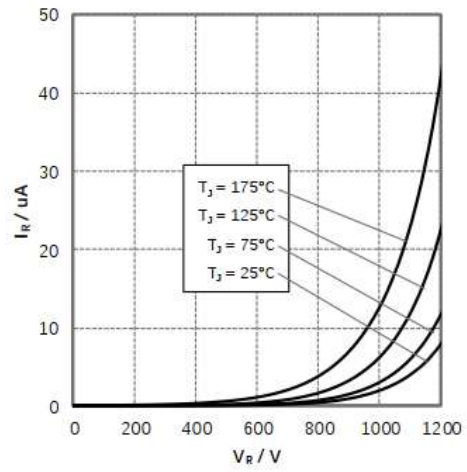


Figure 2. Reverse characteristics

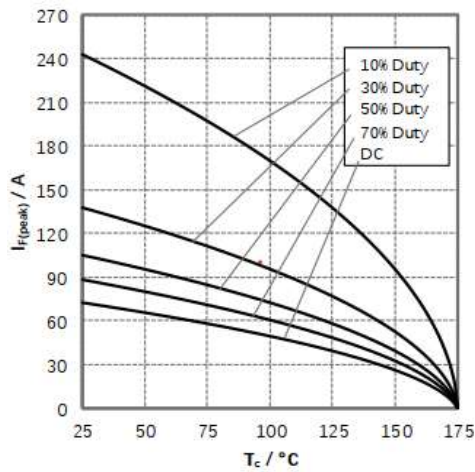


Figure 3. Current Derating

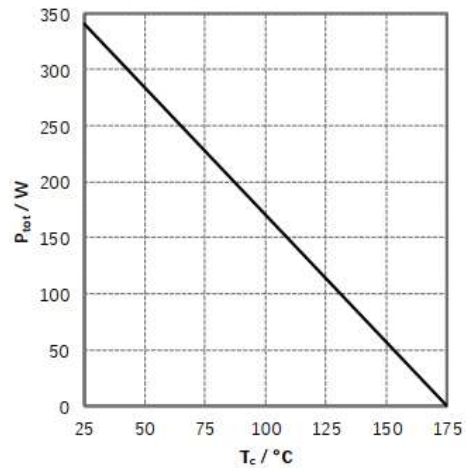


Figure 4. Power Dissipation

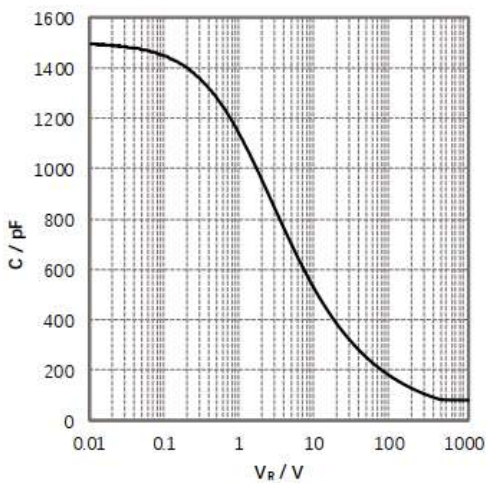


Figure 5. Capacitance vs. Reverse Voltage

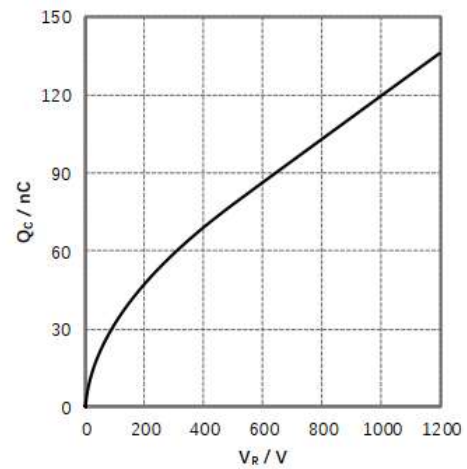


Figure 6. Capacitance Charge vs. Reverse Voltage

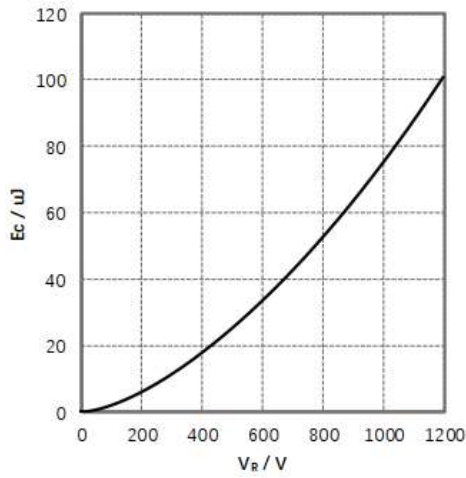


Figure 7. Capacitance Stored Energy

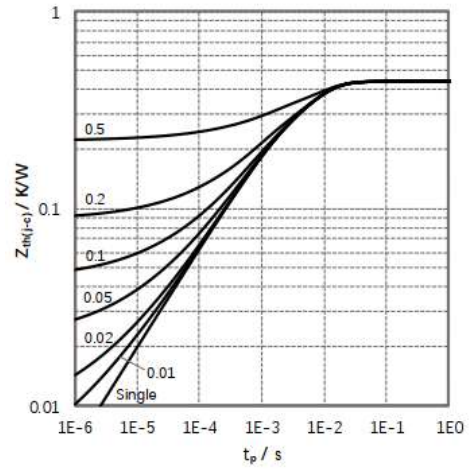
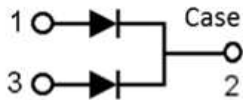
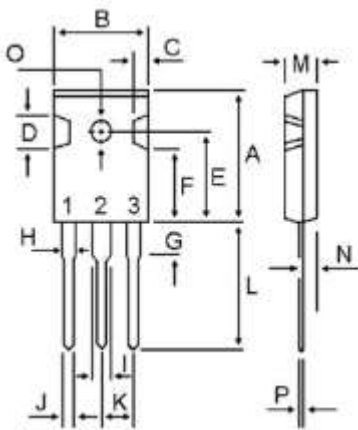


Figure 8. Transient Thermal Impedance

• 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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