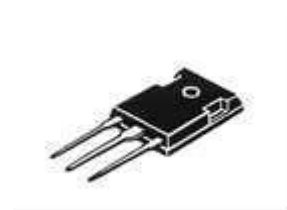


650V Silicon Carbide Schottky Diode

DESCRIPTION :

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

V_{RRM}	650V
I_F	8/16A (TC=150°C)
Q_C	23/46nC



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}	650	V
Continuous Forward Current	$T_C=25^\circ\text{C}$ $T_C=135^\circ\text{C}$ $T_C=150^\circ\text{C}$	I_F	21 / 42 10 / 20 8 / 16	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}	74 / 168 65 / 130	A
Repetitive Peak Forward Surge Current	$T_C=25^\circ\text{C}$, $t_P=10\text{ms}$, Half sine pulse	I_{FRM}	66 / 132	A
i^2t value	$T_C=25^\circ\text{C}$, $t_P=10\text{ms}$ $T_C=110^\circ\text{C}$, $t_P=10\text{ms}$	$\int i^2 dt$	27 / 109 21 / 84	A^2S
Power dissipation	$T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$ $T_C=150^\circ\text{C}$	P_{tot}	86 / 172 37 / 74 14 / 28	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		$R_{th(j-c)}$	1.734	$^{\circ}\text{C}/\text{W}$

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

Characteristic	Symbol	Min.	Typ.	Max.	Unit
DC Blocking Voltage	V_{DC}	650			V
Forward Voltage IF = 4A IF = 8A, $T_c = 25^{\circ}\text{C}$ IF = 8A, $T_c = 175^{\circ}\text{C}$	V_F		1.18 1.39 1.74	1.6	V
Reverse Current VR = 650V, $T_c = 25^{\circ}\text{C}$ VR = 650V, $T_c = 175^{\circ}\text{C}$	I_R		6 12	60	μA
Total Capacitive Charge VR = 400V	Q_C		23		nC
Total capacitance VR = 1V, f = 1MHz VR = 200V, f = 1MHz VR = 400V, f = 1MHz	C		338 44 43		pF
Capacitance Stored Energy VR = 400 V	E_C		3.8		μJ

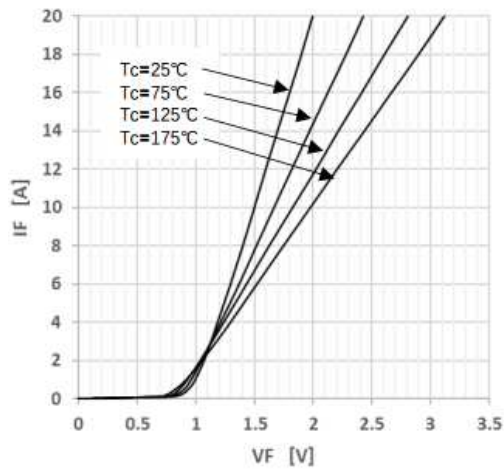


Figure 1. Forward characteristics

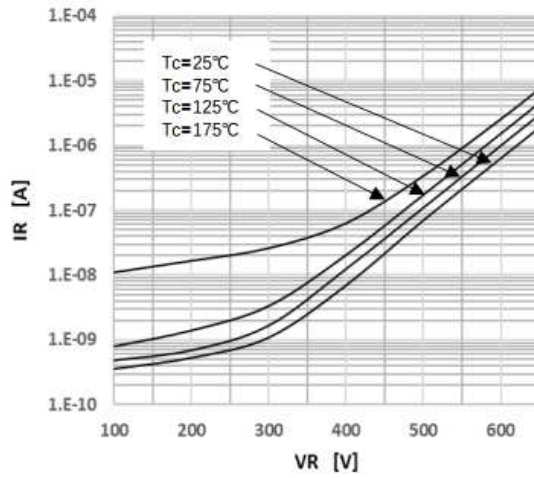


Figure 2. Reverse characteristics

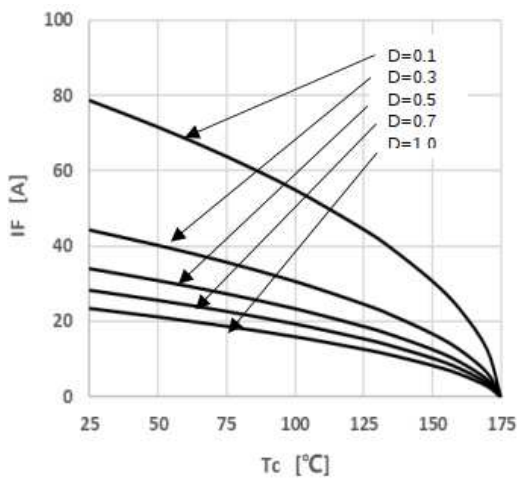


Figure 3. Peak Forward Current Derating

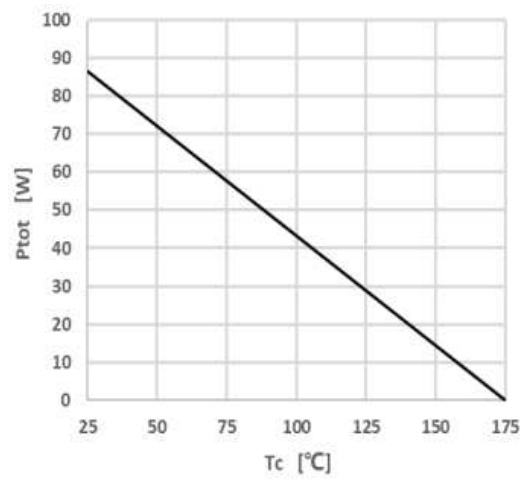


Figure 4. Power Dissipation

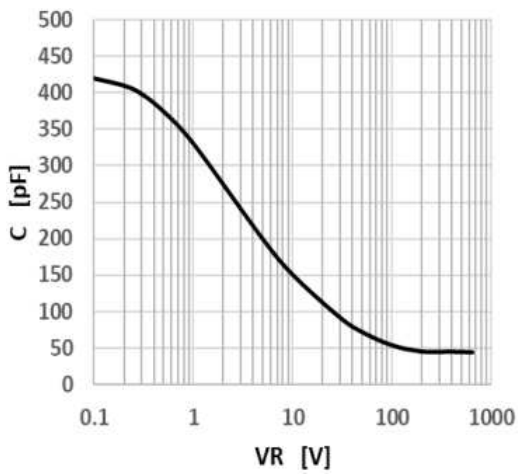


Figure 5. Capacitance vs. Reverse Voltage

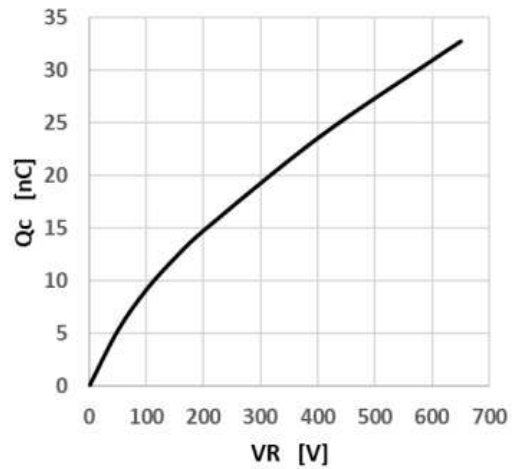


Figure 6. Capacitance Charge vs. Reverse Voltage

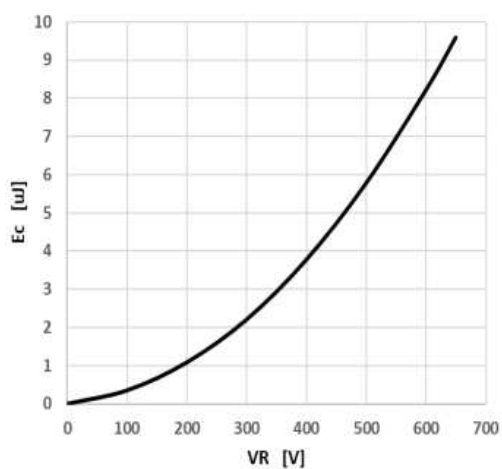


Figure 7. Capacitance Stored Energy

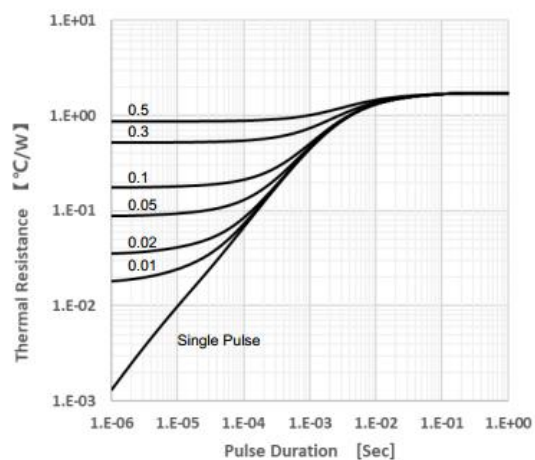
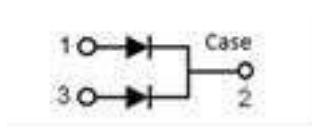
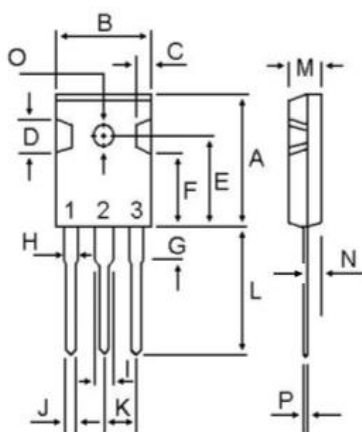


Figure 8. Transient Thermal Impedance

- 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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