MOSPEC

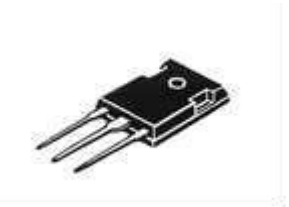
MIG40065D

650V Silicon Carbide Schottky Diode

DESCRIPTION：

- Positive temperature Coefficient
- High Speed Switching
- No reverse recovery
- High surge current capability
- RoHS Compliant

V_{RRM}	650V
I_F	20/40A (TC=151℃)
Q_C	62/124nC



TO-247AB

TYPICAL APPLICATIONS：

- Power factor correction
- Data Center
- Switch mode power supplies
- Solar inverters

MAXIMUM RATINGS (at T_C = 25 °C, unless otherwise specified)

Characteristic	Condition	Symbol	Value	Unit
Repetitive Peak Reverse Voltage		V_{RRM}	650	V
Continuous Forward Current	Tc=25℃ Tc=135℃ Tc=151℃	I_F	58 / 116 28 / 56 20 / 40	A
Non-Repetitive Forward Surge Current	Tc=25℃ , t_P=10ms, Half sine pulse Tc=110℃ , t_P=10ms, Half sine pulse	I_{FSM}	173 / 346 160 / 320	A
Repetitive Peak Forward Surge Current	Tc=25℃ , t_P=10ms, Half sine pulse	I_{FRM}	168 / 336	A
i^2t value	Tc=25℃ , t_P=10ms Tc=110℃ , t_P=10ms	$\int i^2dt$	150 / 599 128 / 512	A^2S
Power dissipation	Tc=25℃ Tc=110℃ Tc=150℃	P_{tot}	227 / 454 99 / 198 38 / 76	W
Operation Junction temperature		Tj	-55~+175	℃
Storage temperature		T_{STG}	-55~+175	℃

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Typical	Unit
Thermal resistance, junction - case		$R_{th(j-C)}$	0.655	℃/W

ELECTRICAL CHARATERISTICS (at T_C = 25 °C, unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
DC Blocking Voltage	V_{DC}	650			V
Forward Voltage IF = 10A IF = 20A, Tc =25℃ IF = 20A, Tc =175℃	V_F		1.16 1.35 1.70	1.6	V
Reverse Current VR = 650V, Tc =25℃ VR = 650V, Tc =175℃	I_R		6 15	100	uA
Total Capacitive Charge VR = 400V	Q_C		62		nC
Total capacitance VR = 1V, f =1MHz VR = 200V, f =1MHz VR = 400V, f =1MHz	C		906 122 118		pF
Capacitance Stored Energy VR = 400 V	Ec		10		uJ

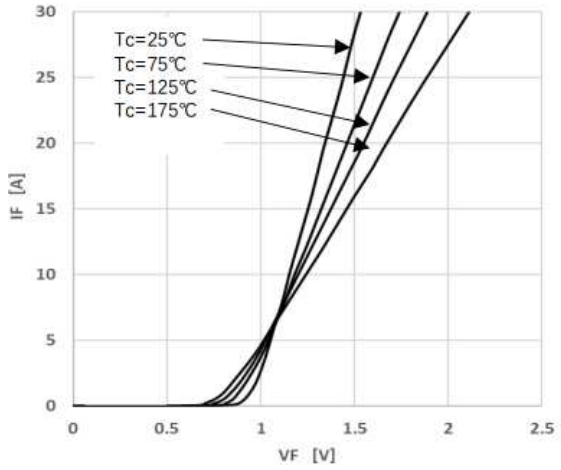


Figure 1. Forward characteristics

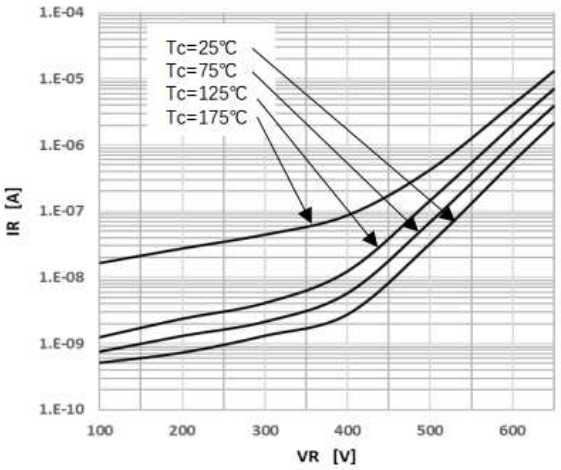


Figure 2. Reverse characteristics

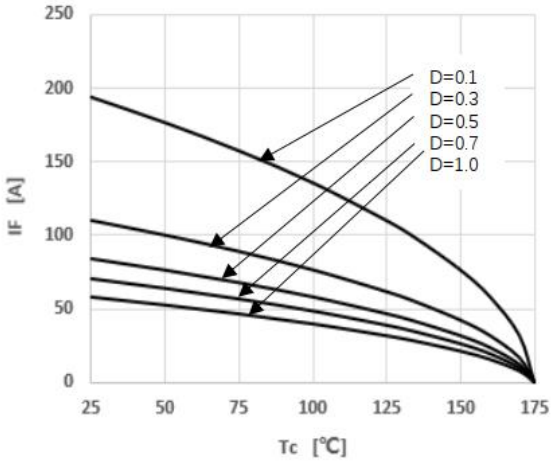


Figure 3. Peak Forward Current Derating

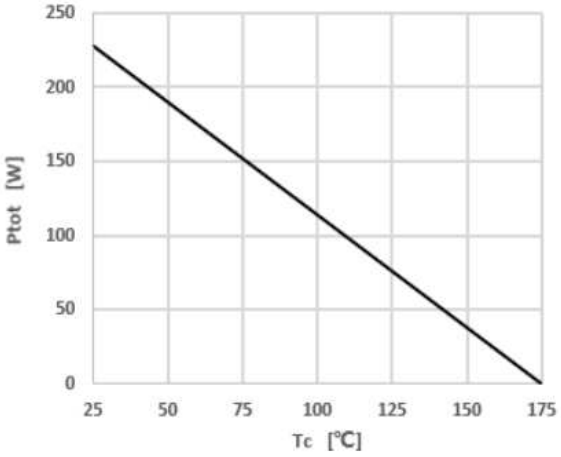


Figure 4. Power Dissipation

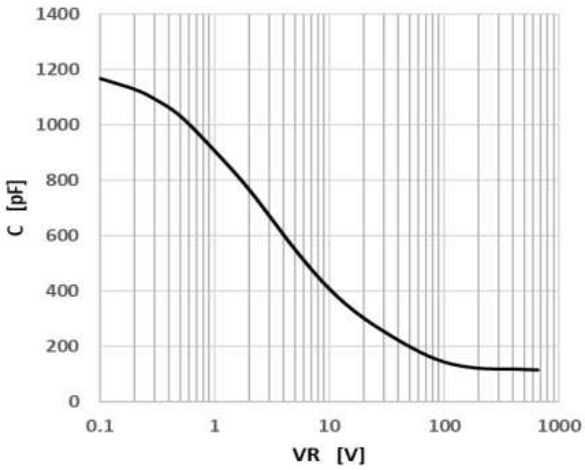


Figure 5. Capacitance vs. Reverse Voltage

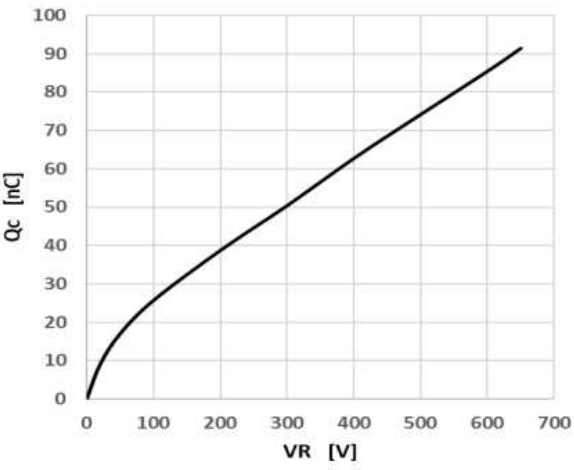


Figure 6. Capacitance Charge vs. Reverse Voltage

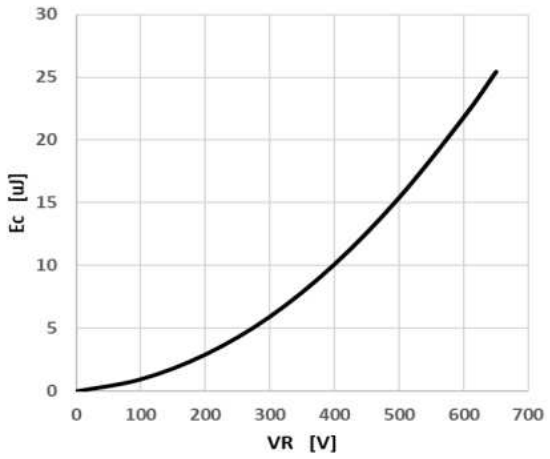


Figure 7. Capacitance Stored Energy

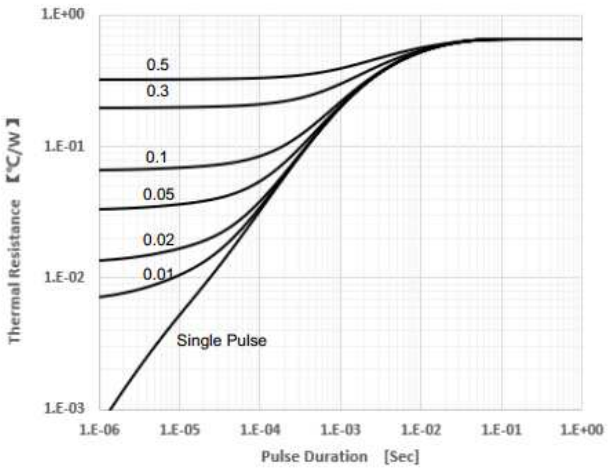
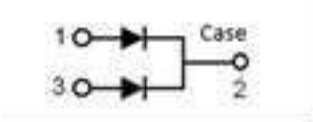
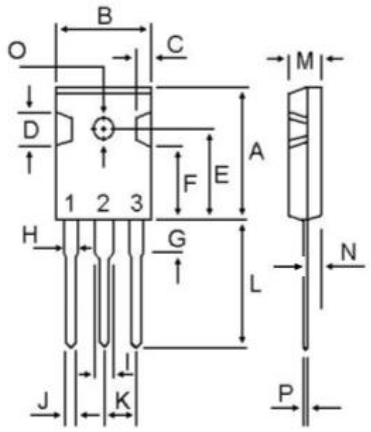


Figure 8. Transient Thermal Impedance

• 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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