MOSPEC

MIG20065A

650V Silicon Carbide Schottky Diode

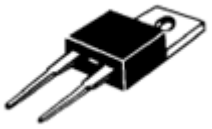
DESCRIPTION：

- High Surge Currenr
- No reverse recovery
- Positive temperature Coefficient
- Easy to paralleling
- RoHS Compliant

V_{RRM}	650V
I_F	20A (TC=154℃)
Q_C	62nC

TYPICAL APPLICATIONS：

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



TO-220AC

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=154℃	I_F	62 29 20	A
Non-Repetitive Forward Surge Current	Tc=25℃, t_P=10ms, Half sine pulse Tc=110℃, t_P=10ms, Half sine pulse	I_{FSM}	172 156	A
Repetitive Peak Forward Surge Current	Tc=25℃, t_P=10ms, Half sine pulse	I_{FRM}	164	A
i^2t value	Tc=25℃, t_P=10ms Tc=110℃, t_P=10ms	$\int i^2dt$	148 121	A^2S
Power dissipation	Tc=25℃ Tc=110℃ Tc=150℃	P_{tot}	258 112 43	W
Operation Junction temperature		Tj	-55~+175	℃
Storage temperature		T_{STG}	-55~+175	℃

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Typical	Unit
Thermal resistance, junction - case		$R_{th(j-C)}$	0.58	℃/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

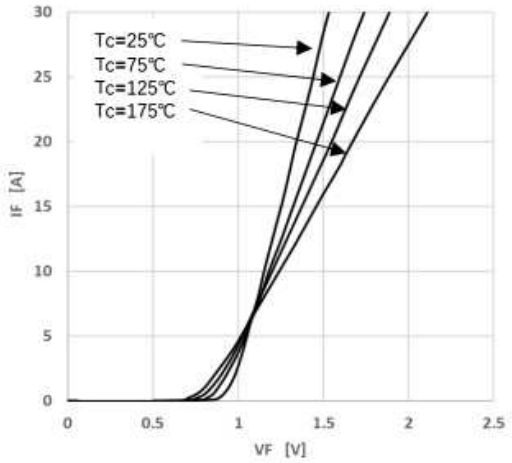


Figure 1. Forward characteristics

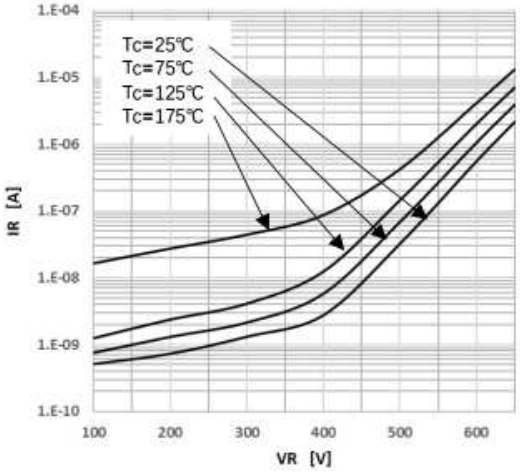


Figure 2. Reverse characteristics

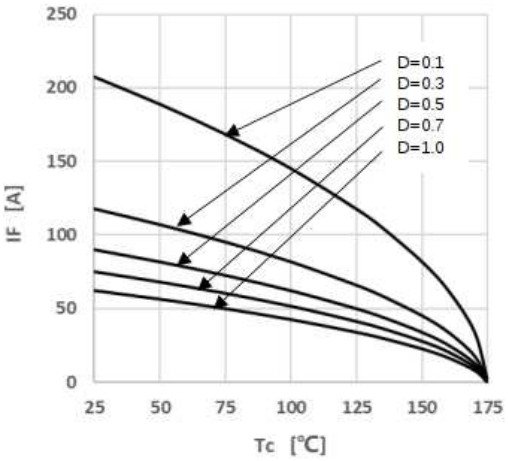


Figure 3. Peak Forward Current Derating

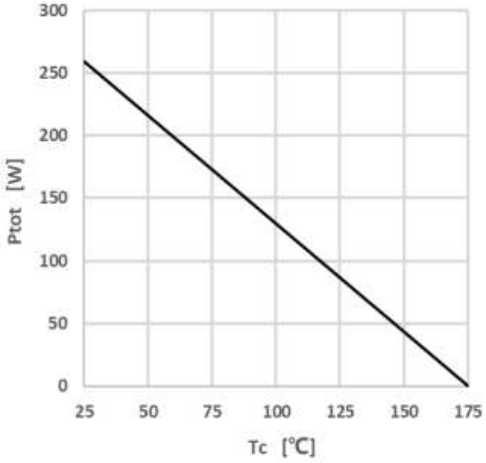


Figure 4. Power Dissipation

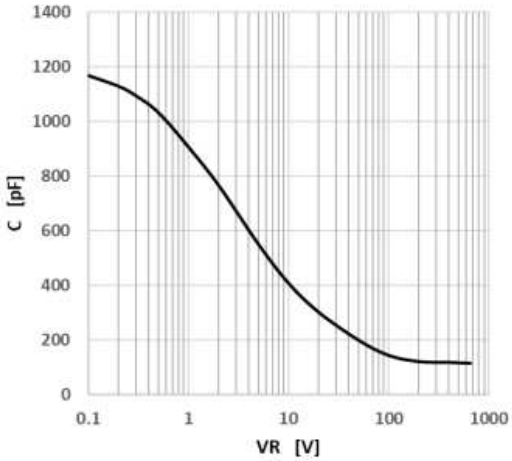


Figure 5. Capacitance vs. Reverse Voltage

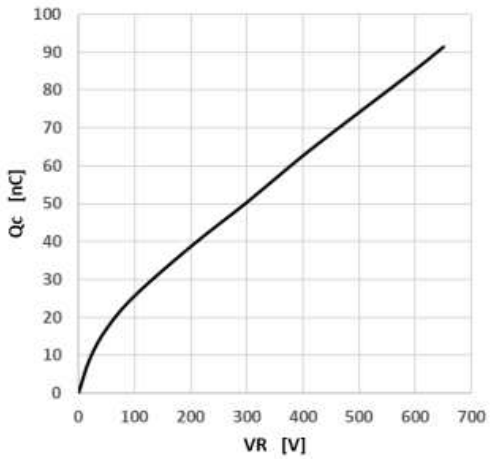


Figure 6. Capacitance Charge vs. Reverse Voltage

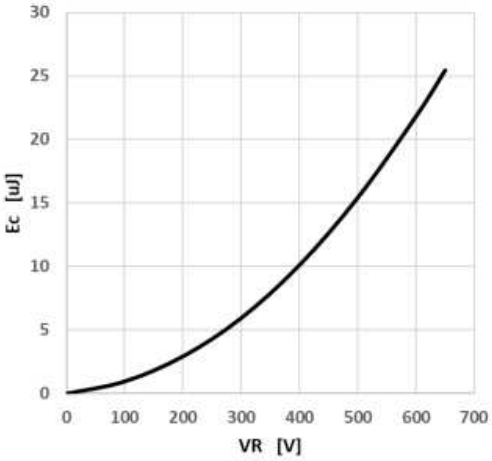


Figure 7. Capacitance Stored Energy

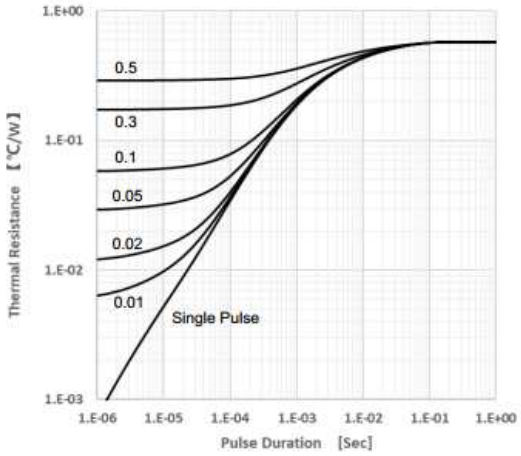
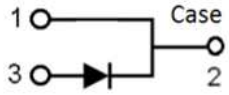
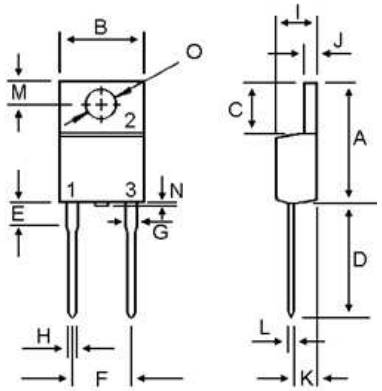


Figure 8. Transient Thermal Impedance

• Circuit diagram



• TO-220AC Package outlines : Dimensions in (mm)



DIM	MILLIMETERS	
	MIN	MAX
A	14.68	16.00
B	9.78	10.42
C	5.02	6.60
D	13.00	14.62
E	3.10	4.19
F	4.82	5.34
G	1.10	1.67
H	0.69	1.01
I	4.22	4.98
J	1.14	1.40
K	2.20	3.30
L	0.28	0.61
M	2.48	3.00
N	---	2.00
O	3.50	4.00

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