MOSPEC

MIG07120A

V_{RRM}	1200V
I_F	7A (T_C=161℃)
Q_C	31nC

1200V SILICON CARBIDE
SCHOTTKY DIODE

◇Features

- Negligible reverse recovery
- High-speed switching
- Positive Temperature Coefficient
- Temperature-Independent Switching
- RoHS compliant

Halogen Free
RoHS COMPLIANT

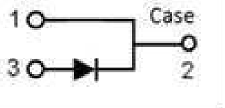
◇Benefits

- Higher frequency
- Low heat dissipation requirements
- Reduce size and cost of the system
- High-reliability

TO-220AC

◇Applications

- Switch mode power supply
- Solar inverter
- Data Center
- Uninterruptible power supply



Maximum Ratings （Tc=25℃ unless otherwise noted）

Symbol	Parameter		Value	Unit	Note
V_{RRM}	Repetitisve peak reverse voltage		1200	V	
I_F	Continuous forward current	Tc=25℃	28	A	Figure 3
		Tc=135℃	13	A	
		Tc=161℃	7	A	
I_{FSM}	Non-repetitive forward surge current	Tc=25℃, t_p=10ms,Half sine pulse	45	A	
		Tc=110℃, t_p=10ms,Half sine pulse	35	A	
I_{FRM}	Repetitive Peak Forward Surge Current	Tc=25℃, t_p=10ms,Half sine pulse	35	A	
		Tc=110℃, t_p=10ms,Half sine pulse	30	A	
$\int i^2 dt$	i^2t value	Tc=25℃, t_p=10ms	10	A^2S	
		Tc=110℃, t_p=10ms	6	A^2S	
P_{tot}	Power Dissipation	Tc=25℃	174	W	Figure 4
		Tc=110℃	75	W	
		Tc=150℃	29	W	
T_j, T_{stg}	Operating and Storage Temperature		-55 to +175	℃	

Electrical Characteristics（Tc=25℃ unless otherwise noted）

Symbol	Parameter	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
V_{DC}	DC blocking voltage		1200	-	-	V	
V_F	Forward voltage	I_F=3.5A	-	1.2	-	V	Figure 1
		I_F=7A, Tc=25℃	-	1.5	1.7	V	
		I_F=7A, Tc=175℃	-	2	-	V	
I_R	Reverse current	V_R=1200V, Tc=25℃	-	2	120	uA	Figure 2
		V_R=1200V, Tc=175℃	-	12	-	uA	
Q_C	Total capacitive charge	V_R=800V	-	31	-	nC	Figure 6
C	Total capacitance	V_R=1V, f=1MHZ	-	356	-	pF	Figure 5
		V_R=400V, f=1MHZ	-	26	-	pF	
		V_R=800V, f=1MHZ	-	21	-	pF	
E_C	Capacitance Stored Energy	V_R=800V	-	8.7	-	uJ	Figure 7

Thermal Characteristics

Symbol	Parameter	Value		Unit	Note
		Typ.	Max.		
$R_{th(j-c)}$	Thermal resistance（Junction to case）	0.864	-	℃/W	Figure 8

Electrical Characteristic Curves

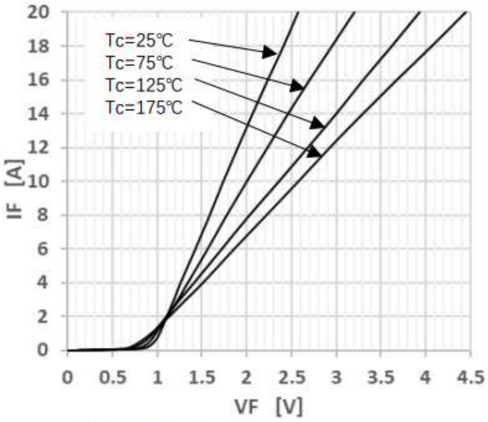


Figure 1 Forward Characteristics

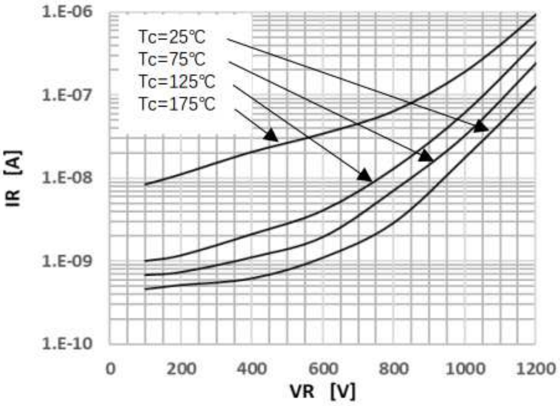


Figure 2 Reverse Characteristics

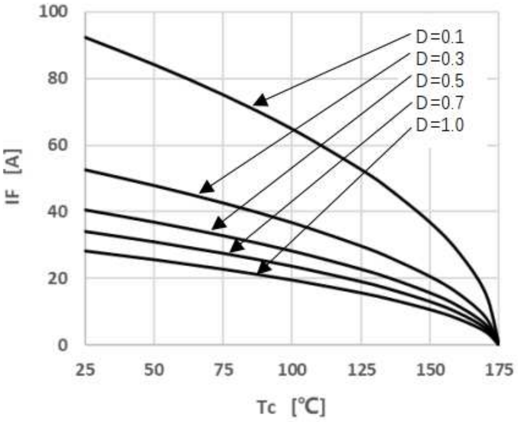


Figure 3 Peak Forward Current Derating

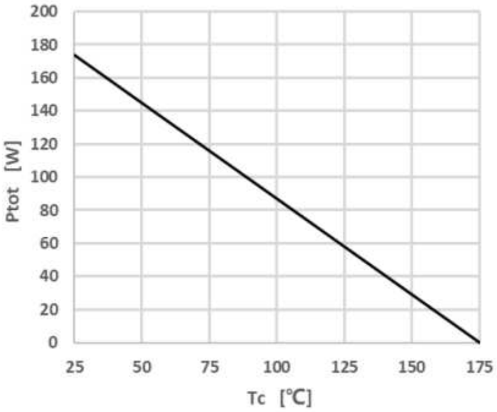


Figure 4 Power Dissipation

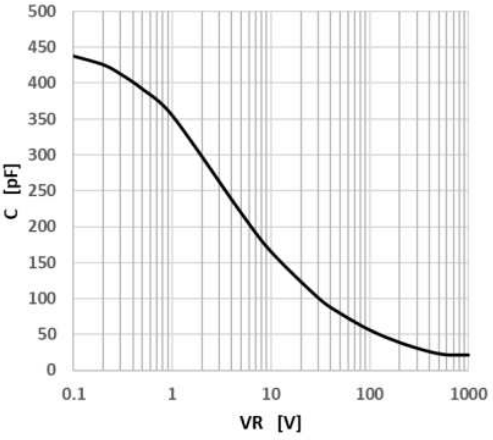


Figure 5 Capacitance vs. Reverse Voltage

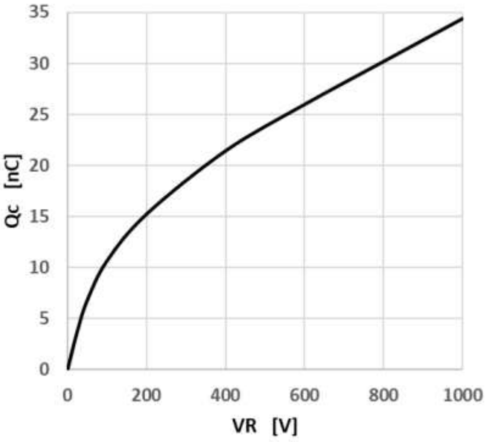


Figure 6 Capacitance Charge vs. Reverse Voltage

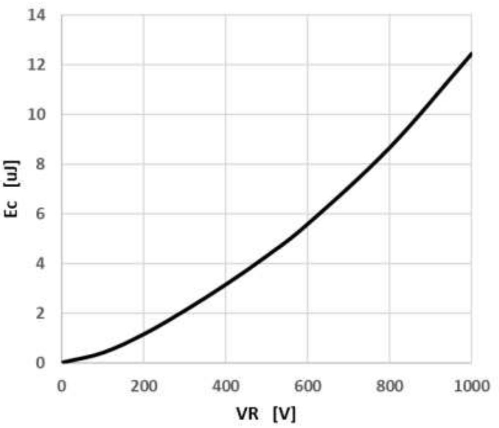


Figure 7 Capacitance Stored Energy

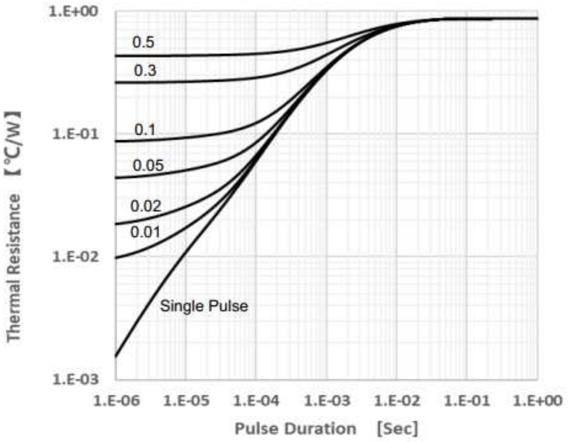
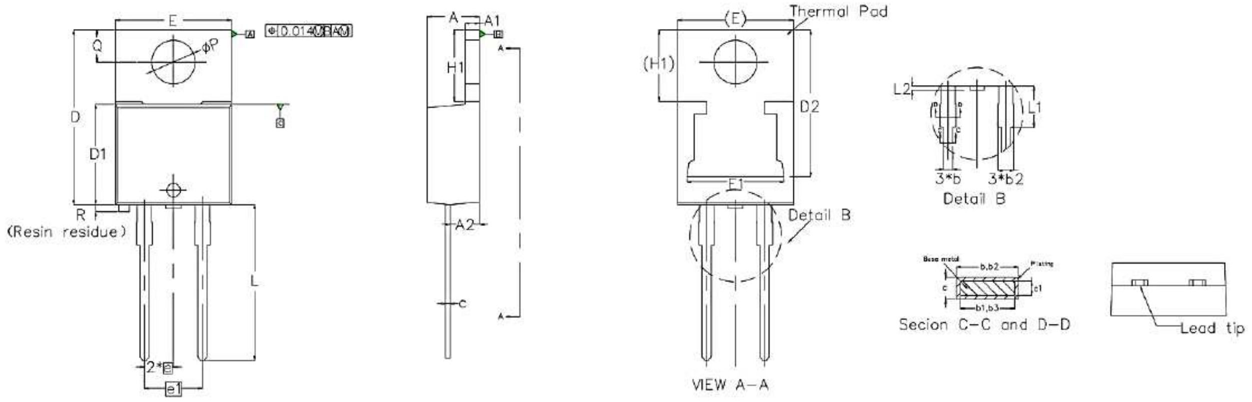


Figure 8 Transient Thermal Impedance

TO-220AC Package Dimensions：(Unit : mm)



SYMBOL	MILLIMETERS			NOTES		SYMBOL	MILLIMETERS			NOTES
	Normal	MIN.	MAX.				Normal	MIN.	MAX.	
A	4.55	4.44	4.65			E1	8.57	8.25	8.89	
A1	1.27	1.14	1.39			e	2.54	2.41	2.67	
A2	2.60	2.54	2.79			e1	5.08	4.95	5.20	
b	0.85	0.69	0.94			H1	6.20	6.09	6.40	
b1	0.83	0.38	0.97			L	13.60	13.52	14.00	
b2	1.33	1.20	1.45			L1	3.60	3.56	3.80	
b3	1.33	1.20	1.45			L2	–	0	0.35	
c	0.50	0.36	0.56			ØP	3.80	3.70	3.91	
c1	0.48	0.36	0.56			Q	2.80	2.62	2.87	
D	15.25	14.95	15.32			R			0.2	
D1	8.75	8.50	8.89							
D2	12.85	12.20	13.30							
E	10.18	10.11	10.40							

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