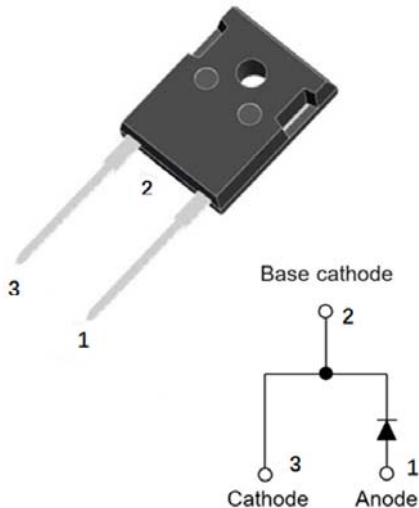


Silicon Carbide Schottky Diode

V_{RRM}	1200V
$I_F(135^{\circ}\text{C})$	33A
Q_C	114nC



Features

- Positive temperature coefficient
- Temperature-independent switching
- Maximum working temperature at 175 °C
- Unipolar devices and zero reverse recovery current
- Zero forward recovery current
- Essentially no switching losses
- Reduction of heat sink requirements
- AEC-Q101 qualified
- High-frequency operation
- Reduction of EMI

Typical Applications

Typical applications are in power factor correction(PFC), solar inverter, uninterruptible power supply, motor drives, photovoltaic inverter, electric car and charger.

Mechanical Data

- **Package:** TO-247AC
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads
- **Polarity:** As marked

■Maximum Ratings ($T_C=25^{\circ}\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			D112020NGG2
Reverse voltage (Repetitive peak) @ $T_j=25^{\circ}\text{C}$	V_{RRM}	V	1200
Reverse voltage (Surge peak) @ $T_j=25^{\circ}\text{C}$	V_{RSM}	V	1200
Reverse voltage (DC) @ $T_j=25^{\circ}\text{C}$	V_{DC}	V	1200
Continuous forward current @ $T_C=25^{\circ}\text{C}$	I_F	A	70
Continuous forward current @ $T_C=135^{\circ}\text{C}$			33
Continuous forward current @ $T_C=157^{\circ}\text{C}$			20
Non-repetitive peak forward surge current @ $T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	I_{FSM}	A	160
Power Dissipation @ $T_C=25^{\circ}\text{C}$	P_{TOT}	W	319
Power Dissipation @ $T_C=110^{\circ}\text{C}$			138
i^2t Value @ $T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$	$\int i^2 dt$	A^2S	128
Operating junction and Storage temperature range	T_j, T_{stg}	$^{\circ}\text{C}$	-55 to +175



YJD112020NGG2Q

■Electrical Characteristics (T_j=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage	V _F	V	I _F =20A, T _j =25°C	1.34	1.55
			I _F =20A, T _j =175°C	1.86	2.70
Reverse current	I _R	μA	V _R =1200V, T _j =25°C	0.5	25
			V _R =1200V, T _j =175°C	5	–
Total capacitive charge	Q _C	nC	V _R =800V, T _j =25°C , Q _C =∫ ₀ ^{V_R} C(V)dV	114	–
Total capacitance	C	pF	V _R =0V, f=1MHZ	1552	–
			V _R =400V, f=1MHZ	107	–
			V _R =800V, f=1MHZ	79	–
Capacitance stored energy	E _C	μJ	V _R =800V	29.3	–

■Thermal Characteristics

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance	R _{θJ-C}	°C/W	0.47

■Characteristics (Typical)

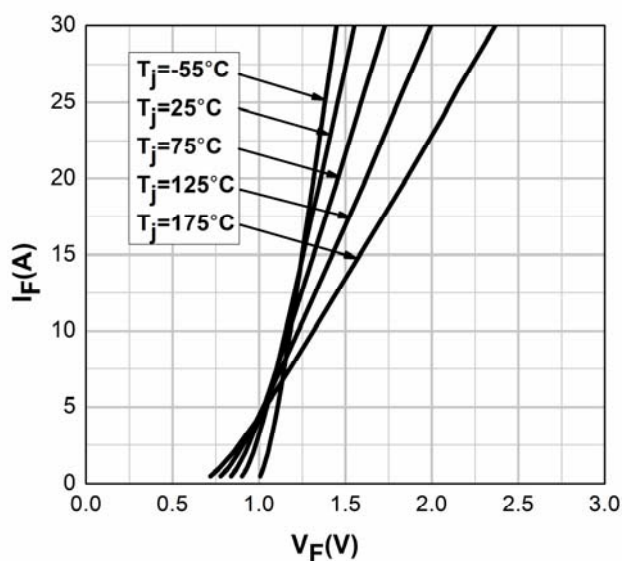


Figure 1. Forward Characteristics

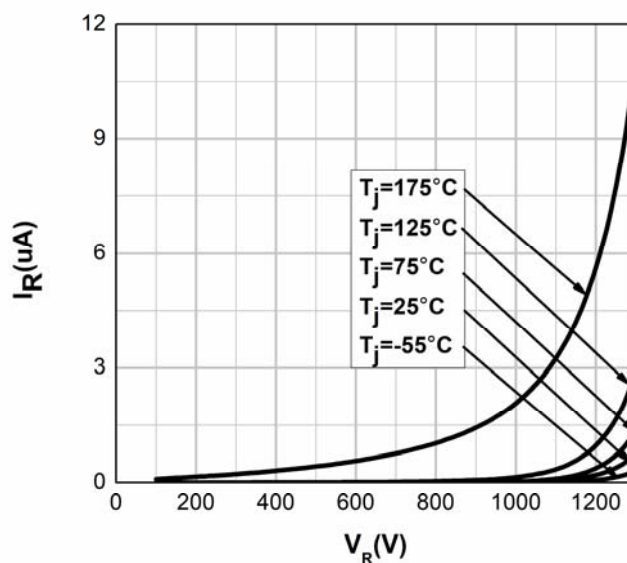


Figure 2. Reverse Characteristic

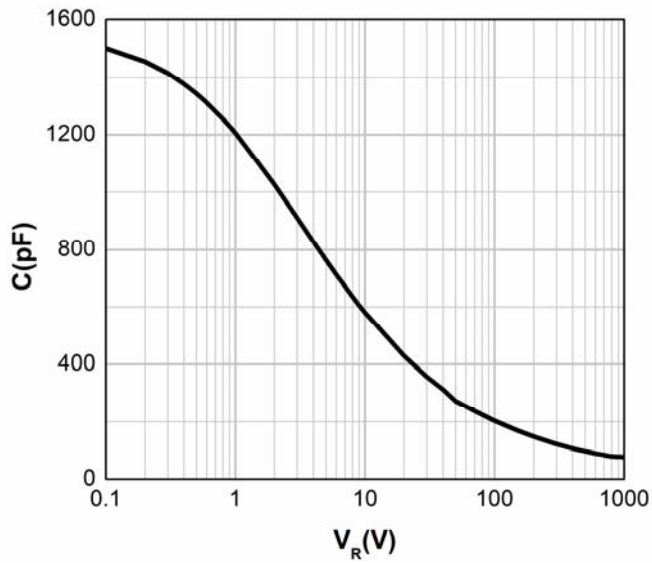


Figure 3. Capacitance vs. Reverse Voltage

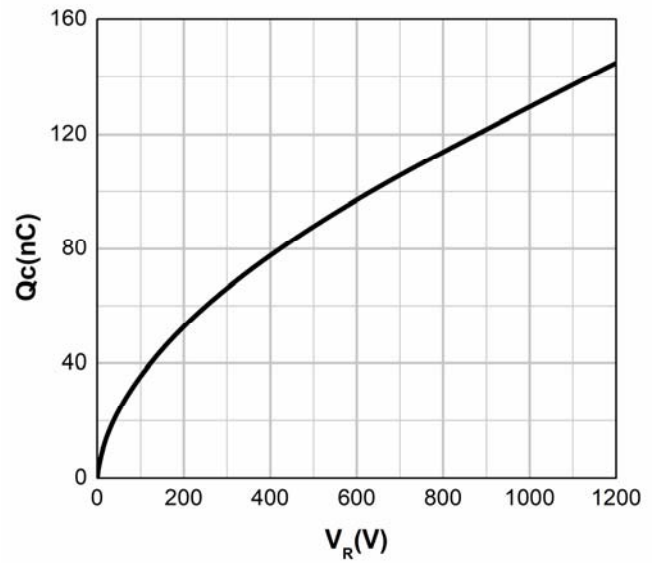


Figure 4. Total Capacitance Charge vs. Reverse Voltage

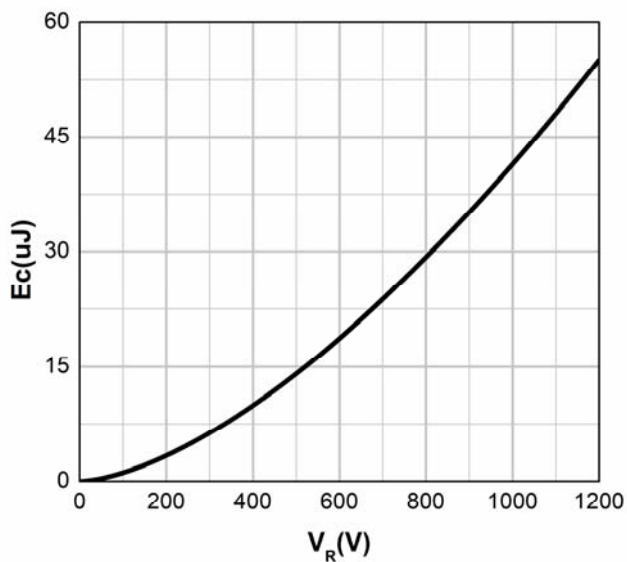


Figure 5. Capacitance Stored Energy

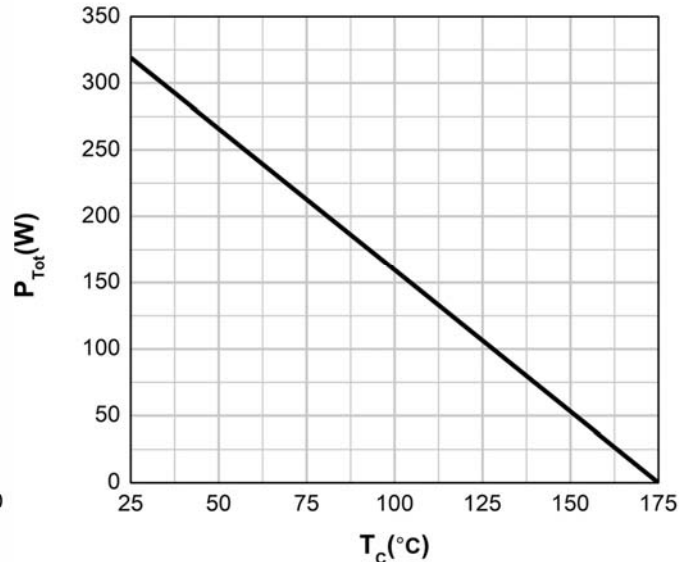


Figure 6. Power Derating

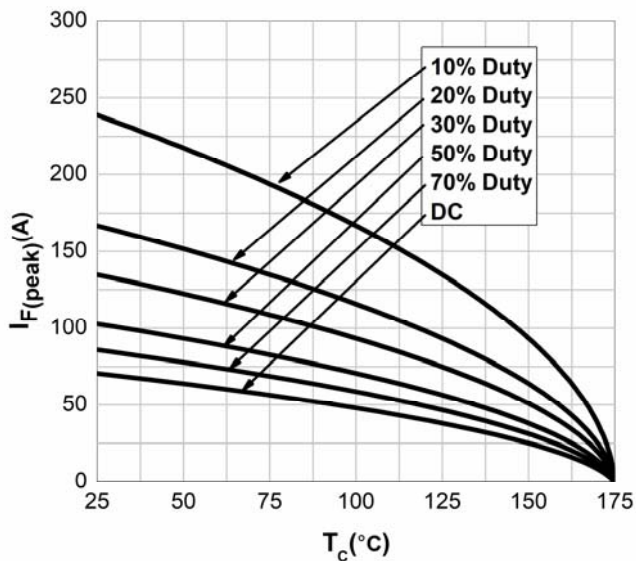


Figure 7. Current Derating

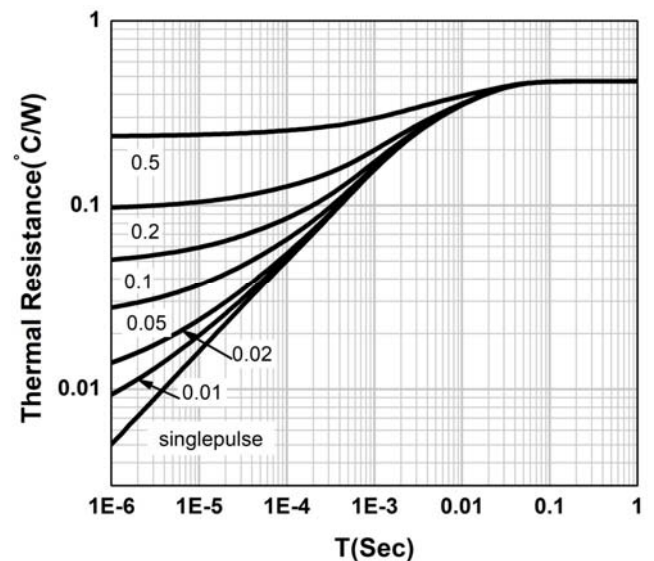
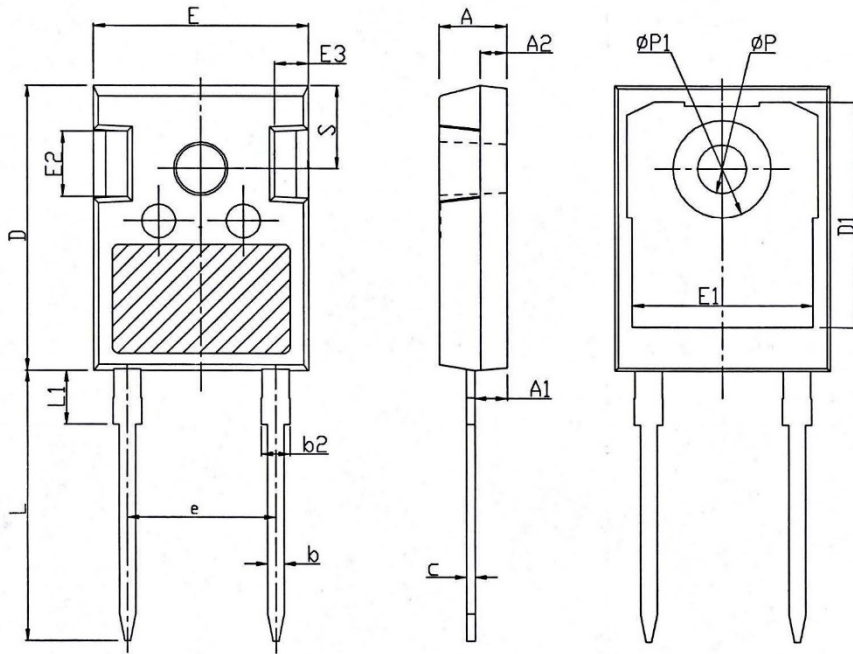


Figure 8. Transient Thermal Impedance



■Outline Dimensions

TO-247AC



TO-247AC		
Dim	Min	Max
A	4.80	5.20
A1	2.21	2.61
A2	1.85	2.15
b	1.11	1.36
b2	1.91	2.21
c	0.51	0.75
D	20.70	21.30
D1	16.25	16.85
E	15.50	16.10
E1	13.00	13.60
E2	4.80	5.20
E3	2.30	2.70
e	10.88BSC	
L	19.62	20.22
L1	-	4.30
ΦP	3.40	3.80
ΦP1	-	7.30
S	6.15BSC	



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