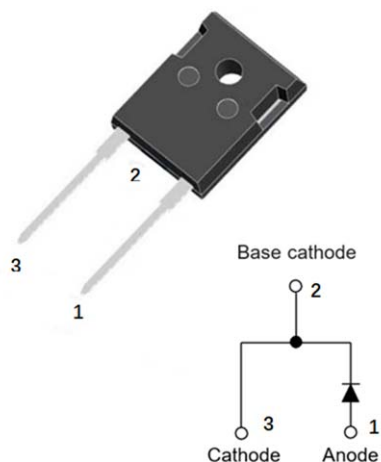


Silicon Carbide Schottky Diode

V_{RRM}	1400V
$I_F(90^{\circ}\text{C})$	80A
Q_C	453nC



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
- 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			D114080NYG5S
Reverse voltage (Repetitive peak) @ $T_J=25^{\circ}\text{C}$	V_{RRM}	V	1400
Reverse voltage (Surge peak) @ $T_J=25^{\circ}\text{C}$	V_{RSM}	V	1400
Reverse voltage (DC) @ $T_J=25^{\circ}\text{C}$	V_{DC}	V	1400
Continuous forward current @ $T_C=25^{\circ}\text{C}$	I_F	A	112
Continuous forward current @ $T_C=90^{\circ}\text{C}$			80
Non-repetitive peak forward surge current @ $T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	I_{FSM}	A	550
Power Dissipation@ $T_C=25^{\circ}\text{C}$	P_{TOT}	W	348
Power Dissipation@ $T_C=110^{\circ}\text{C}$			151
i^2t Value@ $T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$	$\int i^2 dt$	A^2S	1512.5
Operating junction and Storage temperature range	T_J, T_{stg}	$^{\circ}\text{C}$	-55 to +175



YJD114080NYG5S

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Min.	Typ.	Max.
Reverse voltage (DC)	V _{DC}	V	I _R =0.25mA, T _j =25°C	1400	–	–
Forward voltage	V _F	V	I _F =80A, T _j =25°C	–	1.57	1.75
			I _F =80A, T _j =175°C	–	2.45	–
Reverse current	I _R	μA	V _R =1400V, T _j =25°C	–	2	30
			V _R =1400V, T _j =175°C	–	70	–
Total capacitive charge	Q _C	nC	V _R =1200V, T _j =25°C , Q _C =∫ ₀ ^{V_R} C(V)dV	–	453	–
Total capacitance	C	pF	V _R =0V, f=1MHZ	–	4938	–
			V _R =600V, f=1MHZ	–	262	–
			V _R =1200V, f=1MHZ	–	259	–
Capacitance stored energy	E _C	μJ	V _R =1200V	–	204	–

■Thermal Characteristics

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance	R _{θJ-C}	°C /W	0.43

■Typical Characteristics (Typical)

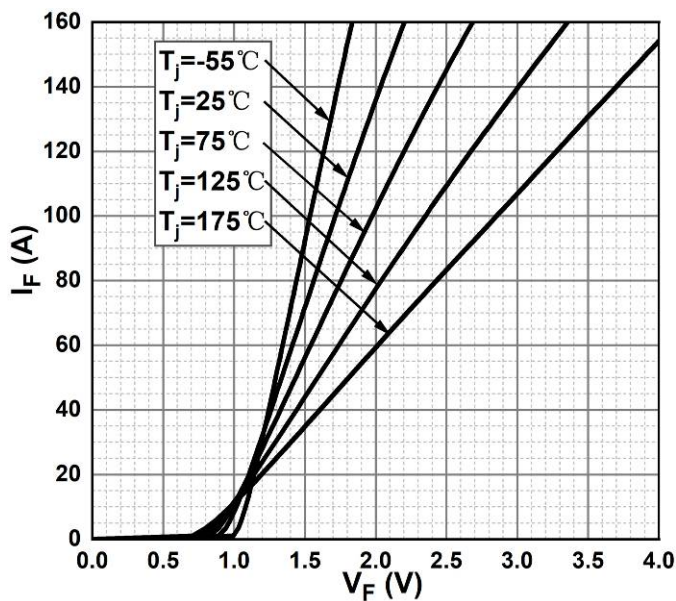


Figure 1. Forward Characteristics

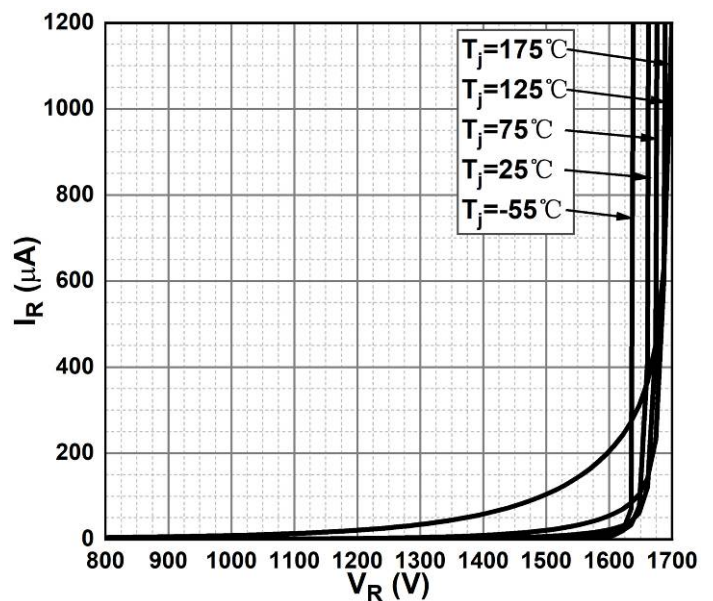


Figure 2. Reverse Characteristics



YJD114080NYG5S

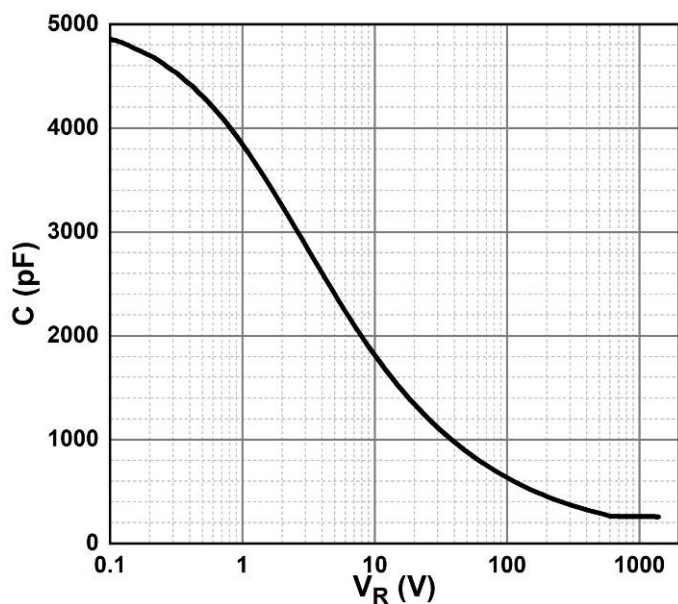


Figure 3. Capacitance vs. Reverse Voltage

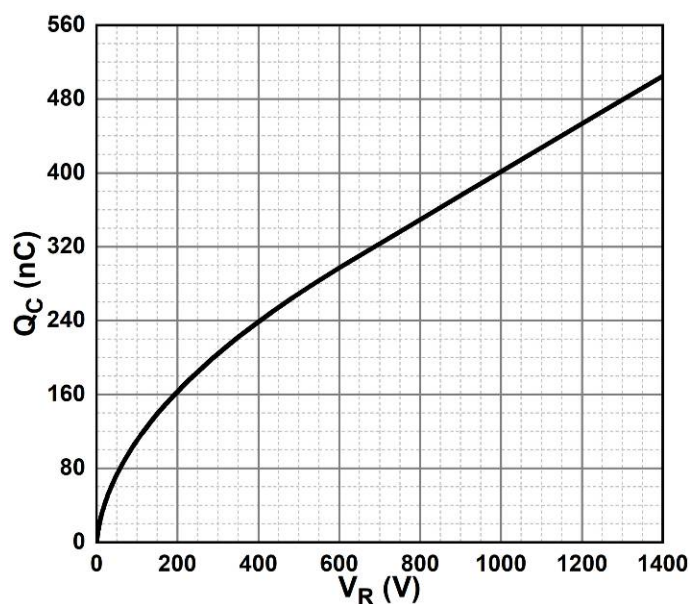


Figure 4. Total Capacitance Charge vs. Reverse Voltage

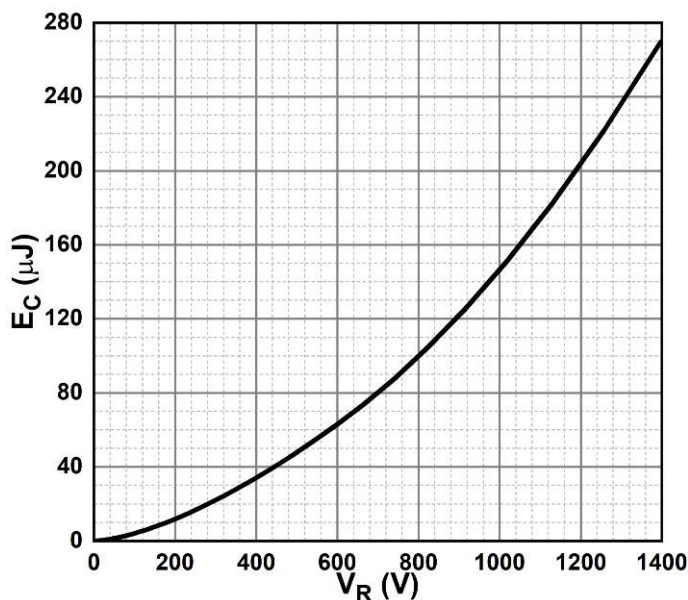


Figure 5. Capacitance Stored Energy

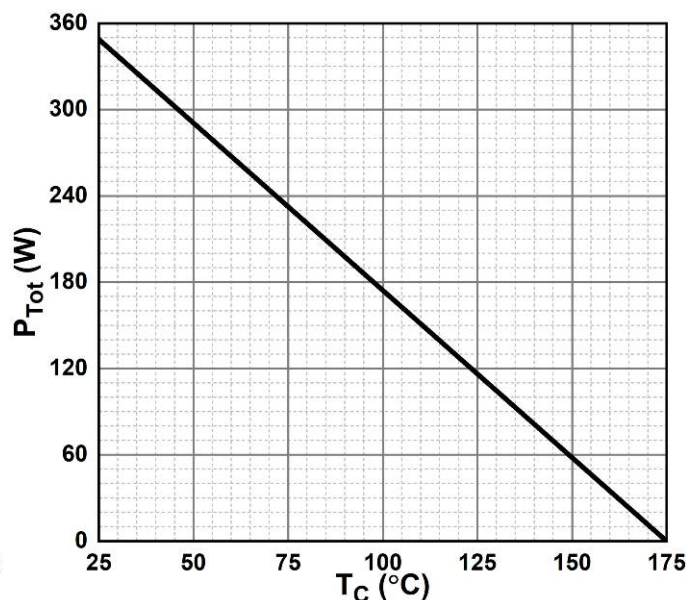


Figure 6. Power Derating

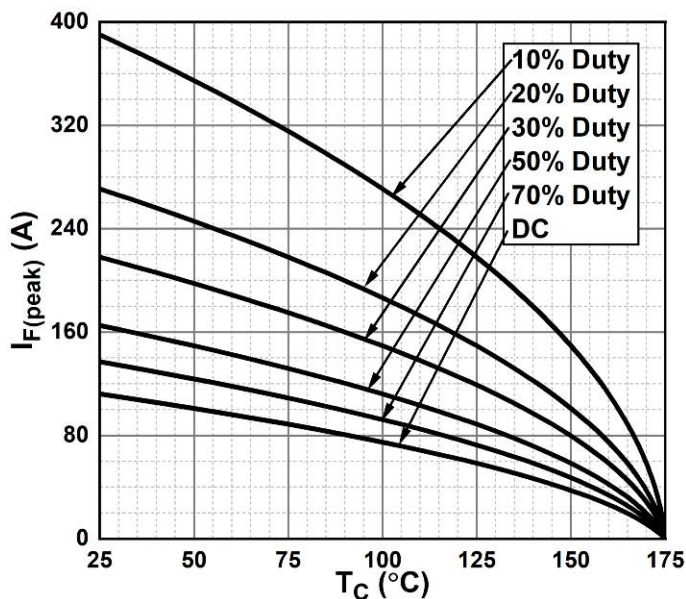


Figure 7. Current Derating

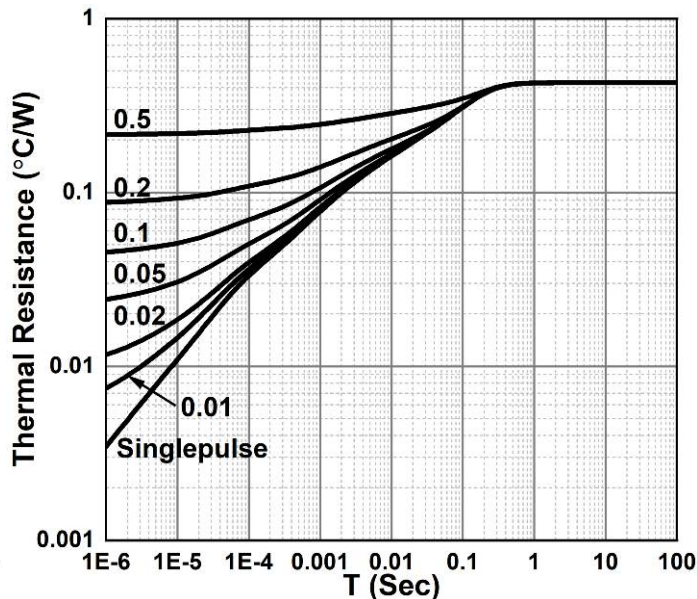
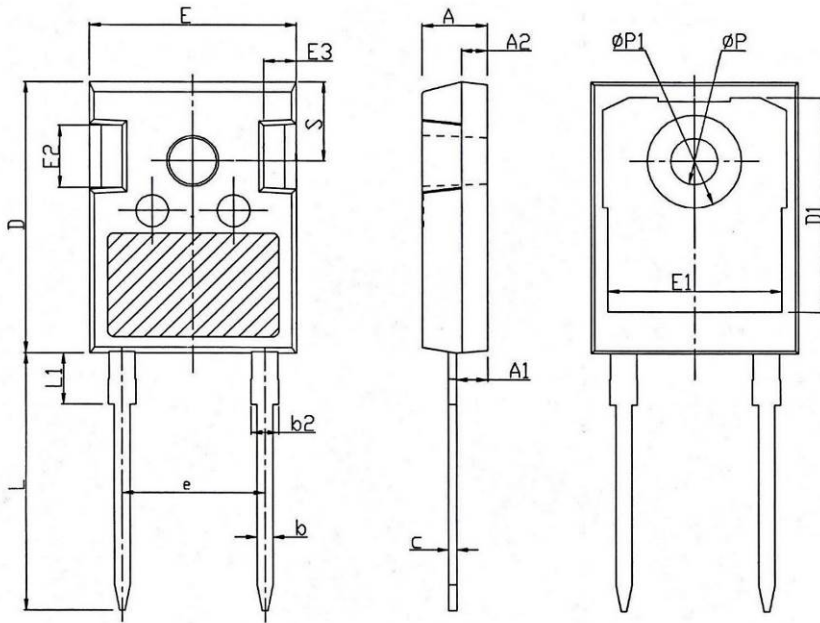


Figure 8. Transient Thermal Impedance

■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
ØP	3.40	3.80
ØP1	-	7.30
S	6.15BSC	



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