



## Silicon Carbide Schottky Diode

### 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

**Terminals:** Tin plated leads

**Polarity:** As marked

### Maximum Ratings ( $T_C=25$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			D112015NGG2
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 @ $T_c=25^\circ\text{C}$ $T_c=135^\circ\text{C}$ $T_c=160^\circ\text{C}$	$I_F$	A	70 33 15
Non-repetitive peak forward surge current @ $T_c=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Wave	$I_{FSM}$	A	144
Power Dissipation @ $T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$	$P_{TOT}$	W	319 138
$i^2t$ Value @ $T_c=25^\circ\text{C}$ $t_p=10\text{ms}$	$i^2t$	$\text{A}^2\text{S}$	103
Operating junction and Storage temperature range	$T_j, T_{stg}$	$^\circ\text{C}$	$-55$ to $+175$

## Electrical Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Typ.	Max.
Forward voltage drop	$V_F$	V	$I_F=15A, T_j=25^{\circ}C$	1.25	1.45
			$I_F=15A, T_j=175^{\circ}C$	1.65	1.85
Reverse leakage current	$I_R$	$\mu A$	$V_R=1200V, T_j=25^{\circ}C$	0.5	25
			$V_R=1200V, T_j=175^{\circ}C$	5	-
Total capacitive charge	$Q_C$	nC	$V_R=800V, T_j=25^{\circ}C, Q_C=\int_0^{V_R} I_C(V)dV$	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	$E_C$	$\mu J$	$V_R=800V$	29.3	-

## Thermal Characteristics $T_a=25$ Unless otherwise specified

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance	$R_{j-c}$	$^{\circ}C/W$	0.47

## Characteristics (Typical)

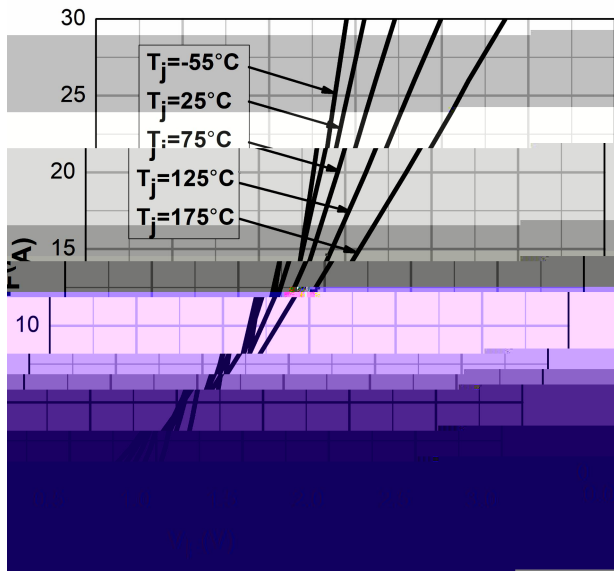


Figure 1. Forward Characteristics

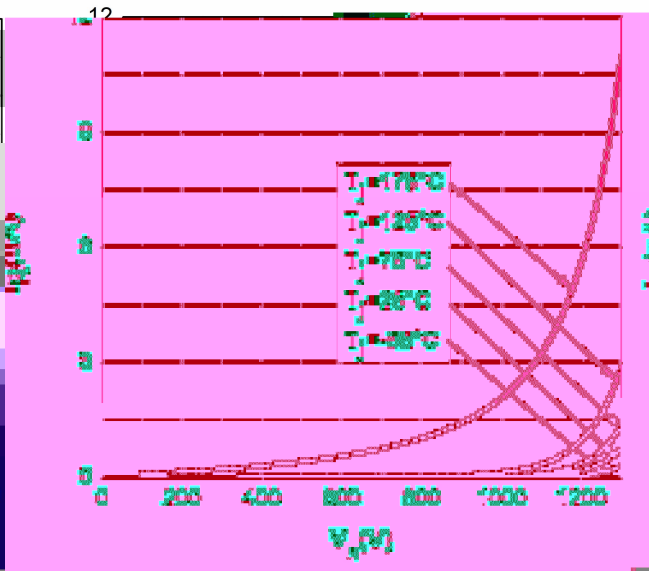


Figure2. Reverse Characteristic

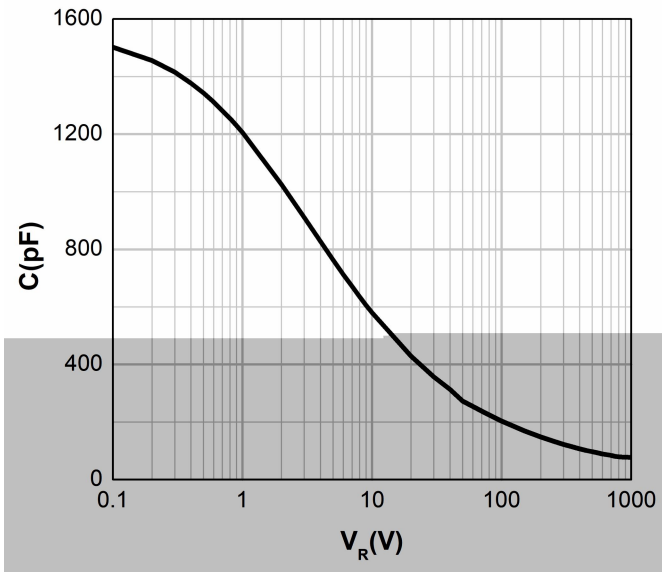


Figure 3. Capacitance vs. Reverse Voltage

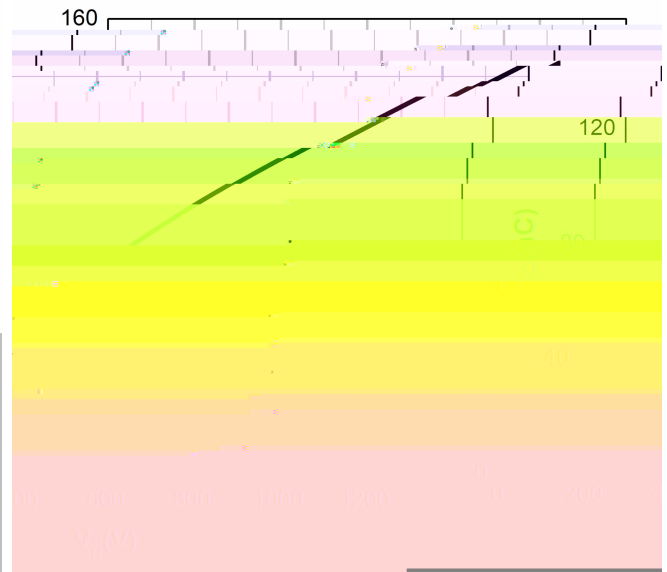


Figure 4. Total Capacitance Charge vs. Reverse Voltage

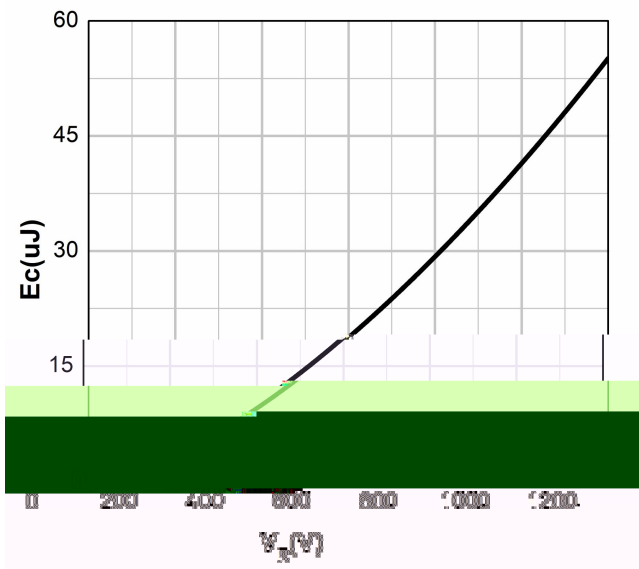


Figure 5. Capacitance Stored Energy

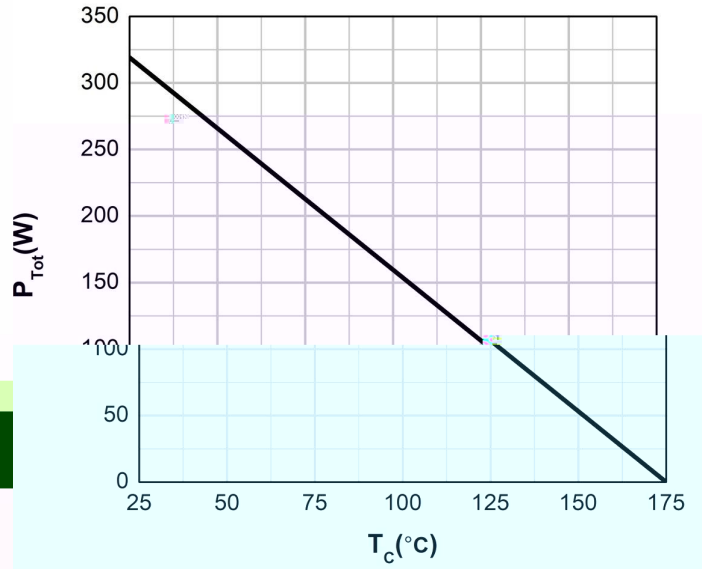


Figure 6. Power Derating



Figure 7. Current Derating

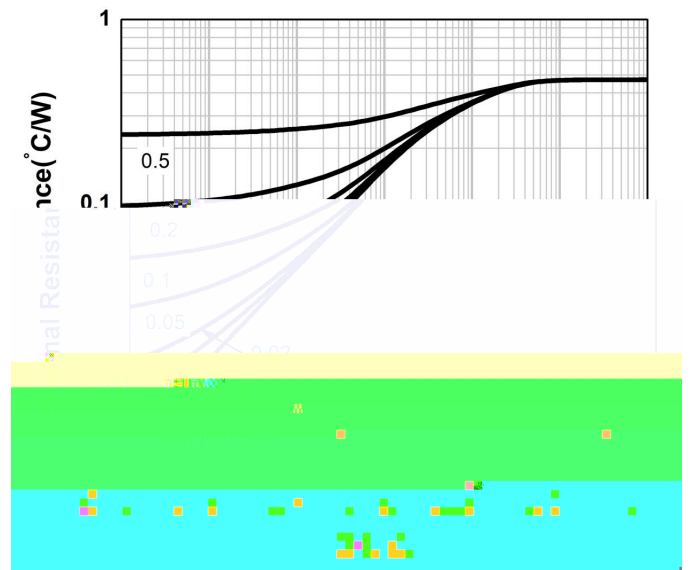
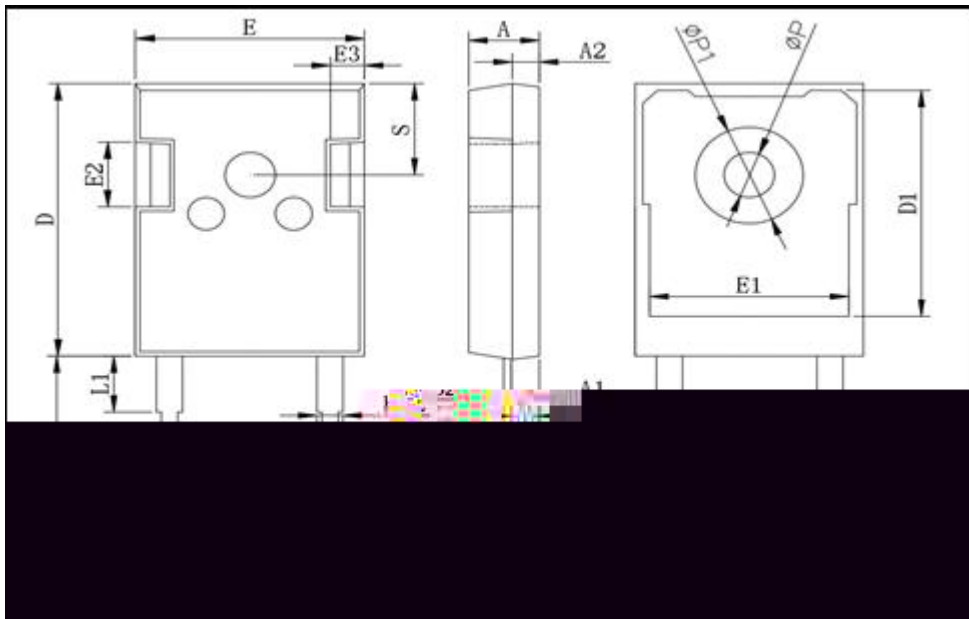


Figure 8. Transient Thermal Impedance

## Outline Dimensions



TO-247-2L		
Dim	Min	Max
A	4.80	5.20
A1	2.21	2.61
A2	1.85	2.15
b	1.00	1.40
b2	1.91	2.21
c	0.50	0.70
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	10.88 TYP	
L	19.62	20.22
L1	-	4.30
P	3.40	3.80
P1	-	7.30
S	6.15 TYP	



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