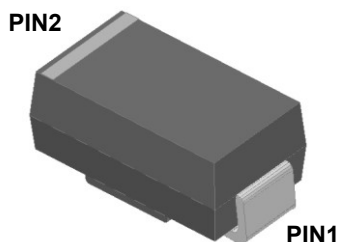


Silicon Carbide Schottky Diode

V_{RRM}	650V
$I_F(135^{\circ}C)$	2.4A
Q_C	8.3nC



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:** DO-214AC (SMA)
- **Terminals:** Tin plated leads
- **Polarity:** Cathode line denotes the cathode end

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

PARAMETER	SYMBOL	UNIT	VALUE
Device marking code			A1
Reverse voltage (Repetitive peak) @ $T_J=25^{\circ}C$	V_{RRM}	V	650
Reverse voltage (Surge peak) @ $T_J=25^{\circ}C$	V_{RSM}	V	650
Reverse voltage (DC) @ $T_J=25^{\circ}C$	V_{DC}	V	650
Continuous forward current @ $T_C=25^{\circ}C$	I_F	A	5.5
Continuous forward current @ $T_C=135^{\circ}C$			2.4
Continuous forward current @ $T_C=163^{\circ}C$			1
Non-repetitive peak forward surge current @ $T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave	I_{FSM}	A	18
Repetitive peak forward surge current @ $T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave	I_{FRM}	A	10
Power Dissipation@ $T_C=25^{\circ}C$	P_{TOT}	W	16.4
Power Dissipation@ $T_C=110^{\circ}C$			7.1
i^2t Value@ $T_C=25^{\circ}C$, $t_p=10ms$	$\int i^2 dt$	A ² S	1.62
Operating junction and Storage temperature range	T_J, T_{stg}	$^{\circ}C$	-55 to +175



■Electrical Characteristics (T_C=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	850	-	-
Forward voltage	V _F	V	I _F =1A, T _J =25°C	-	1.13	1.30
			I _F =1A, T _J =175°C	-	1.20	-
Reverse current	I _R	μA	V _R =650V, T _J =25°C	-	0.02	0.5
			V _R =650V, T _J =175°C	-	0.1	-
Total capacitive charge	Q _C	nC	V _R =400V, T _J =25°C Q _C =∫ ₀ ^{V_R} C(V)dV	-	8.3	-
Total capacitance	C	pF	V _R =0V, f=1MHZ	-	142	-
			V _R =200V, f=1MHZ	-	15.7	-
			V _R =400V, f=1MHZ	-	15.3	-
Capacitance stored energy	E _C	μJ	V _R =400V	-	1.3	-

■Thermal Characteristics

PARAMETER	SYMBOL	UNIT	VALUE
Thermal resistance, junction to case	R _{θJ-C}	°C/W	9.12
Thermal resistance, junction to ambient	R _{θJ-A}		90

■Typical Characteristics (Typical)

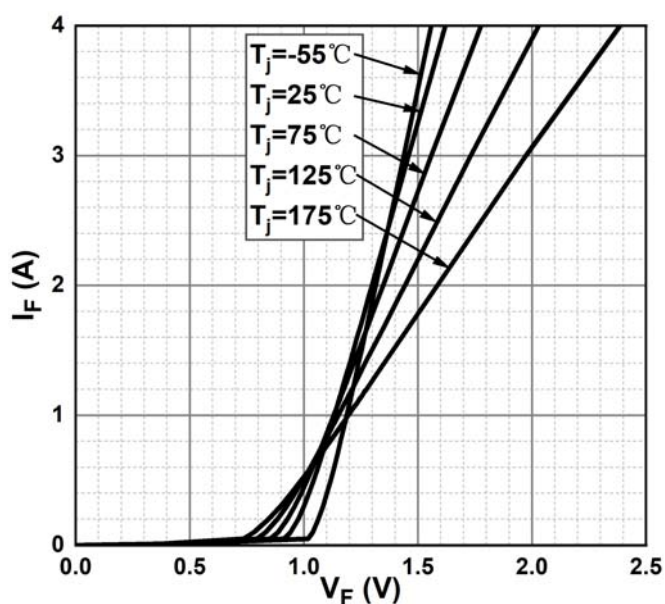


Figure 1. Forward Characteristics

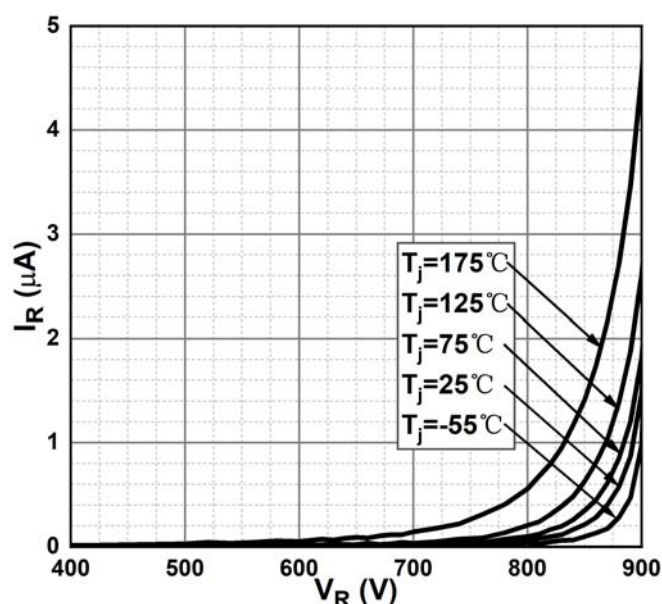


Figure 2. Reverse Characteristics

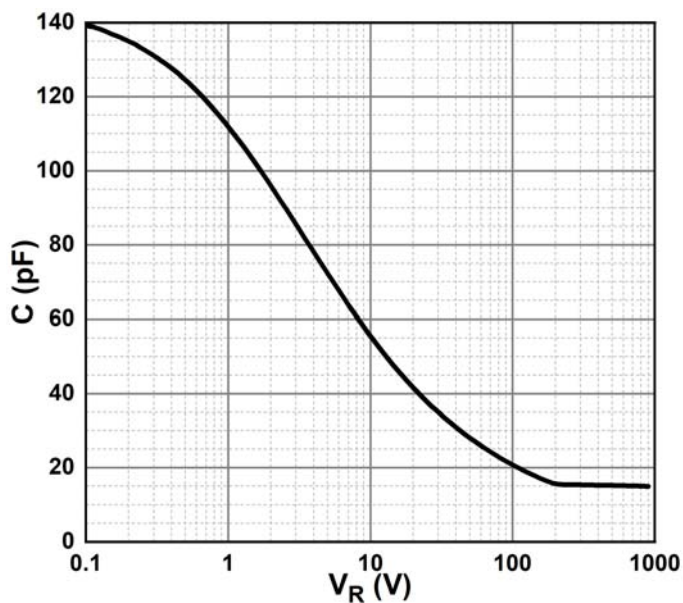


Figure 3. Capacitance vs. Reverse Voltage

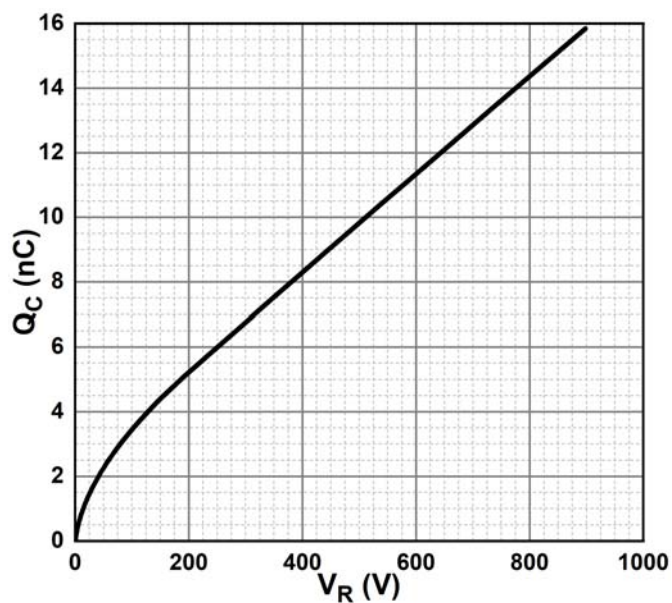


Figure 4. Total Capacitance Charge vs. Reverse Voltage

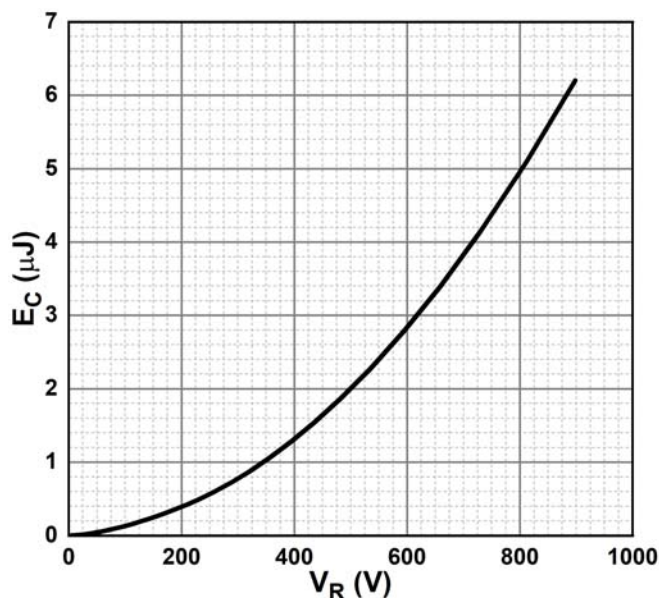


Figure 5. Capacitance Stored Energy

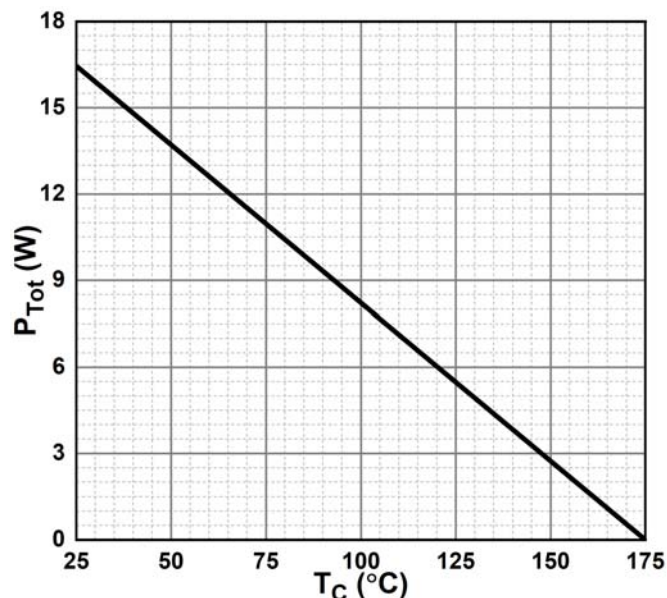


Figure 6. Power Derating

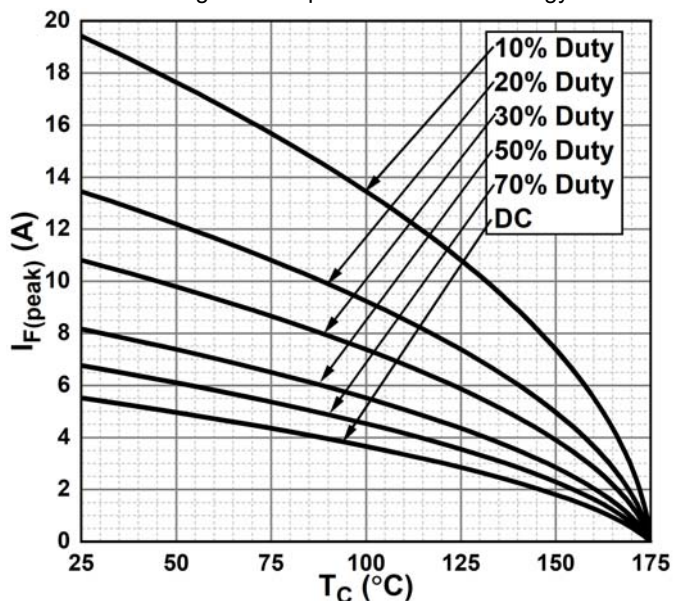


Figure 7. Current Derating

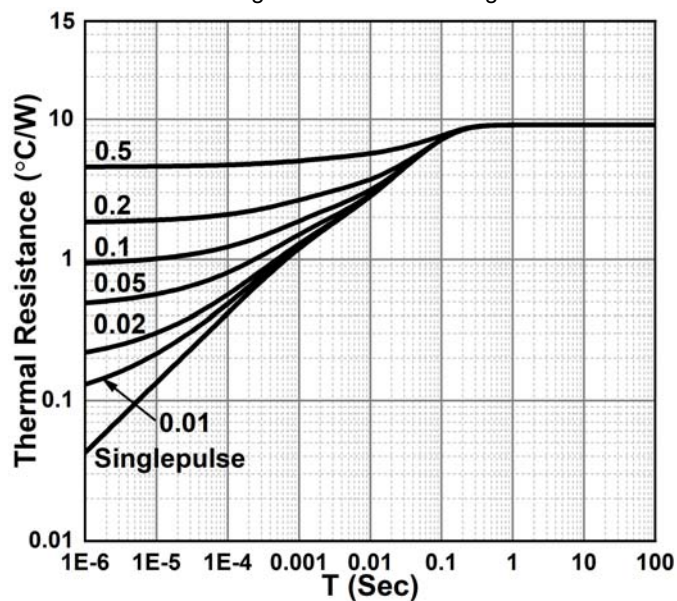
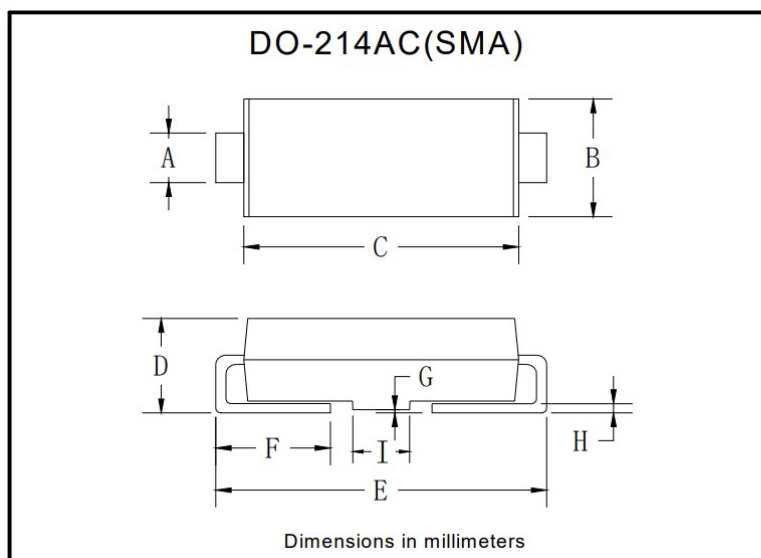


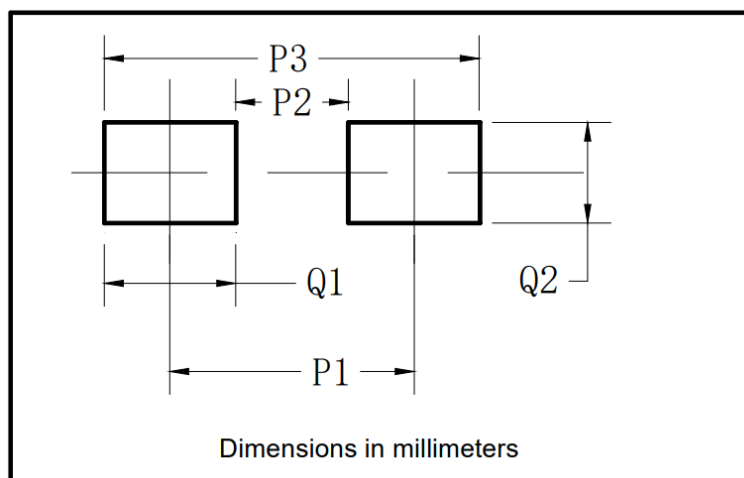
Figure 8. Transient Thermal Impedance

■Outline Dimensions



DO-214AC(SMA)		
Dim	Min	Max
A	1.25	1.58
B	2.40	2.83
C	4.00	4.75
D	1.90	2.30
E	4.93	5.28
F	0.76	1.41
G	0.05	0.20
H	0.15	0.31
I	1.70	2.10

■Suggested Pad Layout



DO-214AC(SMA)	
Dim	Millimeters
P1	4.00
P2	1.50
P3	6.50
Q1	2.50
Q2	1.70



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