ASRD002065DA

650V,2A Silicon Carbide Schottky Diode

Features

- Zero Forward Recovery Voltage
- Zero Reverse Recovery Current
- Excellent Surge Current Capability
- Temperature Independent Switching
- Positive Temperature Coefficient on V_F
- High Frequency Operation

V_{RRM}	=	650	V
I_F (T_C=155℃)	=	2	A
Q_C	=	6	nC

Benefits

- Increased Power Density
- Essentially no Switching Losses
- Reduction of Heat Sink Requirements
- Higher Efficiency
- Reduced EMI

Package

SOD-123

Applications

- Uninterruptible Power Supplies
- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drivers

Package Pin Definitions

- Pin1 - Cathode
- Pin2 - Anode

Part Number	Package	Marking
ASRD002065DA	SOD-123	D0265

Maximum Ratings(T_J =25℃,unless other wise specified)

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage		650	V
V_{RSM}	Surge peak reverse voltage		650	V
I_F	Continuous forward current	T_C=25°C T_C=155°C	4 2	A
I_{FSM}	Non-Repetitive forward surge current	T_C=25°C , t_p=10ms, Half Sine Wave	15	A
$\int i^2dt$	i^2t value	T_C=25°C , t_p=10ms	0.72	A^2S
P_{tot}	Power dissipation	T_C=25°C T_C=110°C	8.2 3.6	W
T_j	Operating junction temperature		-55~175	°C
T_{stg}	Storage temperature		-55~175	°C

Electrical Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	T_j=25°C	650			V
V_F	Diode forward voltage	I_F=2A T_j=25°C I_F=2A T_j=175°C		1.37 1.68		V
I_R	Reverse current	V_R=650V T_j=25°C V_R=650V T_j=175°C		0.5 5		μA
Q_C	Total capactive charge	V_R=400V T_j=25°C $Q_C = \int_0^{V_R} C(V)dV$		6		nC
C	Total capacitance	V_R=1V f=1MHz V_R=300V f=1MHz V_R=600V f=1MHz		66 12 10		pF
E_C	Capacitance stored energy	V_R=400V		1		μJ

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		18.2		°C/W

Typical Performance

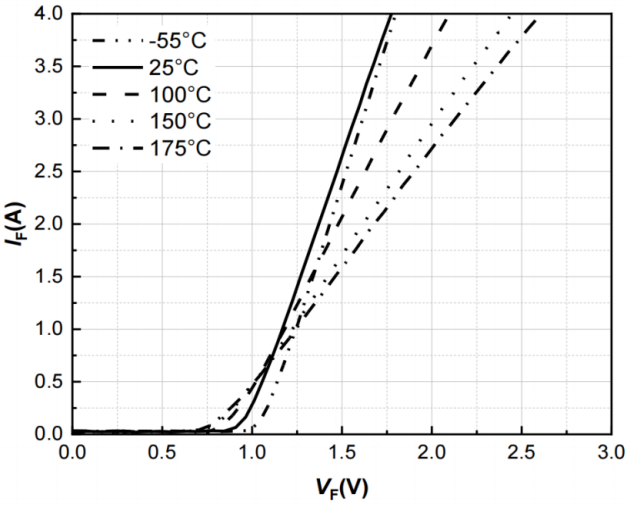

Figure1. Typical forward characteristics

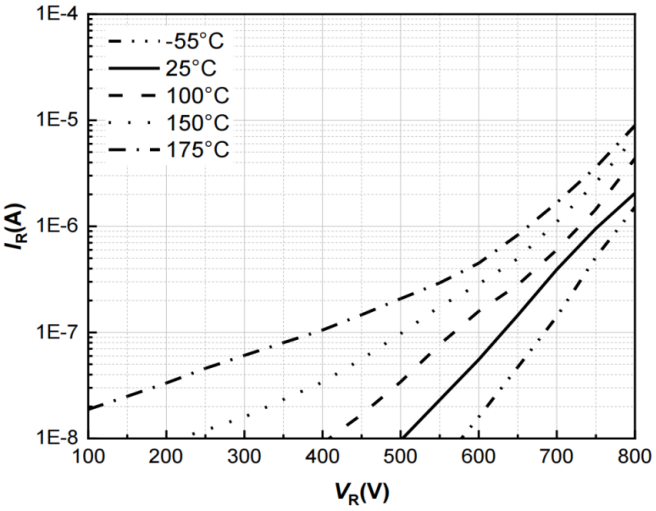

Figure2. Typical reverse current as function of reverse voltage

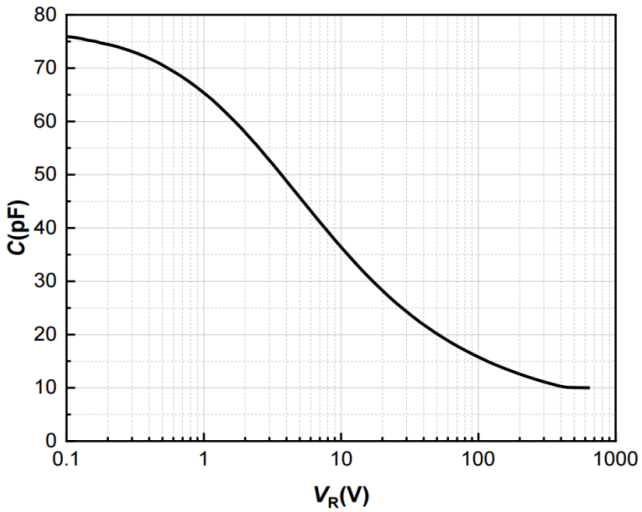

Figure3. Typical capacitance as function of reverse voltage, C=f(V_R); T_j=25°C; f=1 MHz

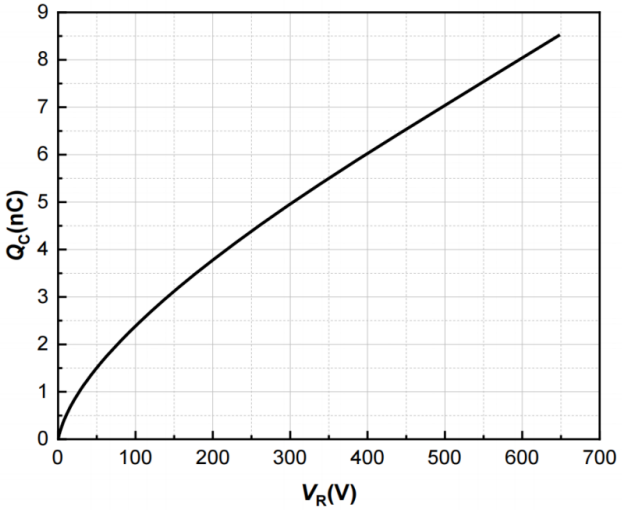

Figure 4 Typical reverse charge as function of reverse voltage

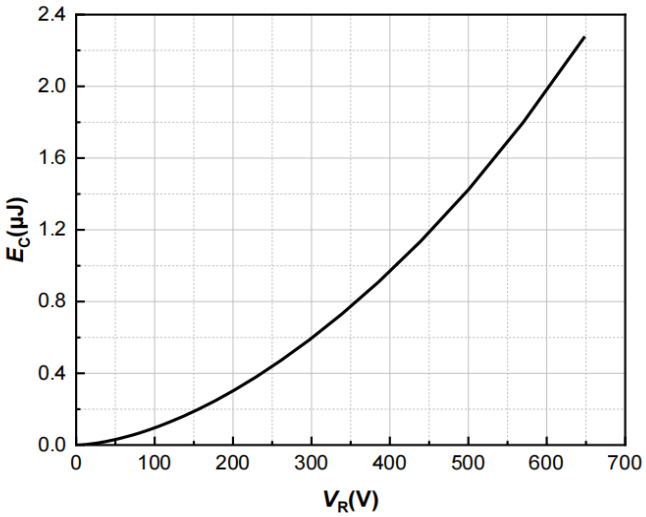

Figure 5 Capacitance stored energy

SOD-123 Package Dimensions (mm)