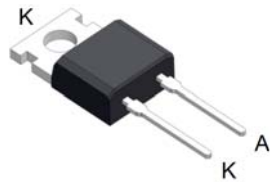
CSR006-065C3

SiC SCHOTTKY DIODE TYPE 6A

Features

- Low conduction and switching loss
- Zero reverse recovery
- High surge current capability
- Positive temperature coefficient device
- RoHS compliant and halogen free
- Temperature independent switching behavior
- Suitable for high power application
- V_{DC} 650 V
- I_F (T_C=25 / 147 °C) 14A/6A

TO-220-2L Package



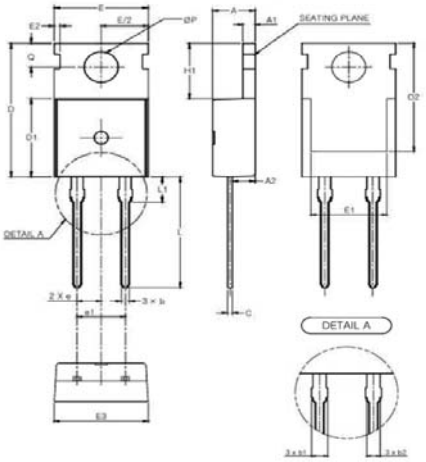
Benefits

- Increase parallel device convenience
- Enable high temperature application
- Realize compact and lightweight systems
- Allow high frequency operation
- Higher system efficiency
- High reliability

Applications

- Switching mode power supply
- PFC
- UPS
- Motor drives
- Flywheel diode in power inverters
- Solar/Wind renewable energy

Package Dimensions



Maximum Ratings

Operating Junction Temperature : -55℃ to +175℃

Storage Temperature : -55℃ to +150℃

Part Number	Maximum Recurrent Peak Reverse Voltage	Maximum DC Blocking Voltage
CSR006-065C3	650V	650V

Maximum Rating	Symbol	Conditions	Value	Unit
Repetitive peak reverse voltage	V_{RRM}	T_J=25 °C	650	V
Continuous forward current	I_F	T_C=25 °C	14	A
		T_C=147 °C	6	
Non-repetitive forward surge current	I_{FSM}	T_C=25 °C，tp=10μs	45	
Non-repetitive forward surge current	$I_{F\ max.}$	T_C=25 °C，tp=10μs	450	
Power Dissipation	P_D	T_C=25 °C	65	W

Unit : mm

SYMBOL	MIN	NOM	MAX
A	4.30	4.50	4.70
A1	1.25	1.30	1.40
A2	2.20	2.40	2.60
b	0.70	0.80	0.90
b1	1.42	1.52	1.62
b2	1.17	1.27	1.37
c	0.45	0.50	0.60
D	15.50	15.70	15.90
D1	9.00	9.20	9.40
D2		(12.70)	
E	9.70	9.90	10.10
E1		(8.00)	
E2		(0.60)	
E3	9.70	9.90	10.10
e		2.54 BSC	
e1		5.08 BSC	
H1	6.30	6.50	6.70
L	12.88	13.08	13.28
L1		(3.00)	
ØP	3.50	3.60	3.70
Q	2.70	2.80	2.90

Electrical Characteristics, at T_J =25 °C, unless otherwise specified.

Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
DC blocking voltage	V_{DC}		650	-	-	V
Diode forward voltage	V_F	I_F =6A, T_J =25°C	-	1.3	1.5	
		I_F =6A, T_J =175°C	-	1.6	-	
Reverse current	I_R	V_R =650V, T_J =25°C	-	1	50	μA
		V_R =650V, T_J =175°C	-	5	200	

AC Characteristics

Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Total capacitive charge	Q_C	V_R=400V	-	12	-	nC
Total capacitance	C	V_R=0V, f=1 MHz	-	340	-	pF
		V_R=400V, f=1 MHz	-	32	-	
Total capacitive energy	E_C	V_R=400V	-	5	-	μJ

Thermal Characteristics

Static Characteristics	Symbol	Values	Unit
		max.	
Thermal resistance from junction to case	$R_{\theta JC}$	2.3	°C/W

Typical Device Performance

Fig. 1 Typical Forward Characteristics ($I_F=f(V_F)$, $t_p=20\mu s$)

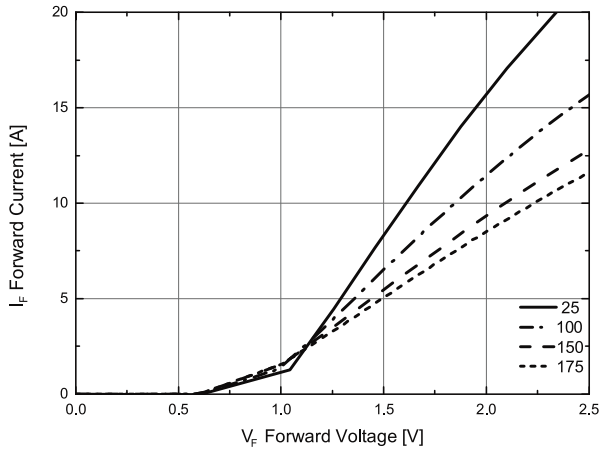


Fig. 2 Typical Reverse Current as Function of Reverse Voltage

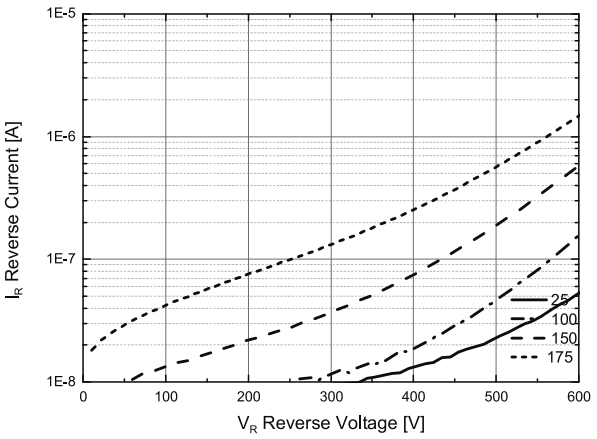


Fig. 3 Diode Forward Current as Function of Temperature

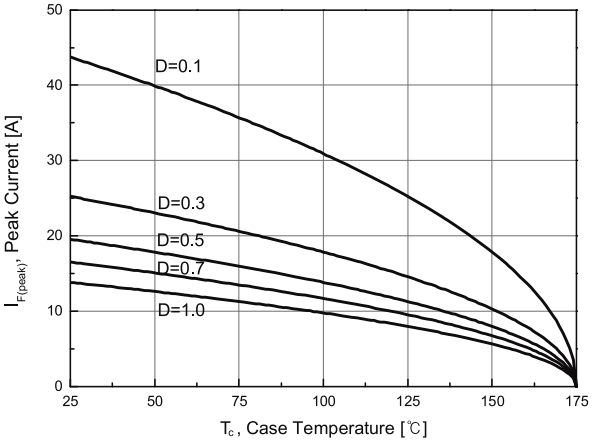


Fig. 4 Typical Capacitance as Function of Reverse Voltage

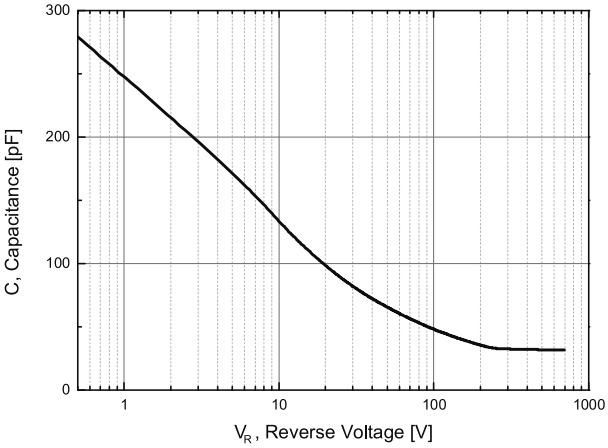


Fig. 5 Typical capacitive charge

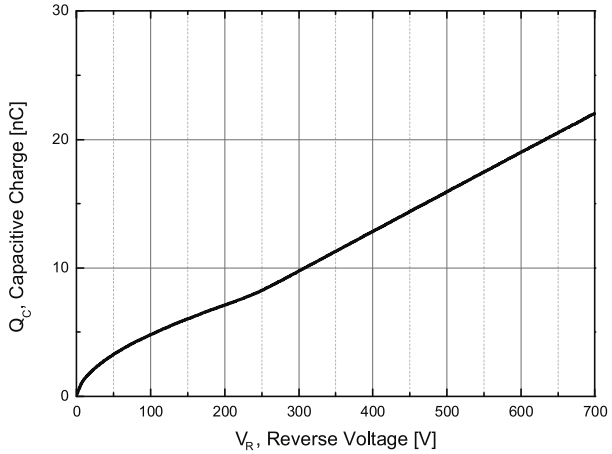
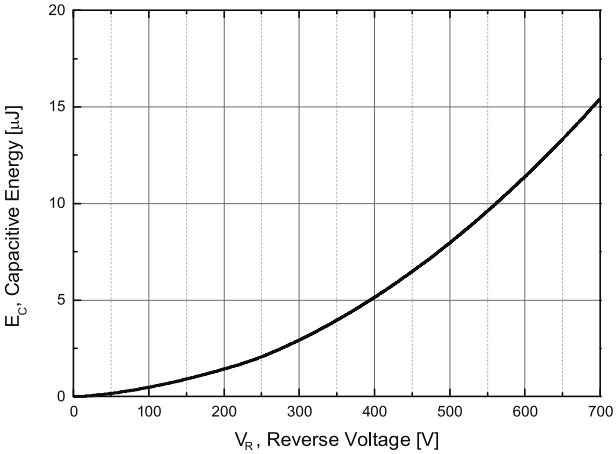


Fig. 6 Typical capacitance stored energy



Typical Device Performance

Fig. 7 Power Dissipation as Function of Case Temperature

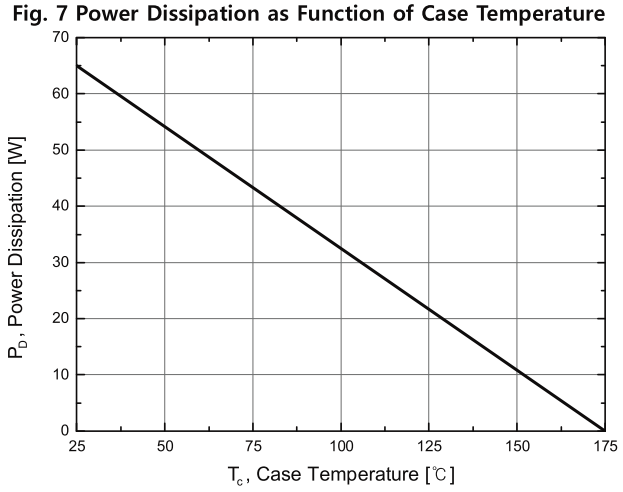
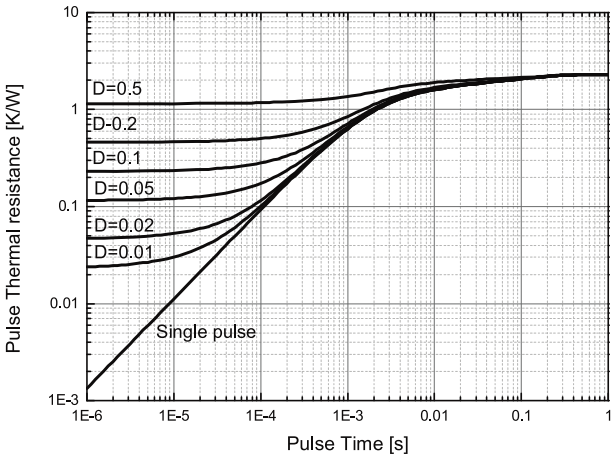


Fig. 8 Transient Thermal impedance



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