

SiC SCHOTTKY DIODE MODULE

Features

- High surge current capable
 - Zero reverse recovery current
 - High bandwidth
 - Isolation type package
 - Temperature independent switching behavior
- **V_{DC}** **650 V**
 - **I_F(T_c=100°C)** **2×400 A**

Benefits

- Unipolar rectifier
- Zero switching loss
- Higher efficiency
- Smaller heat sink
- Parallel devices without thermal runaway

Applications

- Motor drives
- Switch mode power supplies
- Ev chargers
- Solar inverters
- Welding equipment
- Power factor correction
- Diode snubber
- Automotive
- Induction heating

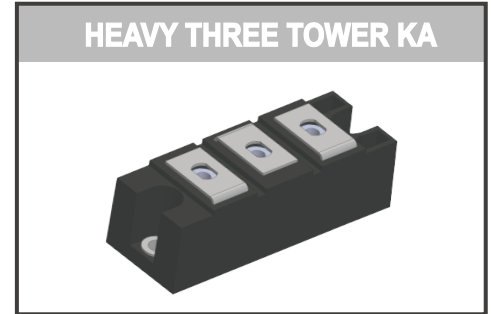
Maximum Ratings

Operating Junction Temperature : -40°C to +175°C

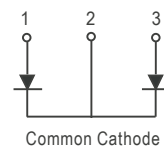
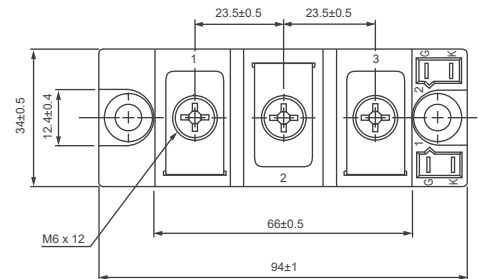
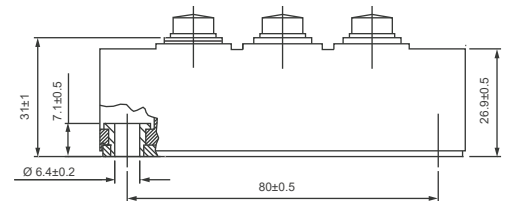
Storage Temperature : -40°C to +125°C

Part Number	Maximum Recurrent Peak Reverse Voltage	Maximum DC Blocking Voltage
CSRK2X400-065K1B	650V	650V

Maximum Rating	Symbol	Conditions	Value	Unit
Continuous forward current (per diode)	I _F	T _C =100 °C	400	A
Surge non-repetitive forward current sine halfwave (per diode)	I _{FSM}	T _C =25 °C, t _p =8.3 ms	2400	
		T _C =110 °C, t _p =8.3 ms	2200	
Non-repetitive peak forward current (per diode)	I _{F,max}	T _C =25 °C, t _p =10 μs	16000	
Repetitive peak reverse voltage	V _{R,RRM}	T _J =25 °C	650	V
Isolation voltage	V _{iso}	50/60 Hz, t=1min I _{ISOL} ≤ 1mA	3000	V
Mounting torque	To heatsink To terminal	M _d	M6 2.5±0.5 4.5±0.5	Nm



Dimensions in mm (1 mm = 0.0394")



Electrical Characteristics, at $T_J=25\text{ }^\circ\text{C}$, unless otherwise specified. (per diode)

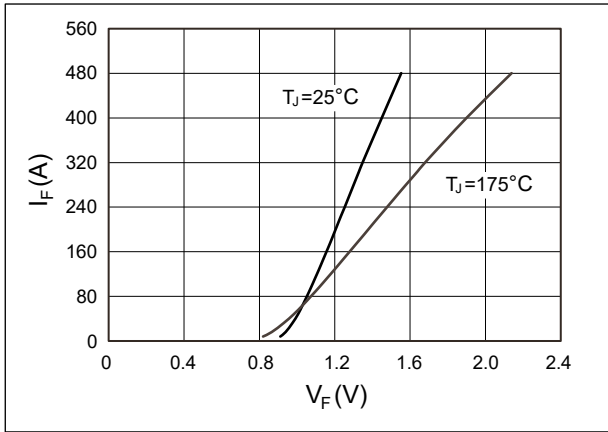
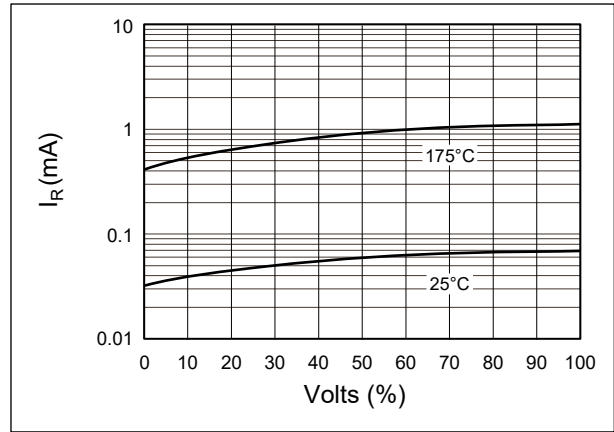
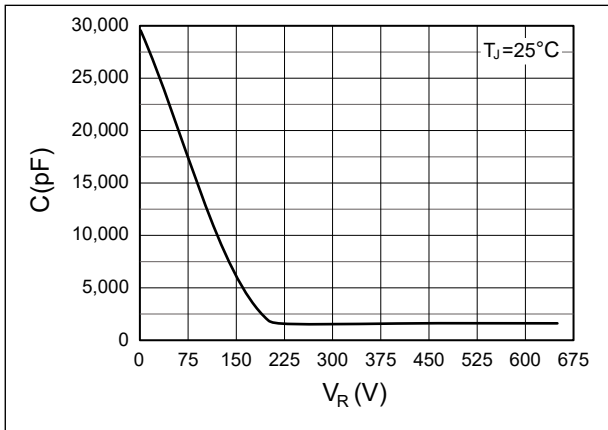
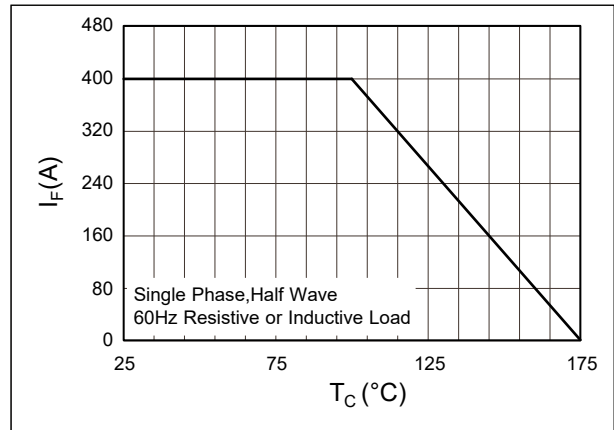
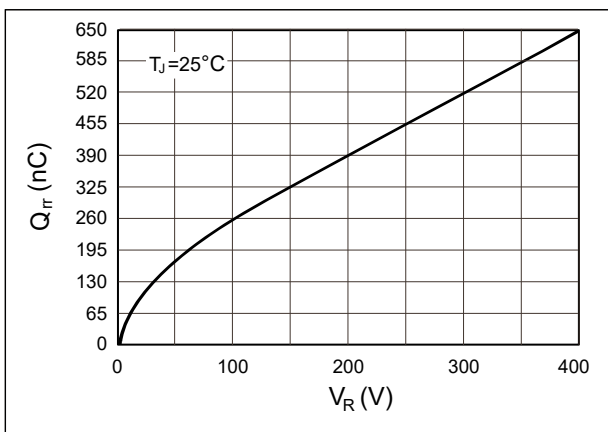
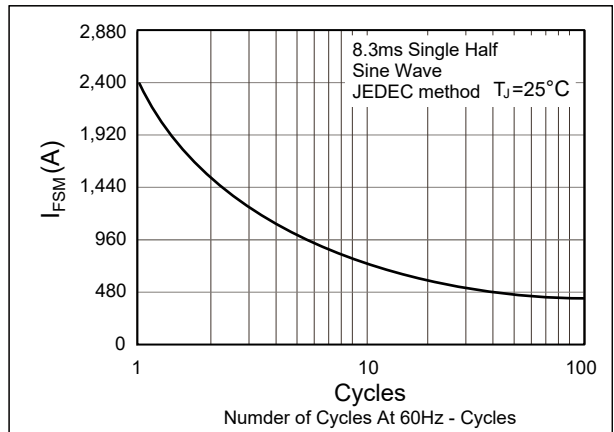
Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
DC blocking voltage	V_{DC}		650	-	-	V
Diode forward voltage	V_F	$I_F=400\text{A}, T_J=25\text{ }^\circ\text{C}$	-	1.5	1.8	
		$I_F=400\text{A}, T_J=175\text{ }^\circ\text{C}$	-	1.9	2.1	
Reverse current	I_R	$V_R=650\text{V}, T_J=25\text{ }^\circ\text{C}$	-	0.07	0.6	mA
		$V_R=650\text{V}, T_J=175\text{ }^\circ\text{C}$	-	1.2	1.5	

AC Characteristics (per diode)

Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Total capacitive charge	Q_C	$V_R=400\text{V}, T_J=25\text{ }^\circ\text{C}$	-	650	-	nC
Total capacitance	C	$V_R=200\text{V}, f=1\text{ MHz}$ $T_J=25\text{ }^\circ\text{C}$	-	1890	-	pF
		$V_R=400\text{V}, f=1\text{ MHz}$ $T_J=25\text{ }^\circ\text{C}$	-	1600	-	

Thermal Characteristics (per diode)

Characteristics	Symbol	Values	Unit
		typ.	
Thermal resistance from junction to case	$R_{\theta JC}$	0.12	$^\circ\text{C/W}$

Typical Performance
Forward Characteristics (parameterized on T_J)

Reverse Characteristics (parameterized on T_J)

Capacitance

Current Derating

Recovery Charge

Forward Surge Current


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