

SiC SCHOTTKY DIODE TYPE 20A

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 ($T_C=25 / 155\text{ }^\circ\text{C}$) 58A/20A

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

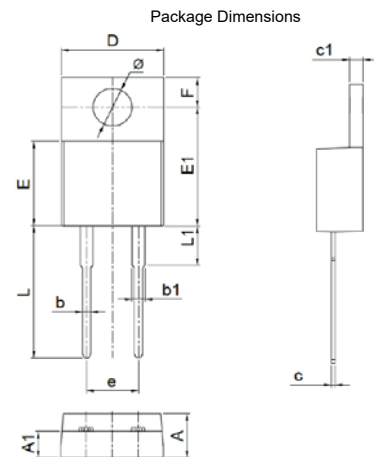
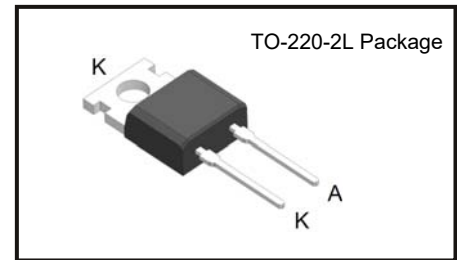
Maximum Ratings

Operating Junction Temperature : $-55\text{ }^\circ\text{C}$ to $+175\text{ }^\circ\text{C}$

Storage Temperature : $-55\text{ }^\circ\text{C}$ to $+175\text{ }^\circ\text{C}$

Part Number	Maximum Recurrent Peak Reverse Voltage	Maximum DC Blocking Voltage
CSR020-065C3	650V	650V

Maximum Rating	Symbol	Conditions	Value	Unit
Repetitive peak reverse voltage	V_{RRM}	$T_J=25\text{ }^\circ\text{C}$	650	V
Continuous forward current	I_F	$T_C=25\text{ }^\circ\text{C}$	58	A
		$T_C=100\text{ }^\circ\text{C}$	41	
		$T_C=155\text{ }^\circ\text{C}$	20	
Non-repetitive forward surge current	I_{FSM}	$T_C=25\text{ }^\circ\text{C}$	160	
Power Dissipation	P_D	$T_C=25\text{ }^\circ\text{C}$	136	W



Unit : mm

Symbol	Min	Max
A	4.30	4.70
A1	2.52	2.82
b	0.71	0.91
b1	1.17	1.37
c	0.30	0.50
c1	1.17	1.37
D	9.90	10.20
E	8.50	8.90
E1	12.00	12.50
e	4.88	5.26
F	2.60	2.80
L	13.00	14.00
L1	3.80	4.20
φ	3.75	3.95

Electrical Characteristics, at $T_C=25\text{ }^\circ\text{C}$, unless otherwise specified.

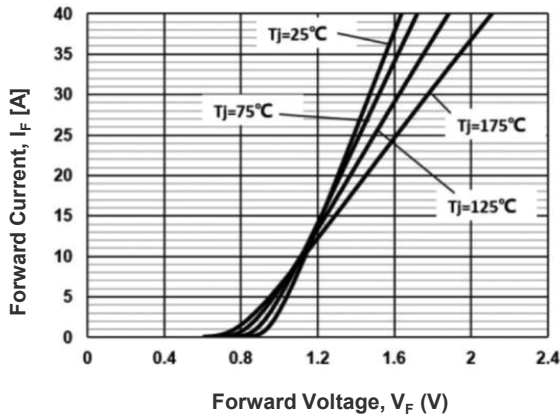
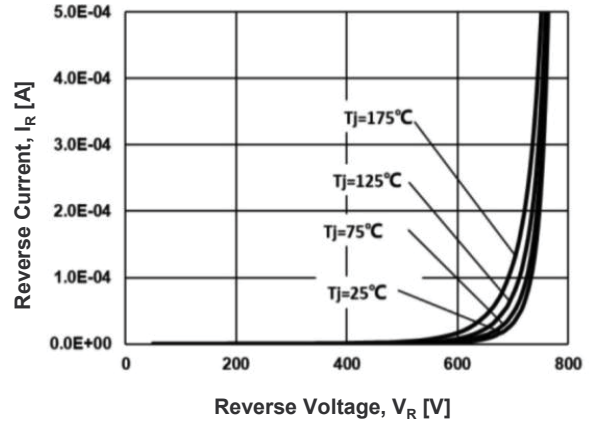
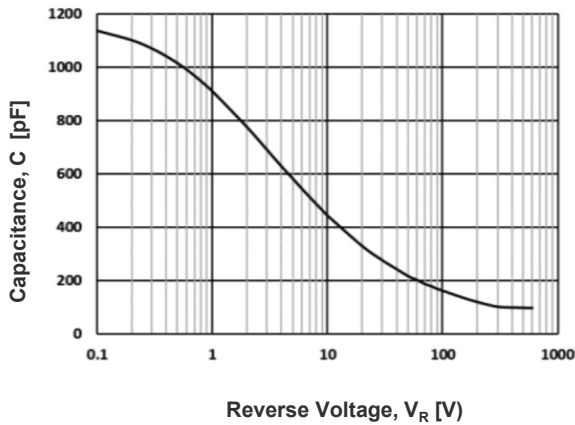
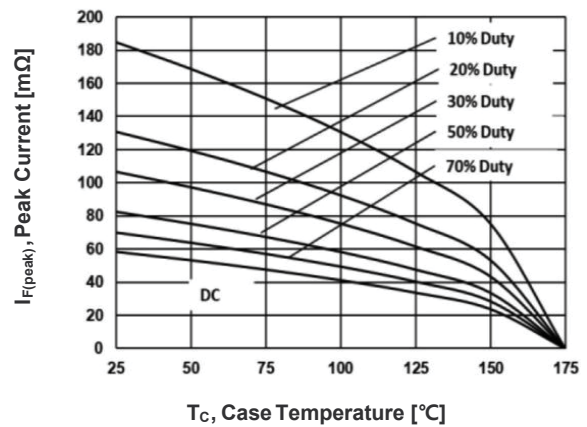
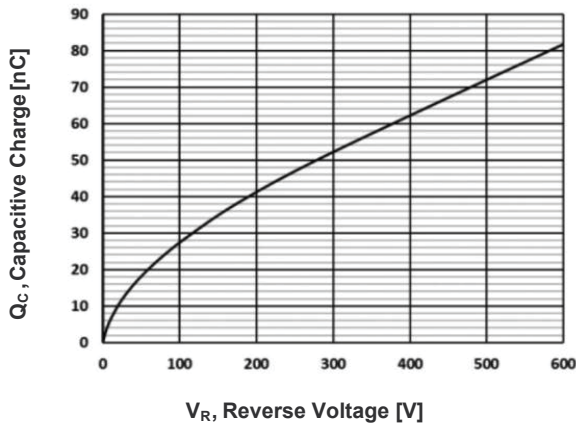
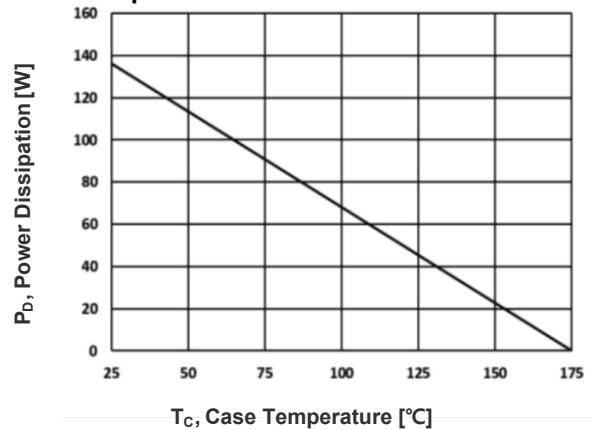
Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
DC blocking voltage	V_{DC}		650	-	-	V
Diode forward voltage	V_F	$I_F=20\text{A}, T_C=25\text{ }^\circ\text{C}$	-	1.3	1.5	
		$I_F=20\text{A}, T_C=175\text{ }^\circ\text{C}$	-	1.5	-	
Reverse current	I_R	$V_R=650\text{V}, T_C=25\text{ }^\circ\text{C}$	-	-	80	μA
		$V_R=650\text{V}, T_C=175\text{ }^\circ\text{C}$	-	-	200	

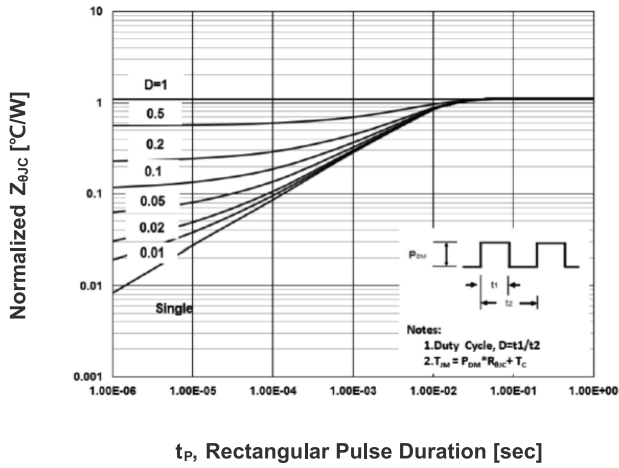
AC Characteristics

Static Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Total capacitive charge	Q_C	$V_R=400\text{V}$	-	62	-	nC
Total capacitance	C	$V_R=0\text{V}, f=1\text{ MHz}$	-	1176	-	μF
		$V_R=400\text{V}, f=1\text{ MHz}$	-	104	-	

Thermal Characteristics

Static Characteristics	Symbol	Values	Unit
		typ.	
Thermal resistance from junction to case	$R_{\theta JC}$	1.1	$^\circ\text{C/W}$

Typical Device Performance
Fig.1 Typical Forward Characteristics

Fig.2 Typical Reverse Characteristics

Fig.3 Typical Junction Capacitance vs. Reverse Voltage

Fig.4 Diode Forward Current as Function of Temperature

Fig.5 Typical Reverse Charge as Function of Reverse Voltage

Fig.6 Power Dissipation as Function of Case Temperature


Typical Device Performance
Fig.7 Transient Thermal impedance


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