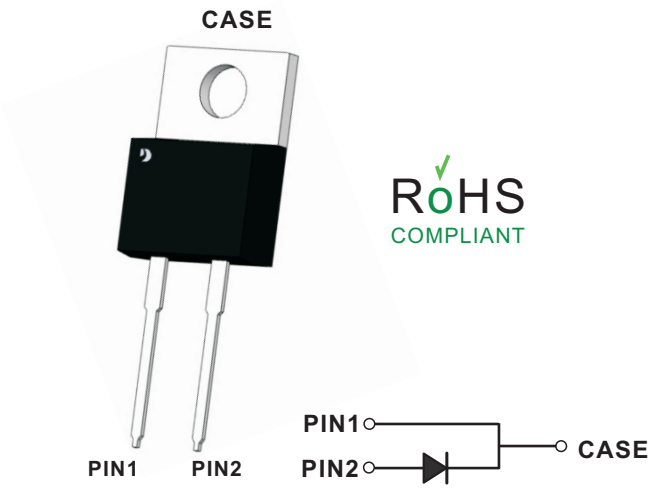
SiC Schottky Diode

Product Summary

V_{RRM}	650V
I_F (Tc 148℃)	20A
Q_C	41 nC

TO-220ACW



RoHS COMPLIANT

Features

- Low conduction loss due to low VF
- Extremely low switching loss by tiny QC
- Essentially No Switching Losses
- Increased Power Density
- Enabling Higher Switching Frequency
- Lead Free Finish, RoHS Compliant

Applications

- Switch Mode Power Supplies
- Uninterruptible Power Supplies
- Motor Drivers
- Power factor correction

Maximum Ratings

Ratings At 25℃ Ambient Temperature Unless Otherwise Specified

Parameter	Symbols	SC20065C	Test Conditions	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	650	Tc=25℃	V
Surge Peak Reverse Voltage	V_{RSM}	650	Tc=25℃	V
Maximum DC Blocking Voltage	V_{DC}	650	Tc=25℃	V
Forward Current	I_F	56 26 20	Tc≤25℃ Tc≤135℃ Tc≤148℃	A
Peak Forward Surge Current,8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)(Per leg)	I_{FSM}	160	Tc=25℃, Tp=8.3ms, Half Sine Wave	A
Power Dissipation	PD	93	Tc=25℃	W
Operating Junction Temperature Range	T_j	-55 ~ +175		℃
Storage Temperature Range	T_{stg}	-55 ~ +175		℃

Electrical Characteristics

Ratings At 25℃ Ambient Temperature Unless Otherwise Specified

Parameter	Symbols	Test Conditions	Min	Typ	Max	Units
Instantaneous forward voltage per leg	V_F	I_F=20A,T_J=25℃ I_F=20A,T_J=175℃		1.3 1.4	1.5 1.7	V
Reverse current per leg	I_R	V_R=650V,T_J=25℃ V_R=650V,T_J=175℃		10 40	100 400	uA
Total Capacitance	C	V_R=0V,T_J=25℃,f=1MHz		1210		pF
Total Capacitive Charge	Q_C	V_R=400V,I_F=20A di/dt=200A/us,T_J=25℃		41		nC

Thermal Characteristics

Parameter	Symbols	TYP	Units
Thermal Resistance from Junction to Case	$R_{\theta JC}$	1.6	°C/W

Typical Performance

Figure 1. Total Capacitance vs. Reverse Voltage

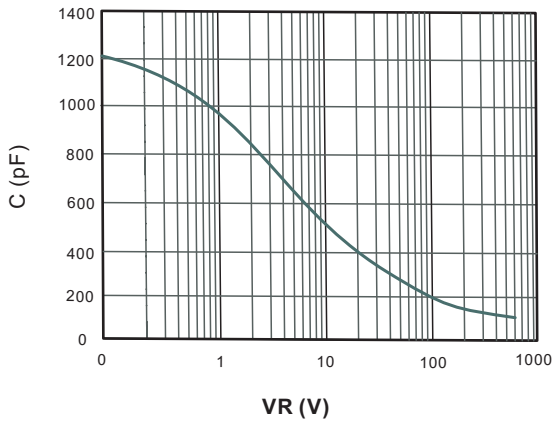


Figure 2. Total Capacitive Charge vs. Reverse Voltage

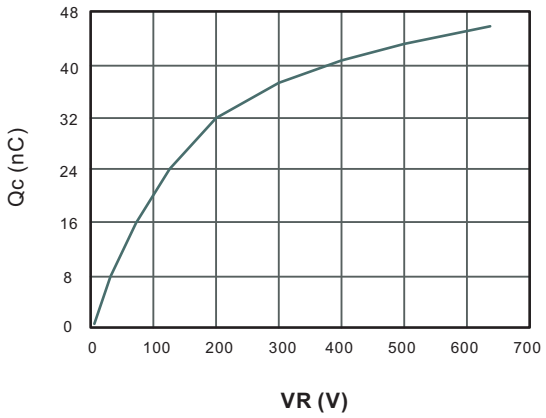


Fig.3 Typical Forward Current Derating Curve

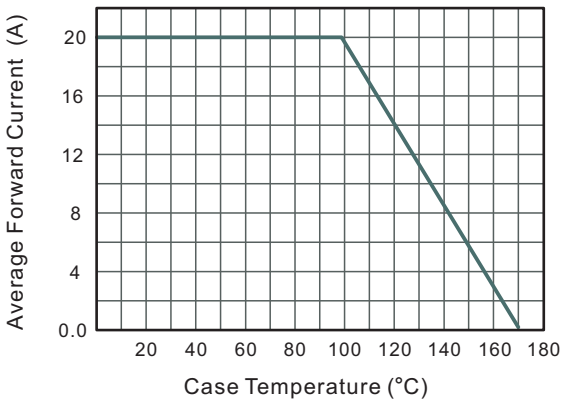


Fig.4 Power Dissipation

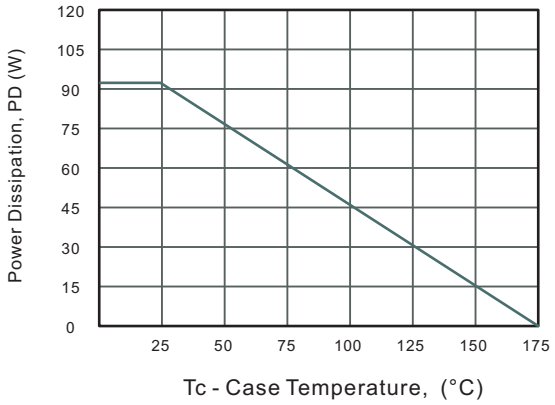


Fig.5 Typical Forward Characteristic(per leg)

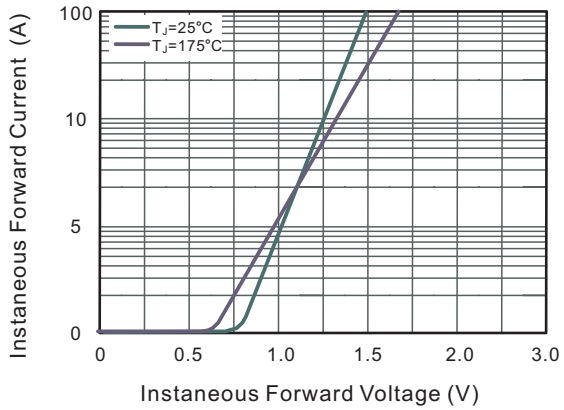


Fig.6 Typical Reverse Characteristics

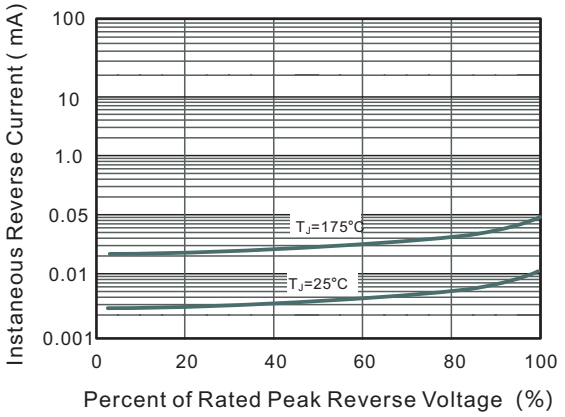


Fig.7 Max. Transient Thermal Impedance

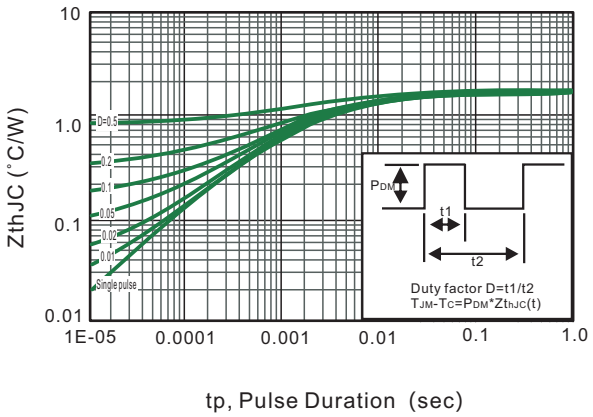
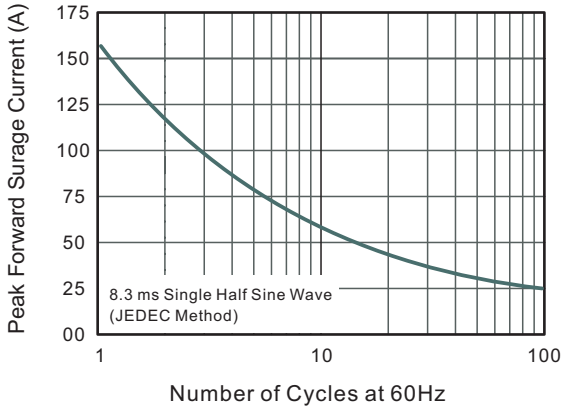
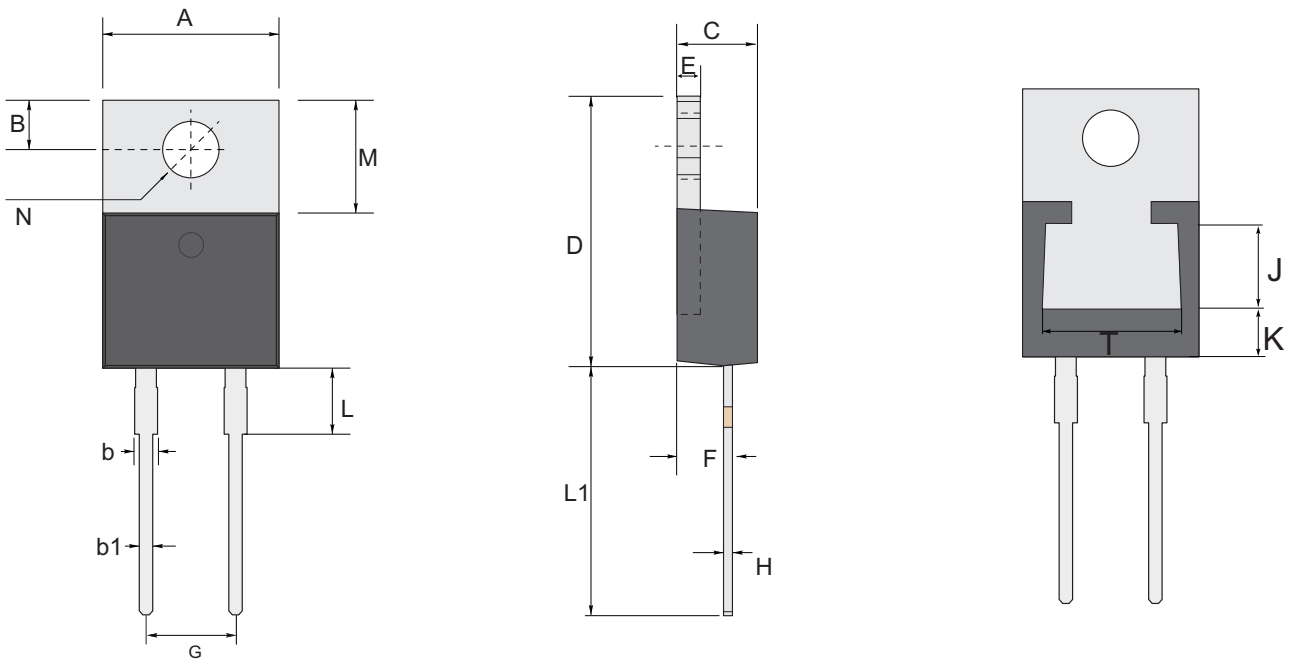


Fig.8 Maximum Non-Repetitive Peak Forward Surage Current



Package Outline
Through Hole Package ; 2 leads

TO-220ACW



TO-220ACW mechanical data

UNIT		A	B	b	b1	C	D	E	F	G	H	L	L1	M	N	J	T	K
mm	max	10.45	2.94	1.77	0.94	4.76	16.0	1.40	3.37	5.1 typ.	0.64	4.20	14.79	6.39 typ.	3.84 typ.	4.65 ref.	7.7 ref.	3.22 ref.
	typ	9.94	2.74	1.27	0.81	4.57	15.09	1.27	3.07		0.38	3.89	13.18					
	min	9.85	2.54	1.14	0.62	4.42	14.6	1.14	2.77		0.35	2.80	13.08					
mil	max	411	116	70	37	187	630	55	133	201 typ.	25	165	582	252 typ.	151 typ.	183 ref.	303 ref.	127 ref.
	typ	391	108	50	32	180	594	50	121		15	153	519					
	min	388	100	45	24	174	575	45	109		14	110	515					

Marking

Type number	Marking code
SC20065C	SC20065C

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