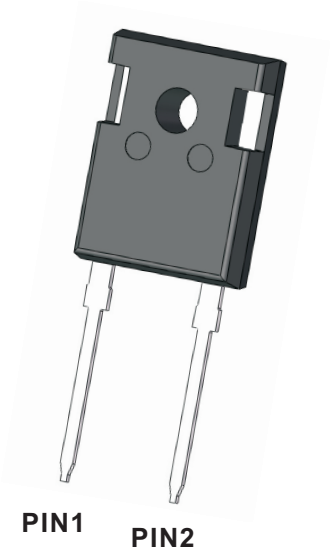
SiC Schottky Diode

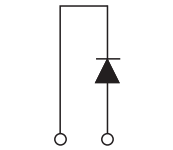
Product Summary

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

TO-247-2L



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

Mechanical data

• Case: TO-247-2L
• pprox. Weight: 6.0g (0.21oz)
• Lead free finish, RoHS compliant
• Case Material: “Green” molding compound, UL flammability classification 94V-0,“Halogen-free”.

Maximum Ratings

Ratings At 25℃ Ambient Temperature Unless Otherwise Specified

Parameter	Symbols	SC20065W	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	187	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	$R_{\theta JC}$	0.8	°C/W

Typical Performance

Figure 1. Total Capacitance vs. Reverse Voltage

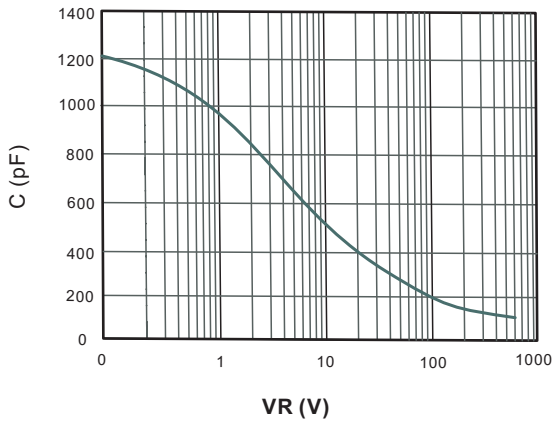


Figure 2. Total Capacitive Charge vs. Reverse Voltage

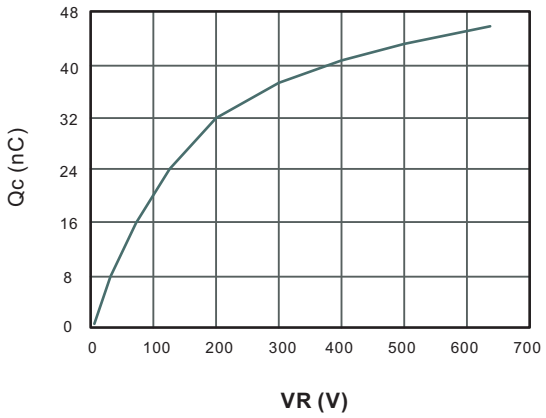


Fig.3 Typical Forward Current Derating Curve

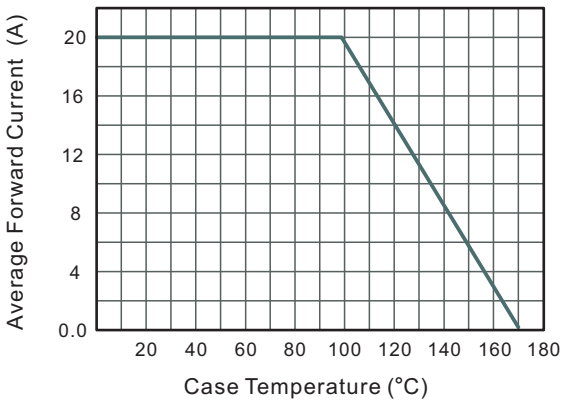


Fig.4 Power Dissipation

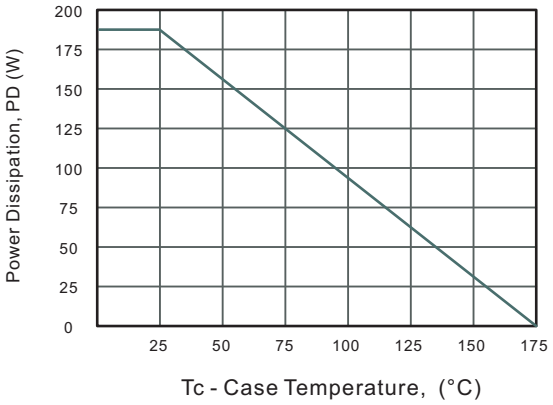


Fig.5 Typical Forward Characteristic(per leg)

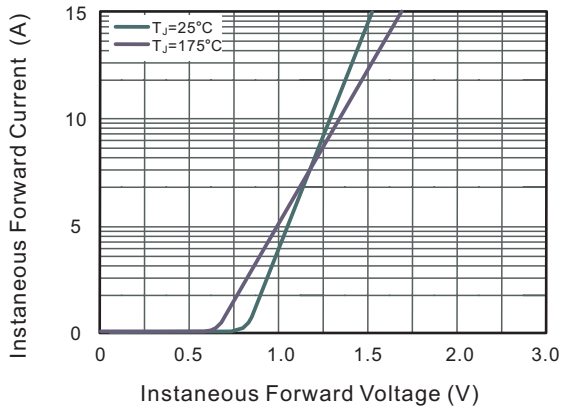


Fig.6 Typical Reverse Characteristics

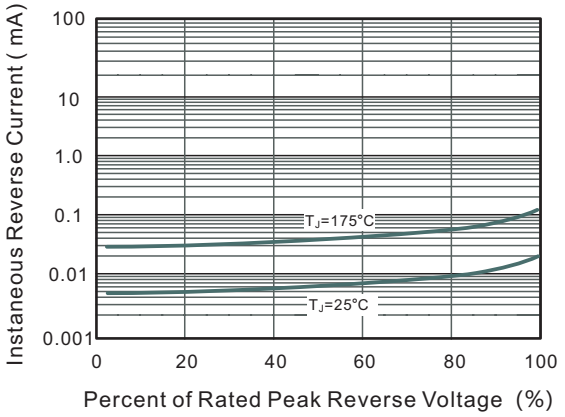


Fig.7 Max. Transient Thermal Impedance

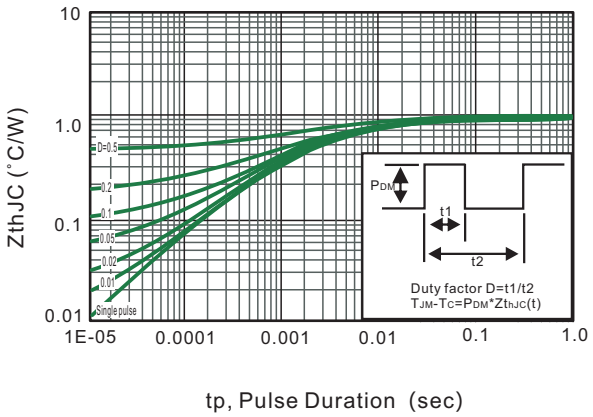
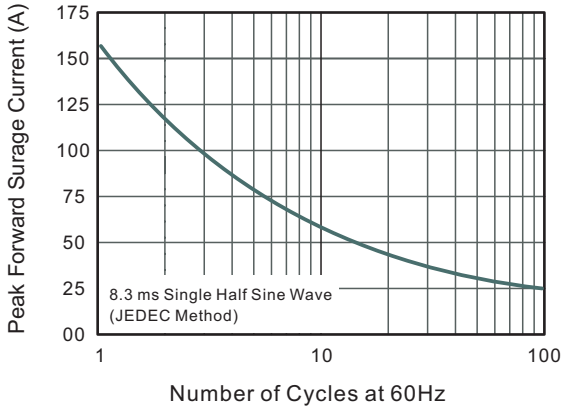
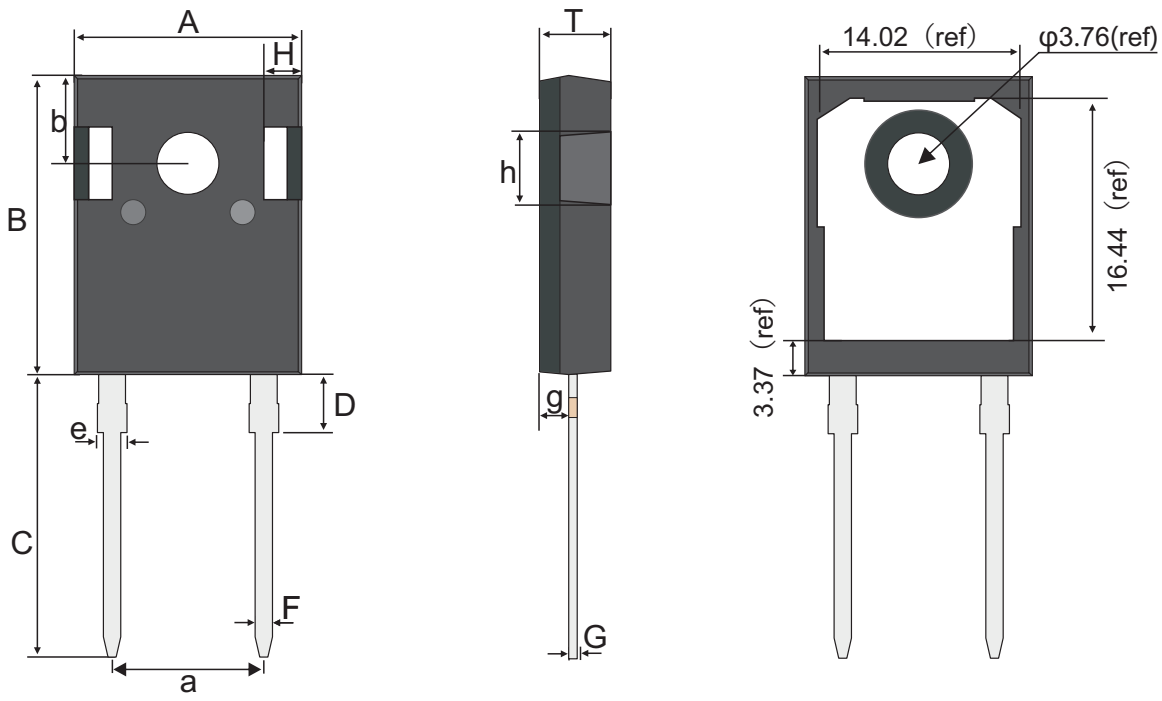


Fig.8 Maximum Non-Repetitive Peak Forward Surage Current



Package Outline
Through hole Package ; 2 leads

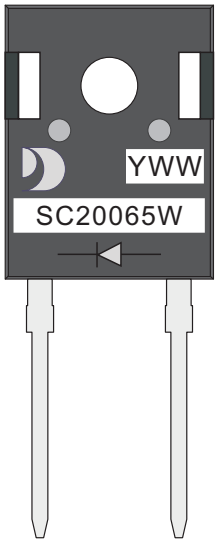
TO-247-2L



TO-247-2L mechanical data

UNIT		A	B	b	C	D	e	F	g	G	T	a	H	h
mm	max	16.01	21.18	6.26	20.2	4.25	2.2	1.3	2.49	0.7	5.2	10.98	2.71	5.37
	typ	15.81	20.98	6.16	20.0	4.15	2.05	1.2	2.39	0.6	5.0	10.88	2.51	5.17
	min	15.61	20.78	6.06	19.8	4.05	1.9	1.1	2.29	0.5	4.8	10.78	2.31	4.97
mil	max	630	834	246	795	167	87	51	98	28	205	432	107	211
	typ	622	826	243	787	163	81	47	94	24	197	428	99	204
	min	615	818	239	780	159	75	43	90	20	189	424	91	196

Marking Diagram



YWW: Date Code
Y:Years(0~9)
WW:Week
SC20065W: Product name
(NOTE:The weekly code is based on the actual number of weeks in the calendar year.)

Important Notice and Disclaimer

Jingdao Microelectronics reserves the right to make changes to this document and its products and specifications at any time without notice.
Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.

Jingdao Microelectronics makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does Jingdao Microelectronics assume any liability for application assistance or customer product design.

Jingdao Microelectronics does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of Jingdao Microelectronics.

Jingdao Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of Jingdao Microelectronics.