RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

SC3S12020B

200V/20A Silicon Carbide Schottky Diode

Features

- Positive temperature co-efficient
- Temperature-independent switching behavior
- Operation temperature up to 175℃
- Zero reverse recovery current
- Zero forward recovery voltage

SC3S12020B

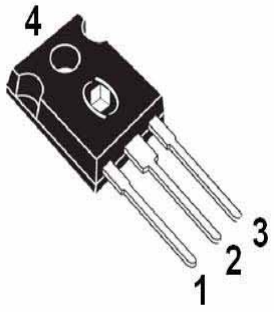
Description		
V_{RRM}	1200	V
$I_{F,}$ T_c ≤ 135℃	12.5 (per leg)	A
Q_C	138	nC

Benefits

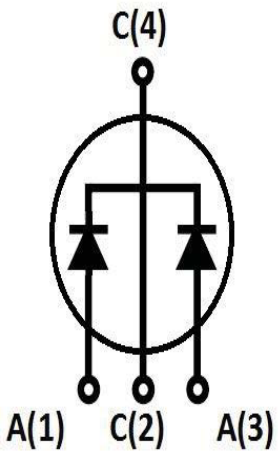
- Uniploar rectifiers
- Essentially no switching losses
- Parallel devices without thermal runaway
- Reduction of heat sink requirements

Applications

- SMPS， PFC
- Motor driving， PV inverter， UPS，
  Wind engine， Rail traction， EV/HEV.



Package:
TO-247



Part Number	Package	Marking
SC3S12020B	TO-247-3pin	SC12020B

2023-07/26
REV:B

Maximum Ratings (Tc=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}		1200	V
Surge Peak Reverse Voltage	V_{RSM}		1200	
DC Blocking Voltage	V_{DC}		1200	
Continuous Forward Current	I_F	T_C=25℃ T_C=135℃ T_C=155℃	25.9* 12.5* 10*	A
Repetitive Peak Forward Surge Current	I_{FRM}	T_C=25℃, tp=10ms, Half Sine Wave, D=0.3	50*	A
Non-repetitive Peak Forward Surge current	I_{FSM}	T_C=25℃, tp=10ms, Half Sine Wave	100*	A
Power Dissipation	P_{TOT}	T_C=25℃	141.5*	W
		T_C=110℃	62*	W
Operation temperature	T_j		-55℃ to 175℃	℃
Storage temperature	T_{stg}		-55℃ to 175℃	℃
Mounting Torque		M3 Screw 6-32 Screw	1 8.8	Nm lbf-in

Thermal Characteristics

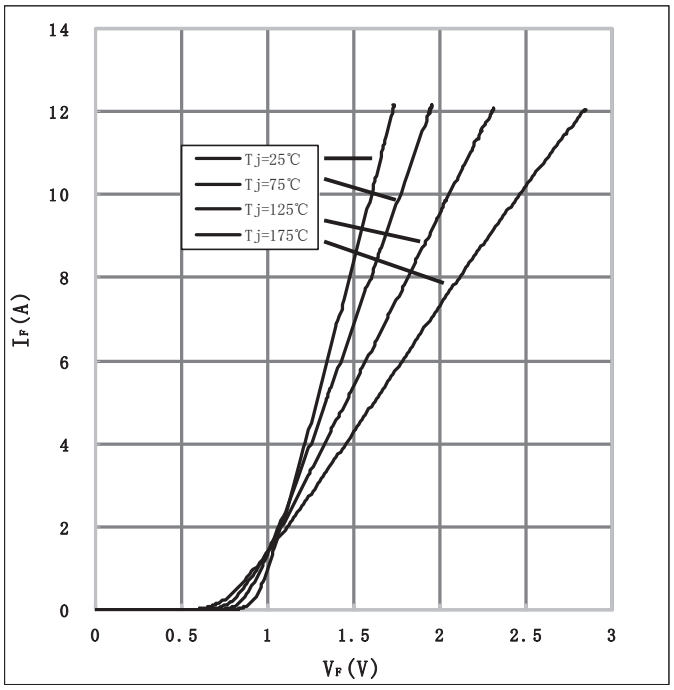
Parameter	Symbol	Test condition	Value	Unit
			Typical	
Thermal resistance from Junction to Case	$R_{th\,JC}$		1.06* 0.53**	℃/W

Electrical Characteristics

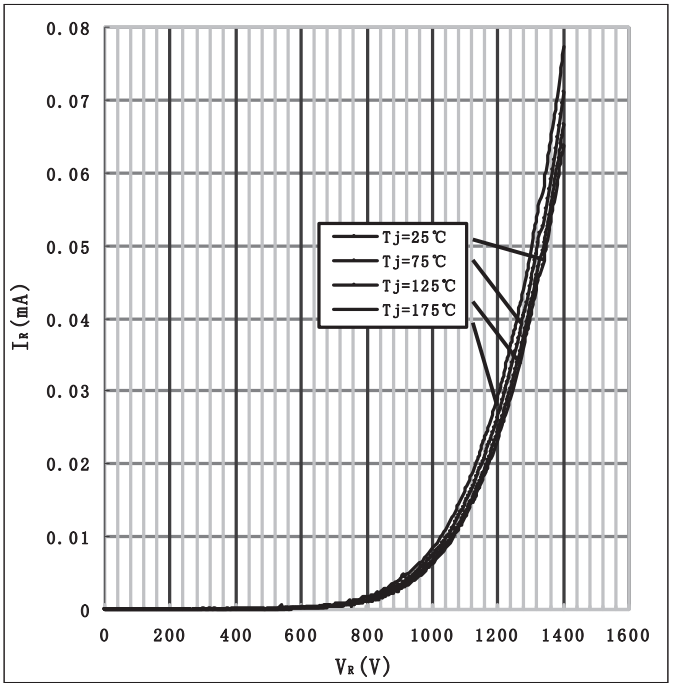
Parameter	Symbol	Test Condition	Value		Unit
			Typ.	Max.	
Forward voltage	V_F	I_F=10A, T_j=25℃	1.63	1.7	V
		I_F=10A, T_j=175℃	2.55	3	
Reverse current	I_R	V_R=1200V, T_j=25℃	50	100	μA
		V_R=1200V, T_j=175℃	100	200	
Total capacitive charge	Q_C	V_R=800V, T_j=150℃ $Qc=\int_0^{VR} C(V)dV$	69	-	nC
Total capacitance	C	V_R=0V, T_j=25℃, f=1MHZ	770	790	pF
		V_R=400V, T_j=25℃, f=1MHZ	52	54	
		V_R=800V, T_j=25℃, f=1MHZ	50	51	

RATING AND CHARACTERISTICS CURVES (SC3S12020B)

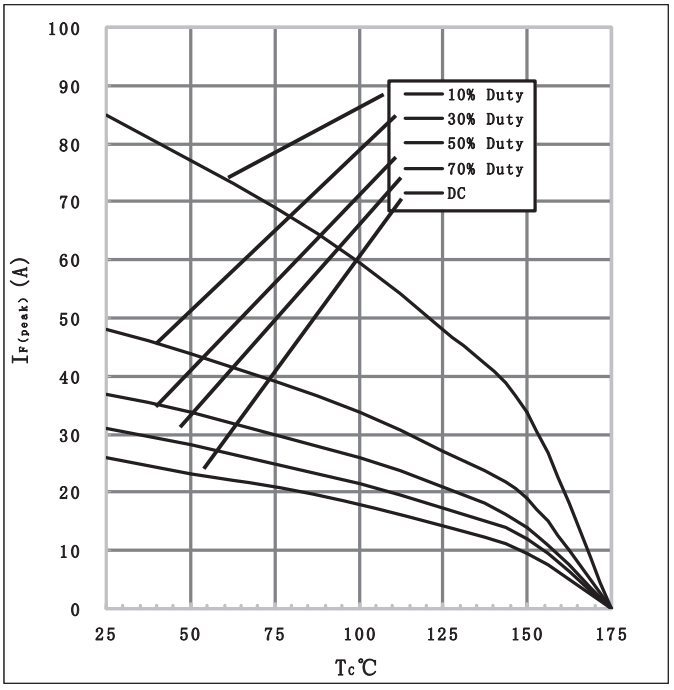
1) Forward characteristics



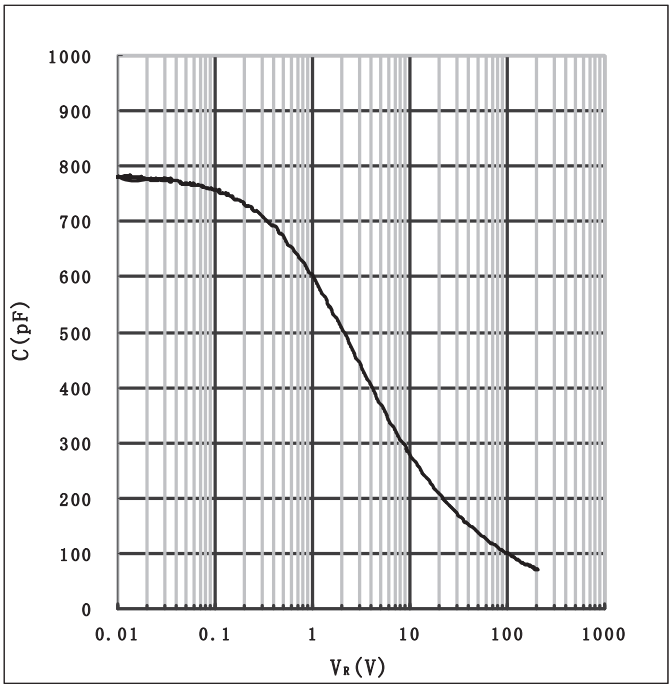
2)Reverse characteristics



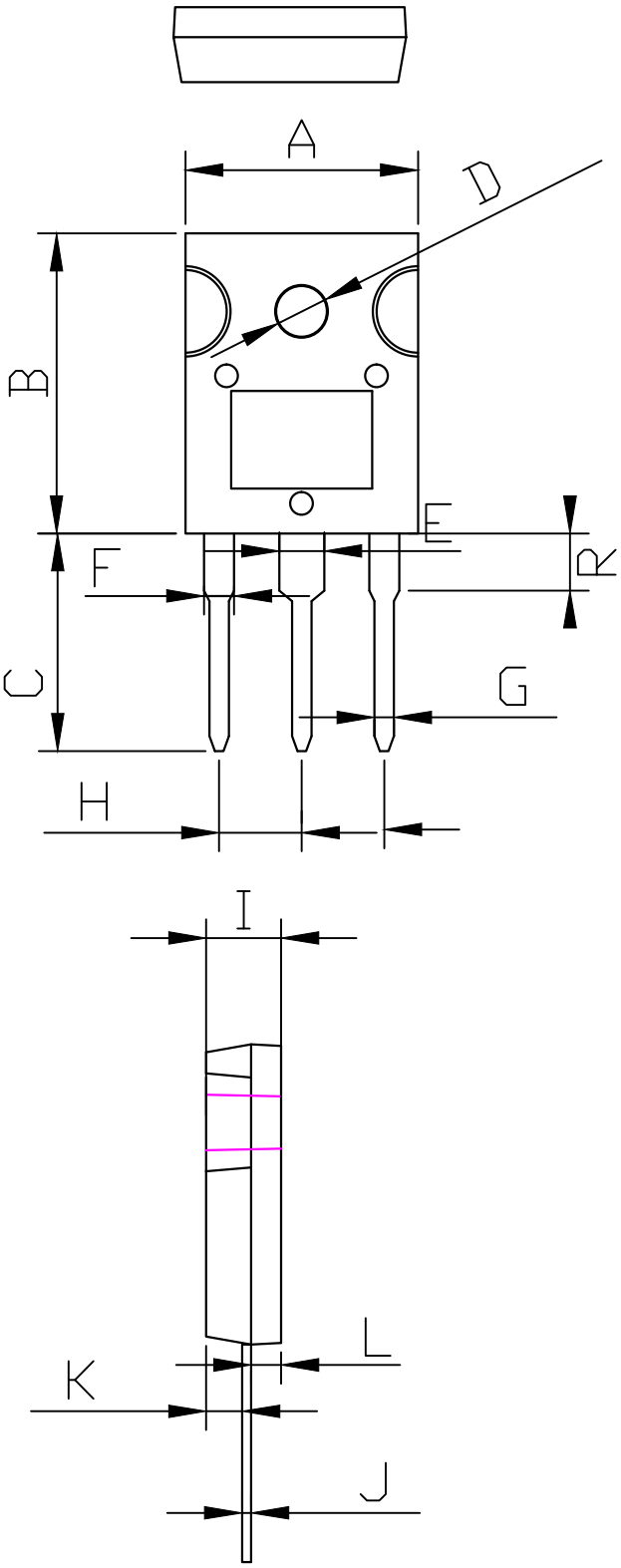
3) Current Derating
（10%，30%，50%，70% Duty ,DC）



4) Capacitance vs. Reverse voltage



TO-247



项目	mm		
	标准值	Min	Max
A	15.5	15.45	15.55
B	20	19.9	20.1
C	14.5	14.4	14.6
D	3.5	3.3	3.6
E	3	2.95	3.05
F	2	1.95	2.05
G	1.3	1.2	1.4
H	5.5	5.4	5.6
I	5	4.95	5.05
J	0.6	0.58	0.62
K	2.4	2.3	2.5
L	2	1.9	2.1
R	3.8	3.6	4

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