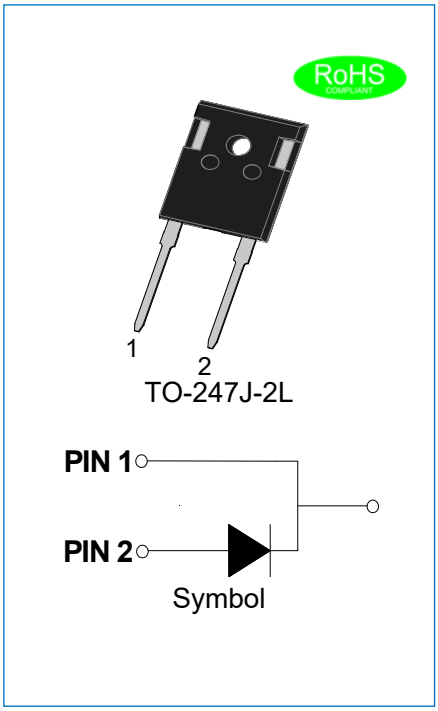
JCD10SL120A

SiC Schottky Diode

Rev.1.3

DESCRIPTION

- ✧ 1200V Schottky diode
- ✧ Zero reverse recovery current
- ✧ Zero forward recovery voltage
- ✧ High frequency operation
- ✧ Switching characteristics independent of temperature
- ✧ Fast switch
- ✧ Positive temperature coefficient of forward voltage (V_F)



BENEFIT

- ✧ Lower switching loss
- ✧ No thermal runaway in parallel devices
- ✧ Lower heatsink dependent

APPLICATION

- ✧ Switch mode power supplies(SMPS)
- ✧ Boost diodes in PFC or DC/DC stages
- ✧ Free wheeling diodes in inverter stages
- ✧ AC/DC converters

ABSOLUTE MAXIMUM RATING (Rating at 25℃ junction temperature unless otherwise specified.)

Parameter		Symbol	Value	Unit
Maximum repetitive peak reverse voltage		V_{RRM}	1200	V
Maximum DC blocking voltage		V_{DC}	1200	V
Average forward current	T_C=150℃	$I_{F(AV)}$	10	A
Repetitive peak forward surge current	t_P=10ms,T_C=25℃	I_{FRM}	50	A
Non-repetitive peak forward surge current	t_P=10ms,T_C=25℃	I_{FSM}	80	A
Non-repetitive peak forward surge current	T_C=25℃,t_P=10μs, Pulse	I_{FMax}	600	A
Power dissipation	T_C=25℃ T_C=110℃	P_{tot}	205 90	W
Operating junction and storage temperature range		T_J,T_{STG}	-55 to+175	℃

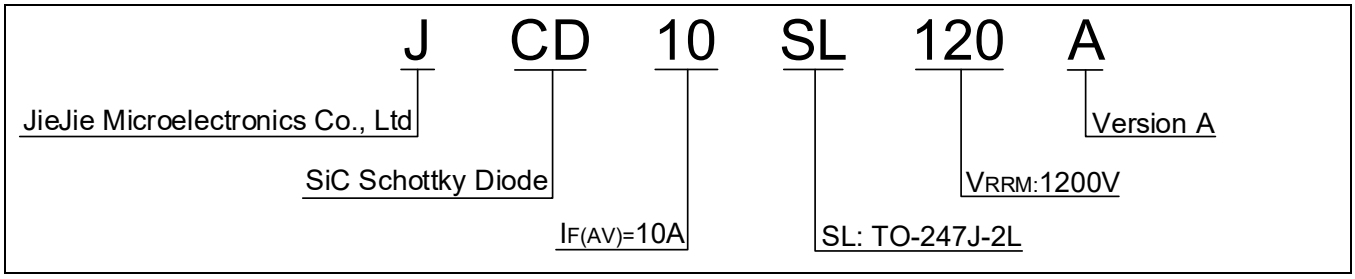
ELECTRICAL CHARACTERISTICS(Rating at 25℃ junction temperature unless otherwise specified.)

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	I_F=10A,T_j=25℃	V_F	-	1.5	1.8	V
	I_F=10A,T_j=175℃		-	2.2	3.0	
Reverse current	V_R=1200V,T_j=25℃	I_R	-	10	50	μA
	V_R=1200V,T_j=175℃		-	20	100	
Total capacitance	V_R=0V,f=1MHz	C	-	610	-	pF
	V_R=400V,f=1MHz		-	46	-	
	V_R=800V,f=1MHz		-	36	-	
Total capacitance charge	V_R=800V,T_j=25℃	Q_C	-	50	-	nC
Capacitance stored energy	V_R=800V	Ec	-	25	-	μJ

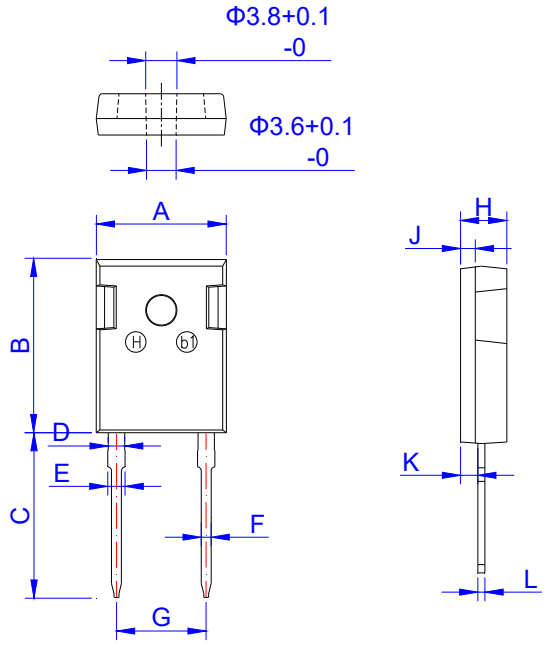
THERMAL CHARACTERISTICS

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	0.73	℃/W

ORDERING INFORMATION



PACKAGE MECHANICAL DATA



TO-247J-2L

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	21.20	0.819	0.827	0.835
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G	10.50		11.30	0.413		0.445
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031

CHARACTERITICS CURVE

FIG.1: Forward characteristics

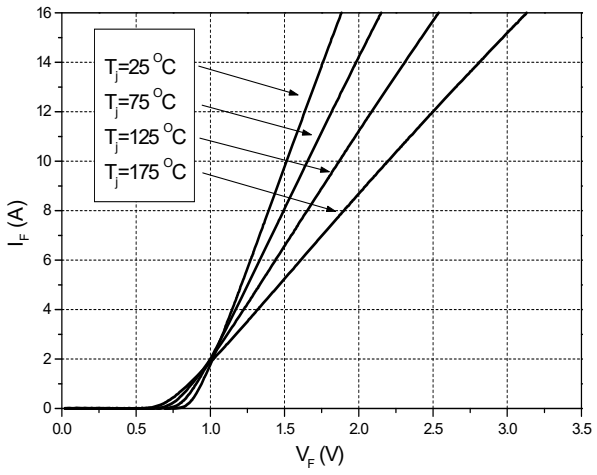
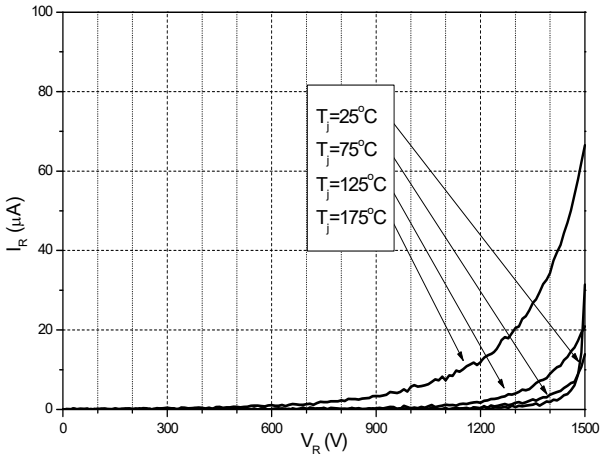


FIG.2: Reverse characteristics



CHARACTERITICS CURVE

FIG.3: Capacitance vs. reverse voltage

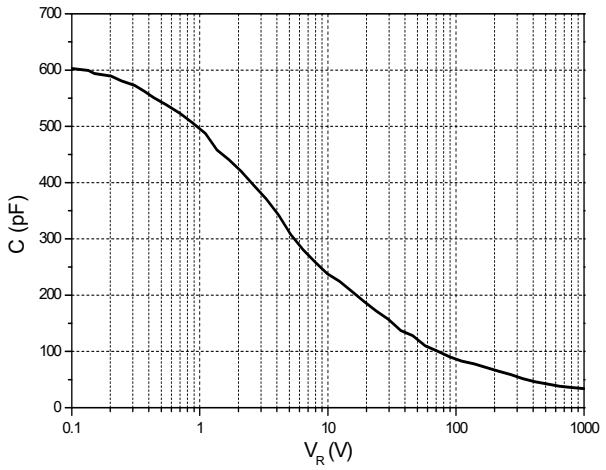


FIG.4: Transient thermal impedance

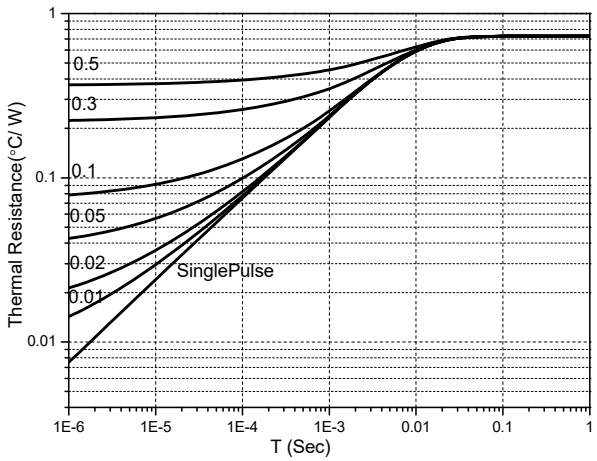


FIG.5: Capacitance charge vs. reverse voltage

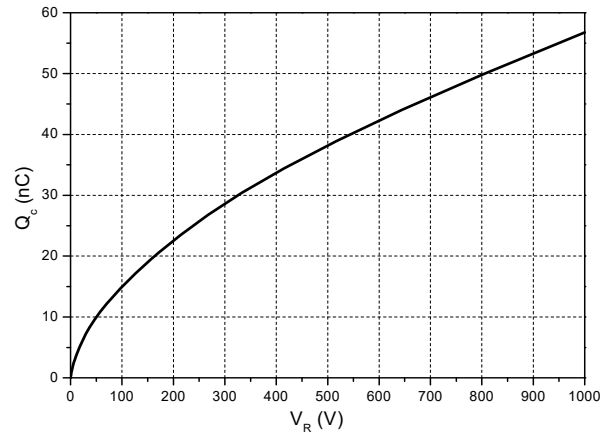


FIG.6: Capacitance stored energy

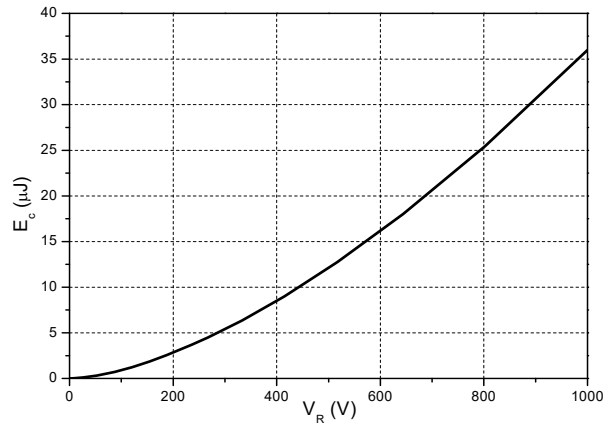


FIG.7: Power derating

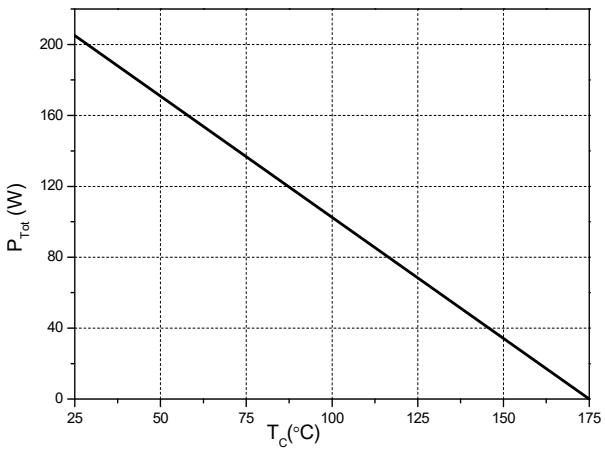
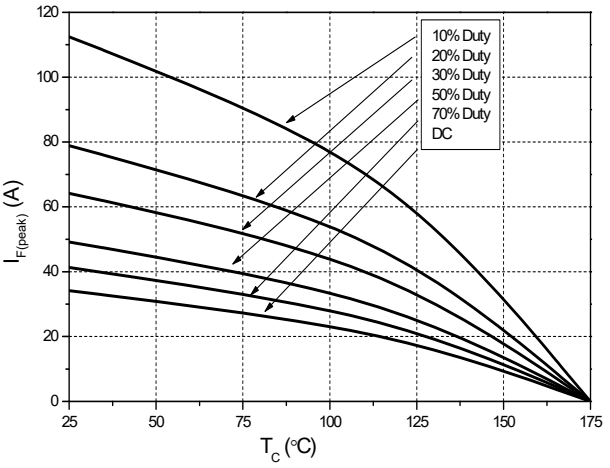


FIG.8: Current derating



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