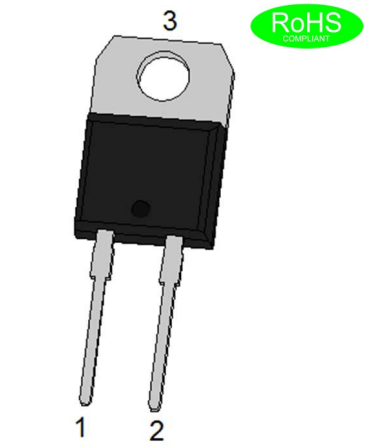
JCD08A065A

SiC Schottky Diode

Rev.2.1

DESCRIPTION

- ✧ 650V 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)



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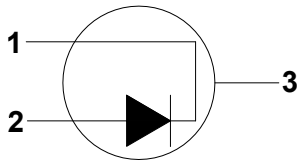


Symbol

BENEFIT

- ✧ Lower switching loss
- ✧ No thermal runaway in parallel devices
- ✧ Lower heatsink dependent
- ✧ Electrically isolated package
- ✧ Ceramic package provides 2500V isolation

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}	650	V
Maximum DC blocking voltage		V_{DC}	650	V
Average forward current	T_C=150℃	$I_{F(AV)}$	8	A
Repetitive peak forward surge current	t_P=10ms,T_C=25℃	I_{FRM}	65	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}	500	A
Power dissipation	T_C=25℃ T_C=110℃	P_{tot}	117 51	W
Operating junction temperature range		T_j	-55 to+175	℃
Storage temperature range		T_{stg}	-55 to+175	℃

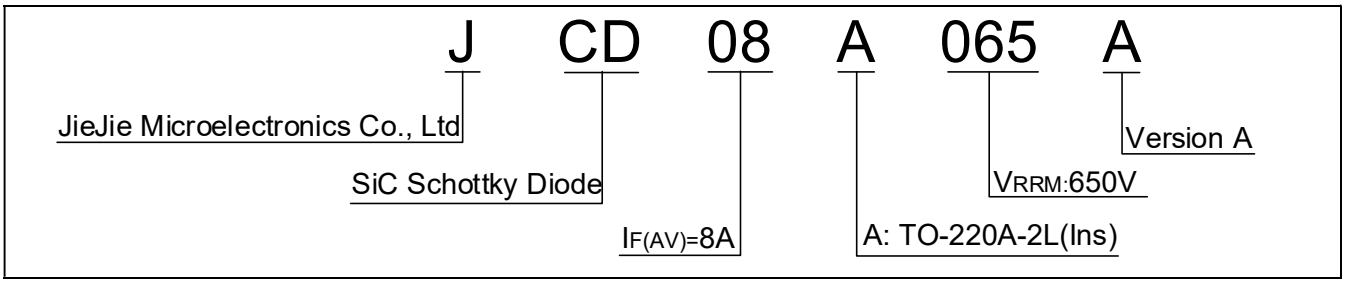
ELECTRICAL CHARACTERISTICS(Rating at 25℃ junction temperature unless otherwise specified.)

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	I_F=8A,T_j=25℃	V_F	-	1.4	1.8	V
	I_F=8A,T_j=175℃		-	1.75	2.0	
Reverse current	V_R=650V,T_j=25℃	I_R	-	5	20	μA
	V_R=650V,T_j=175℃		-	30	80	
Total capacitance	V_R=0V,f=1MHz	C	-	470	-	pF
	V_R=200V,f=1MHz		-	40	-	
	V_R=400V,f=1MHz		-	32	-	
Total capacitance charge	V_R=400V,T_j=25℃	Q_C	-	30	-	nC
Capacitance stored energy	V_R=400V	Ec	-	6	-	μJ

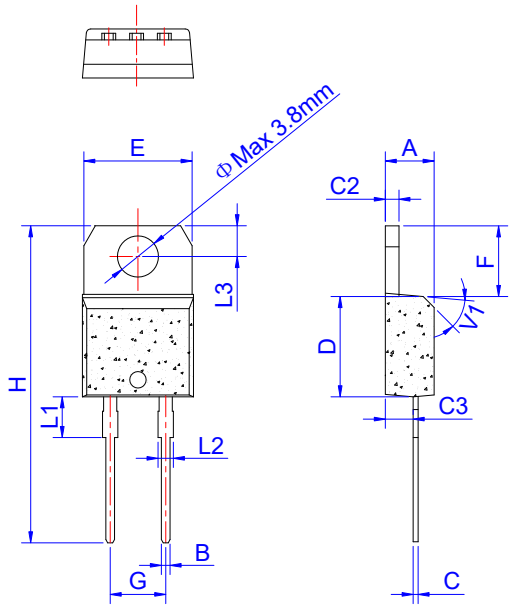
THERMAL CHARACTERISTICS

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	1.28	℃/W

ORDERING INFORMATION



PACKAGE MECHANICAL DATA



TO-220A-2L Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		5.08			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

CHARACTERITICS CURVE

FIG.1: Forward characteristics

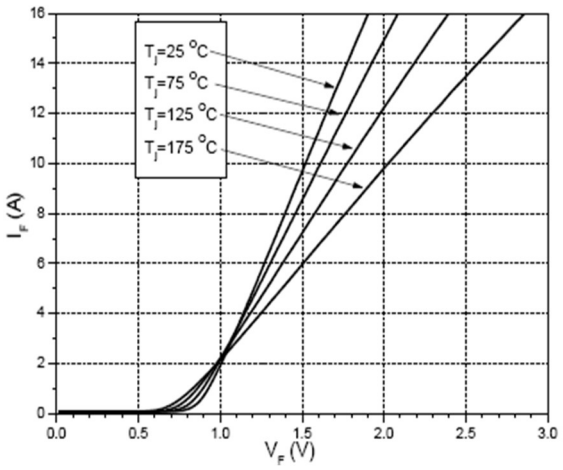
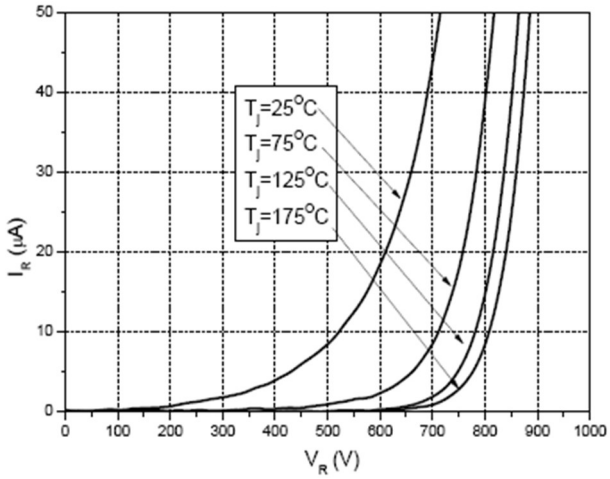


FIG.2: Reverse characteristics



CHARACTERITICS CURVE

FIG.3: Capacitance vs. reverse voltage

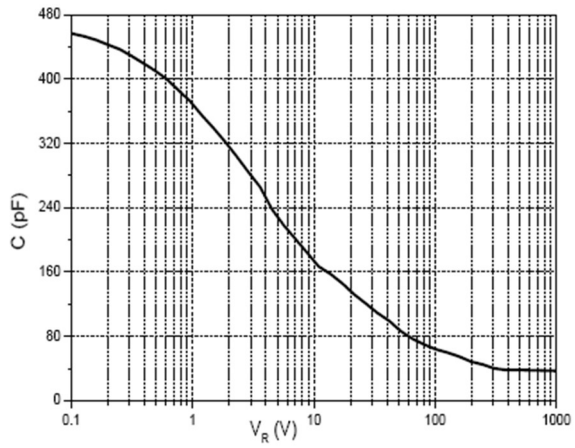


FIG.4: Transient thermal impedance

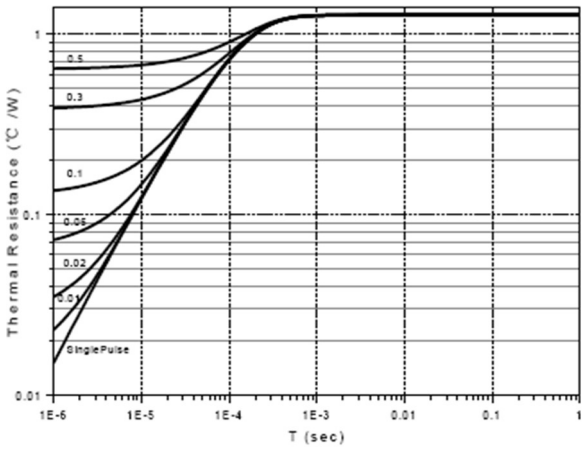


FIG.5: Capacitance charge vs. reverse voltage

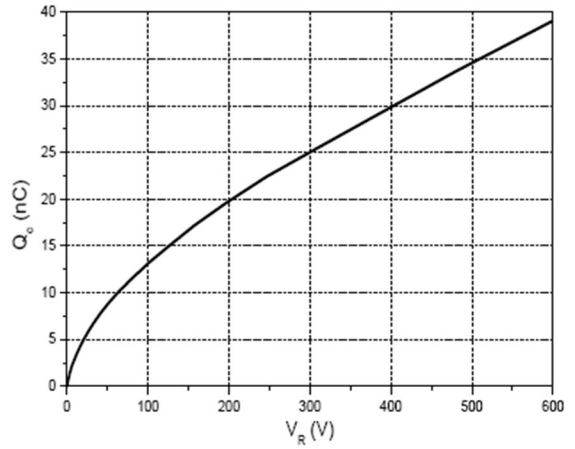


FIG.6: Capacitance stored energy

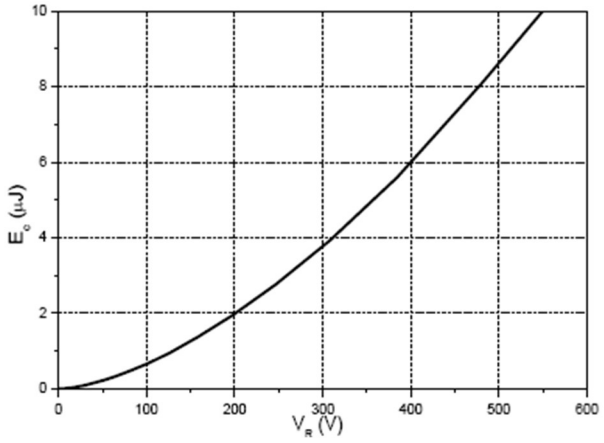


FIG.7: Power derating

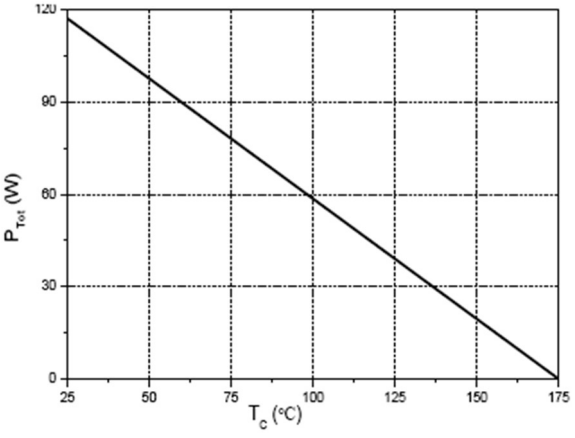
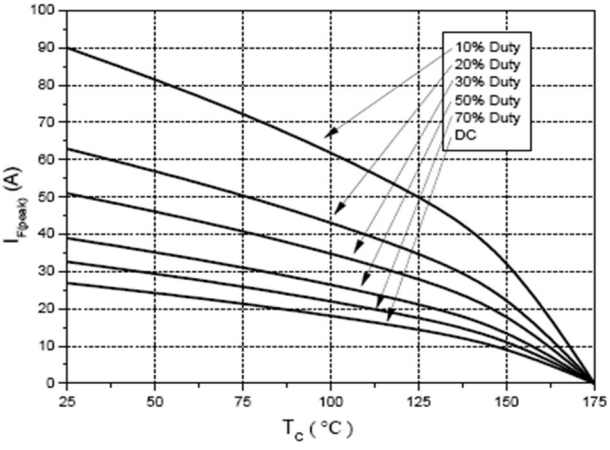


FIG.8: Current derating



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