



JCD20A065A SiC Schottky Diode

Rev.1.0

DESCRIPTION:

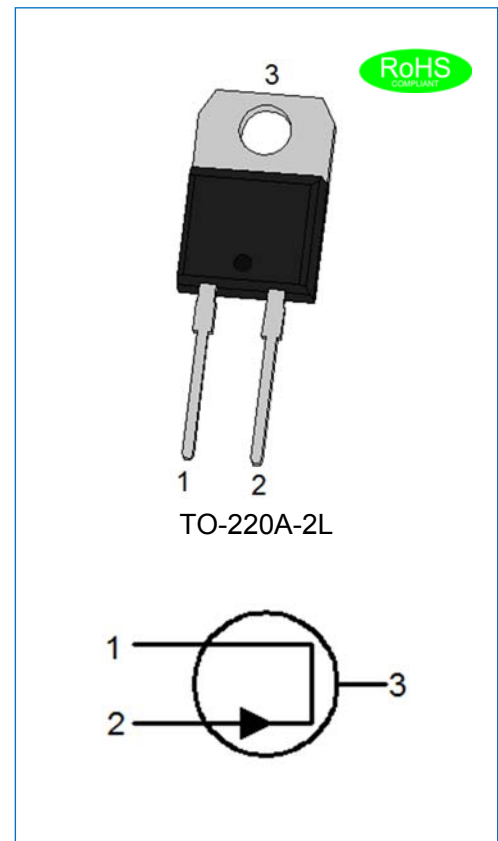
- ✧ 650V Schottky rectifier
- ✧ Zero reverse recovery current
- ✧ Zero forward recovery voltage
- ✧ High frequency operation
- ✧ Switching characteristics independent of temperature
- ✧ Fast switch
- ✧ Positive temperature coefficient of forward voltage (V_F)

BENEFIT:

- ✧ Lower switching loss
- ✧ No thermal runaway in parallel devices
- ✧ Lower heatsink dependent
- ✧ Electrically isolated package
- ✧ Ceramic package provides 2.5KV isolation

APPLICATION:

- ✧ HAVC
- ✧ 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°C 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
Continuous forward current	$T_C=135^{\circ}C$	I_F	20	A
Repetitive peak forward surge current	$t_p=10ms, T_C=25^{\circ}C$	I_{FRM}	140	A
Non-repetitive peak forward surge current	$t_p=10ms, T_C=25^{\circ}C$	I_{FSM}	170	A
Non-Repetitive peak forward surge current	$T_C=25^{\circ}C, t_p= 10\mu s,$ Pulse	I_{FMax}	1360	A
Power dissipation	$T_C=25^{\circ}C$	P_{tot}	71	W
	$T_C=110^{\circ}C$		30	
Operating junction temperature		T_j	-55 to+175	$^{\circ}C$
Storage temperature range		T_{stg}	-55 to+175	$^{\circ}C$

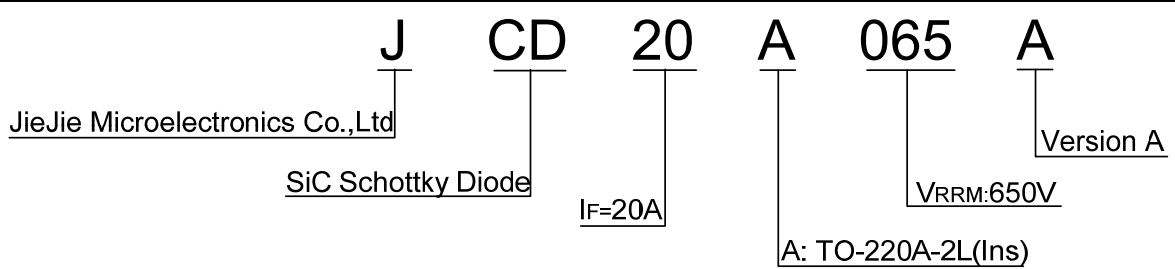
ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	$I_F=20A, T_j=25^{\circ}C$	V_F	-	1.5	1.8	V
	$I_F=20A, T_j=175^{\circ}C$		-	2.2	2.4	
Reverse current	$V_R=650V, T_j=25^{\circ}C$	I_R	-	2	20	μA
	$V_R=650V, T_j=175^{\circ}C$		-	40	200	
Total capacitance	$V_R=0V, f=1MHz$	C	-	1090	-	pF
	$V_R=200V, f=1MHz$		-	110	-	
	$V_R=400V, f=1MHz$		-	77	-	
Total capacitance charge	$V_R=400V, T_j=25^{\circ}C$	Q_C	-	53	-	nC
Capacitance stored energy	$V_R=400V$	E_C	-	9.0	-	μJ

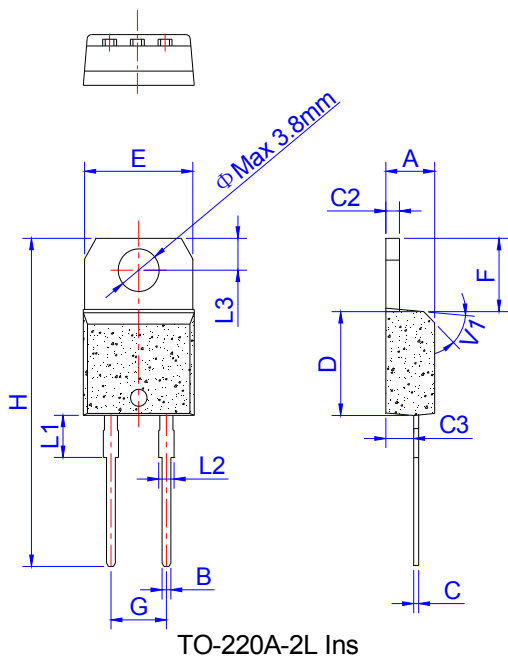
THERMAL CHARACTERISTICS

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to Case	2.1	$^{\circ}C/W$

ORDERING INFORMATION

<p>J CD 20 A 065 A</p> <p>  </p>

PACKAGE MECHANICAL DATA



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			0.2	
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°	

CHARACTERISTICS CURVE

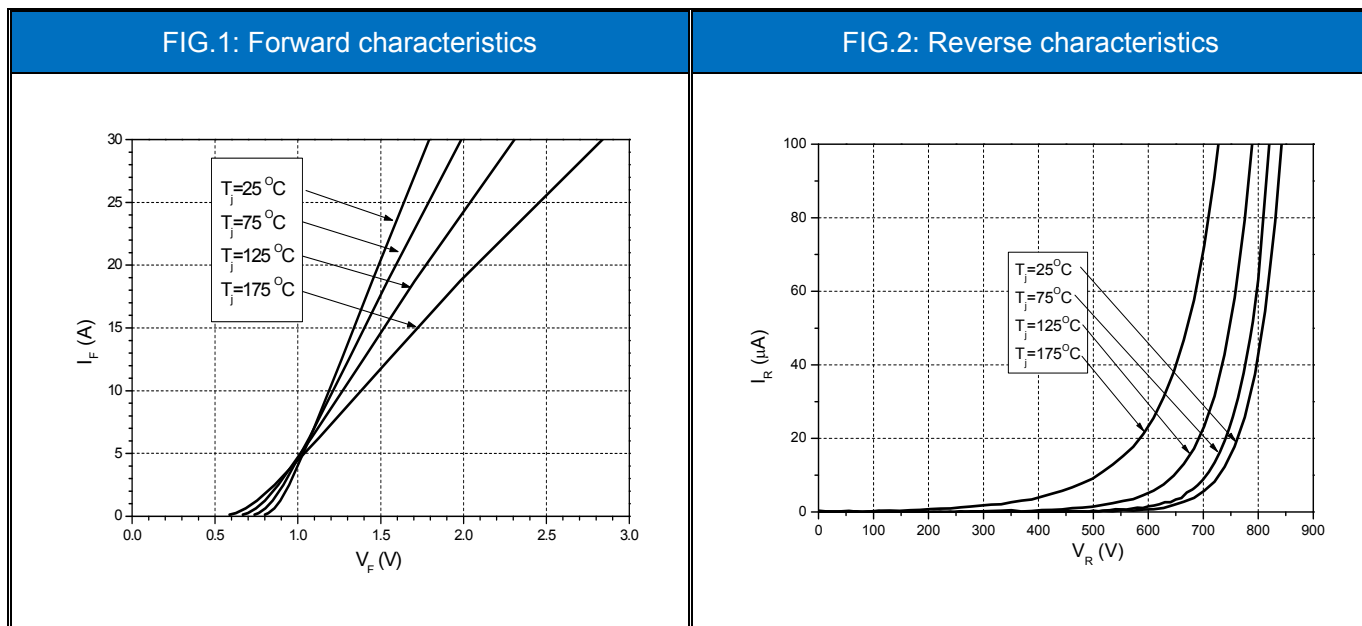


FIG.3: Capacitance vs. reverse voltage

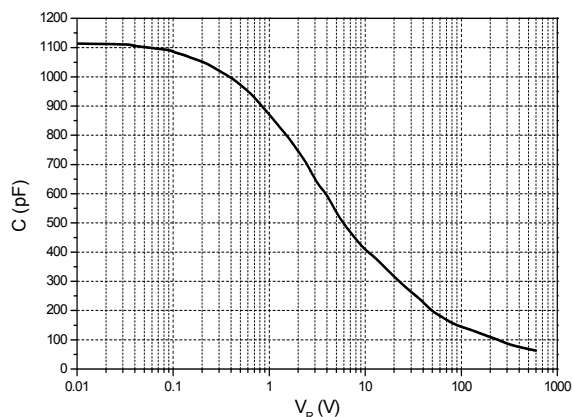
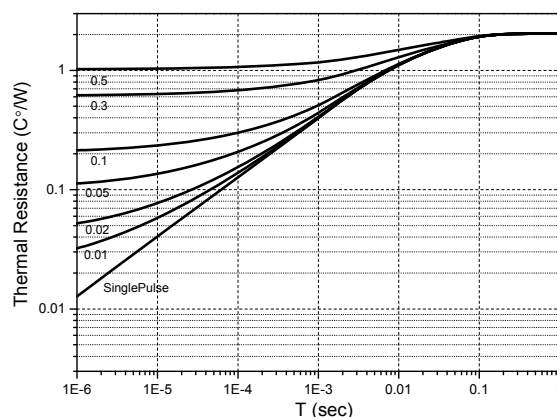


FIG.4: Transient thermal impedance



CHARACTERISTICS CURVE

FIG.5: Capacitance charge vs. reverse voltage

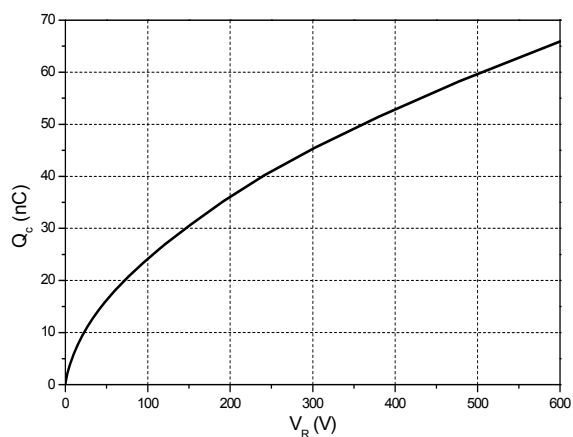


FIG.6: Capacitance stored energy

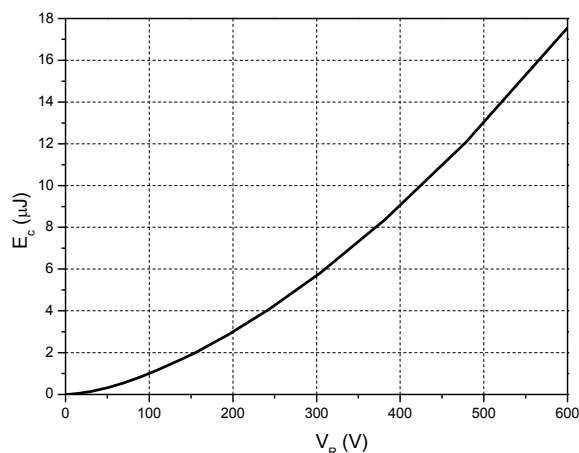


FIG.7: Power derating

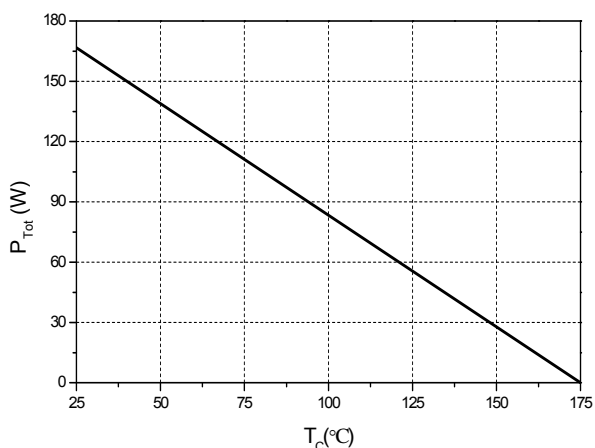
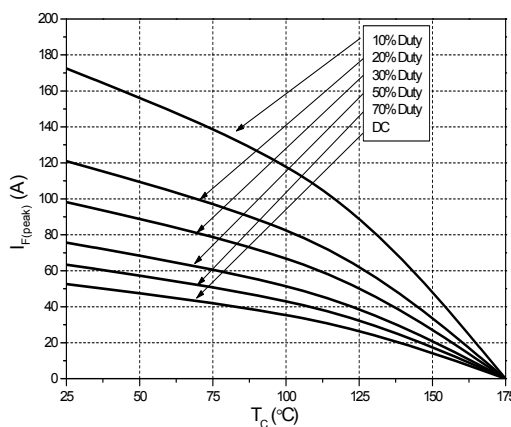


FIG.8: Current derating



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