



JCD20A065A SiC Schottky Diode

Rev.1.1

DESCRIPTION

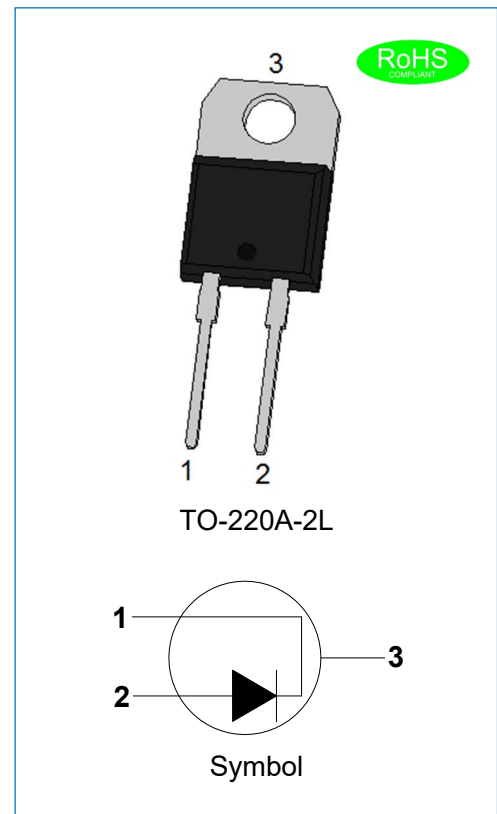
- ✧ 650V Schottky diode
- ✧ Zero reverse recovery current
- ✧ Zero forward recovery voltage
- ✧ High frequency operation
- ✧ Switching characteristics independent of temperature
- ✧ Fast switch
- ✧ Positive temperature coefficient of forward voltage (V_F)

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

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

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

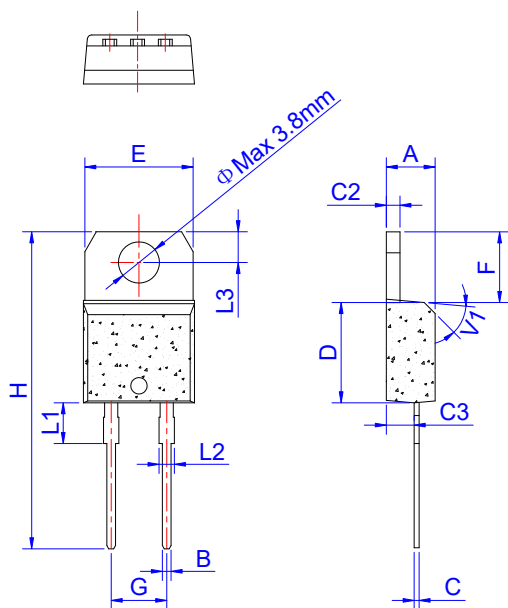
THERMAL CHARACTERISTICS

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

ORDERING INFORMATION

<p>J</p> <p>SiC Schottky Diode</p>	<p>CD</p> <p>$I_{F(AV)}=20A$</p>	<p>20</p>	<p>A</p> <p>A: TO-220A-2L(Ins)</p>	<p>065</p> <p>$V_{RRM}:650V$</p>	<p>A</p> <p>Version A</p>
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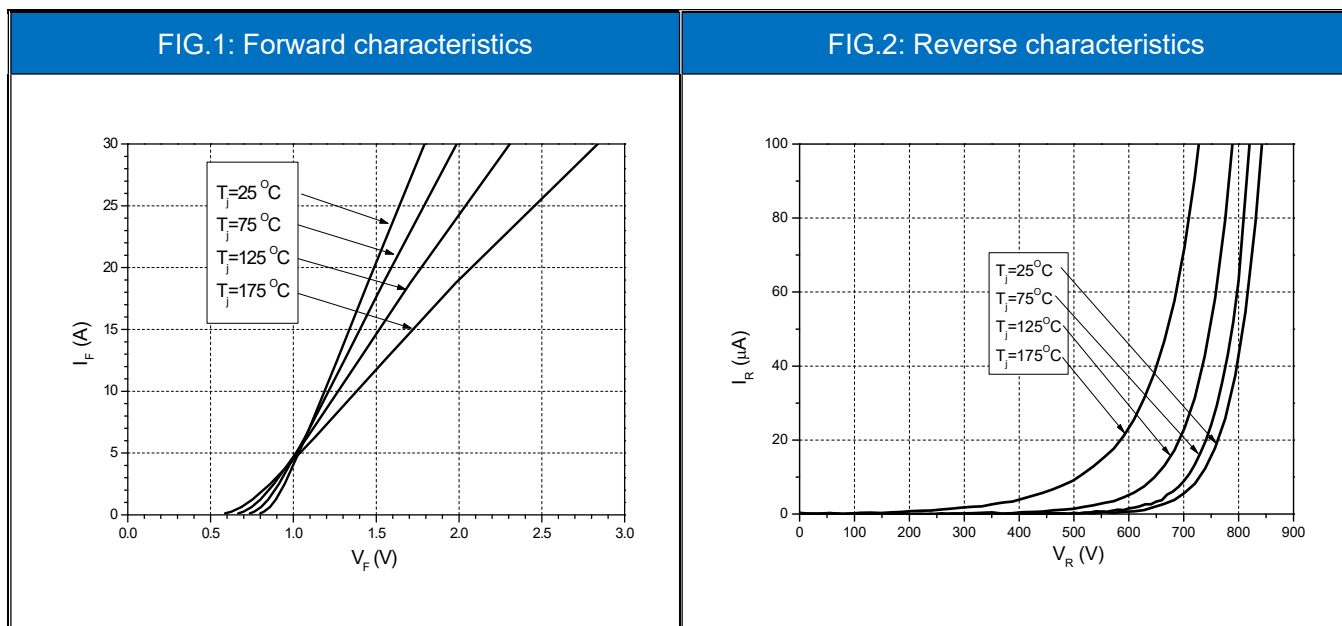
PACKAGE MECHANICAL DATA



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°	

CHARACTERISTICS CURVE



CHARACTERISTICS CURVE

FIG.3: Capacitance vs. reverse voltage

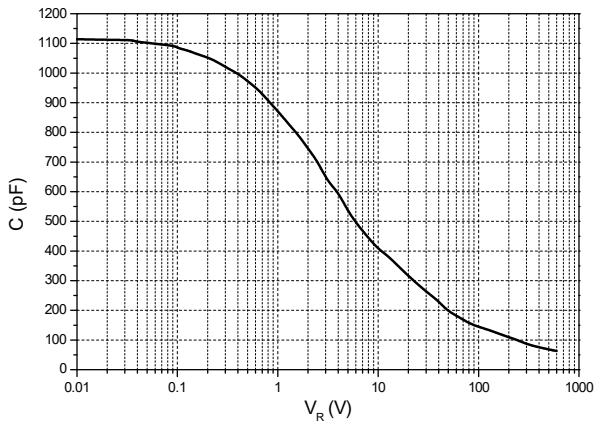


FIG.4: Transient thermal impedance

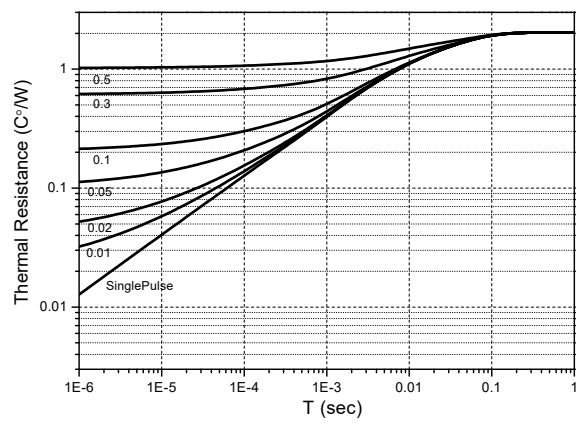


FIG.5: Capacitance charge vs. reverse voltage

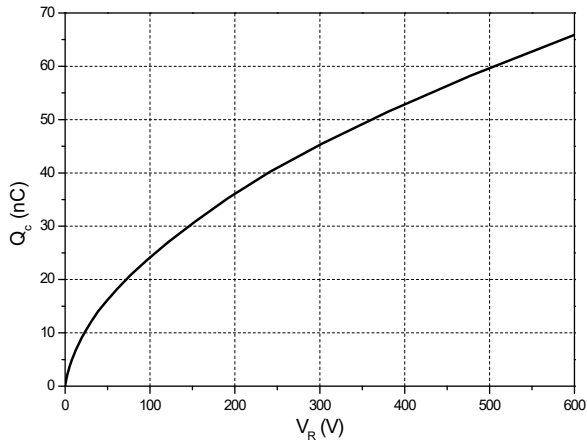


FIG.6: Capacitance stored energy

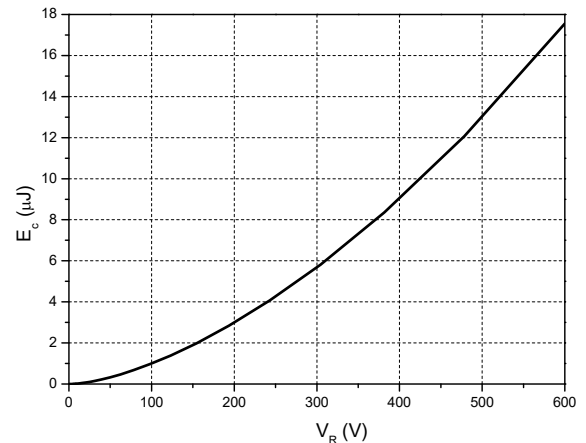


FIG.7: Power derating

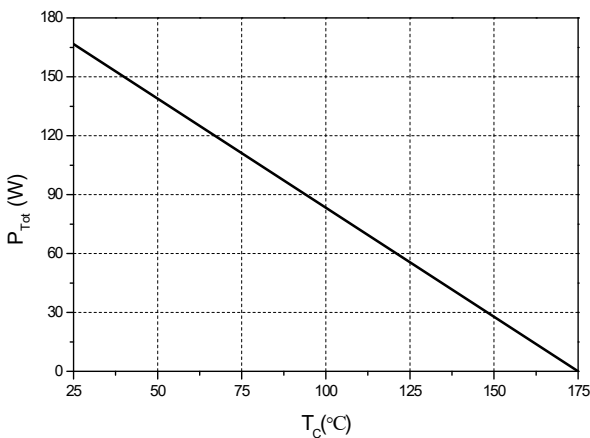
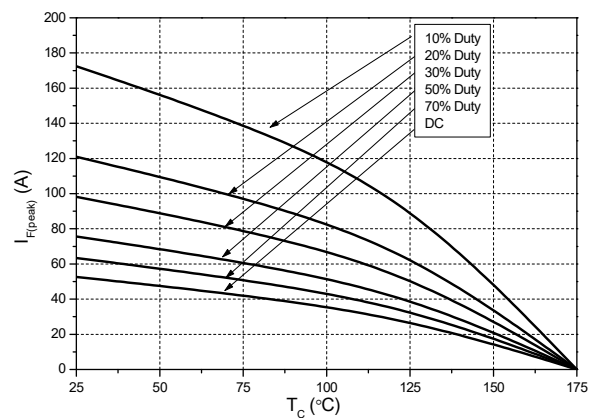


FIG.8: Current derating




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