



JCD20Z12ACT SiC Schottky Diode

Rev.2.1

DESCRIPTION

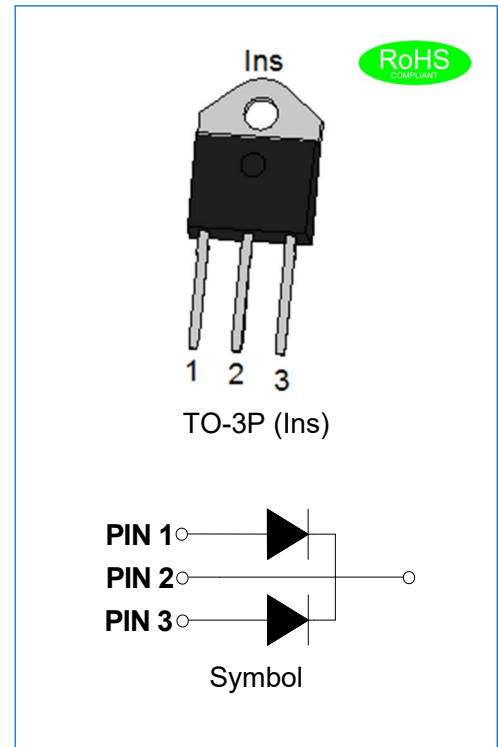
- ✧ 1200V Schottky diode
- ✧ Zero reverse recovery current
- ✧ Zero forward recovery voltage
- ✧ High frequency operation
- ✧ Switching characteristics independent of temperature
- ✧ Fast switch
- ✧ Positive temperature coefficient of forward voltage (V_F)

BENEFIT

- ✧ Lower switching loss
- ✧ No thermal runaway in parallel devices
- ✧ Lower heatsink dependent
- ✧ 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}	1200	V
Maximum DC blocking voltage	V_{DC}	1200	V
Average forward current	$T_C=150^\circ\text{C}$ $I_{F(AV)}$	10/20	A
Repetitive peak forward surge current	$t_P=10\text{ms}, T_C=25^\circ\text{C}$ I_{FRM}	50	A
Non-repetitive peak forward surge current	$t_P=10\text{ms}, T_C=25^\circ\text{C}$ I_{FSM}	80	A
Non-repetitive peak forward surge current	$T_C=25^\circ\text{C}, t_P=10\mu\text{s}$, Pulse I_{FMax}	600	A
Power dissipation	$T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$ P_{tot}	153 66	W
Operating junction and storage temperature range	T_j, T_{stg}	-55 to +175	$^\circ\text{C}$

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

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	$I_F=10A, T_j=25^\circ C$	V_F	-	1.5	1.8	V
	$I_F=10A, T_j=175^\circ C$		-	2.2	3.0	
Reverse current	$V_R=1200V, T_j=25^\circ C$	I_R	-	2	5	μA
	$V_R=1200V, T_j=175^\circ C$		-	20	40	
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	$V_R=800V, T_j=25^\circ C$	Q_C	-	50	-	nC
Capacitance stored energy	$V_R=800V$	E_C	-	25	-	μJ

THERMAL CHARACTERISTICS

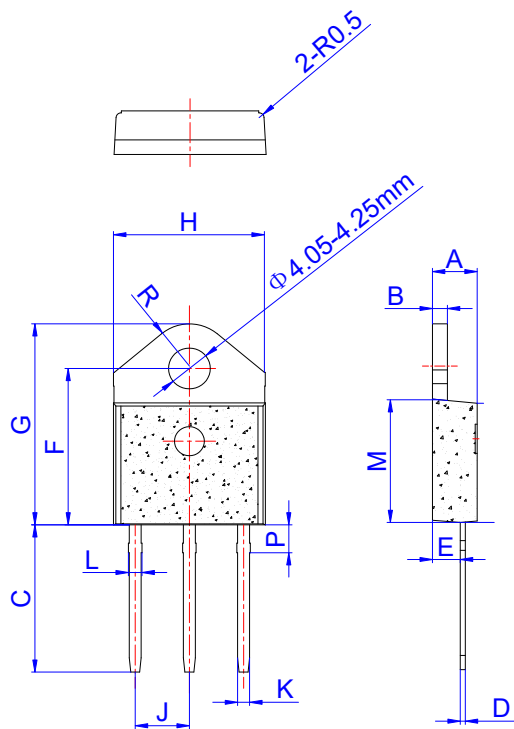
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	1.8* 0.9**	$^\circ C/W$

Note: *per leg, **per device

ORDERING INFORMATION

<p>J</p> <p>JieJie Microelectronics Co., Ltd</p>	<p>CD</p> <p>SiC Schottky Diode</p>	<p>20</p> <p>$I_{F(AV)}=20A$</p>	<p>Z</p> <p>Z: TO-3P(Ins)</p>	<p>12</p> <p>$V_{RRM}:1200V$</p>	<p>A</p> <p>Version A</p>	<p>CT</p> <p>Dual chip</p>
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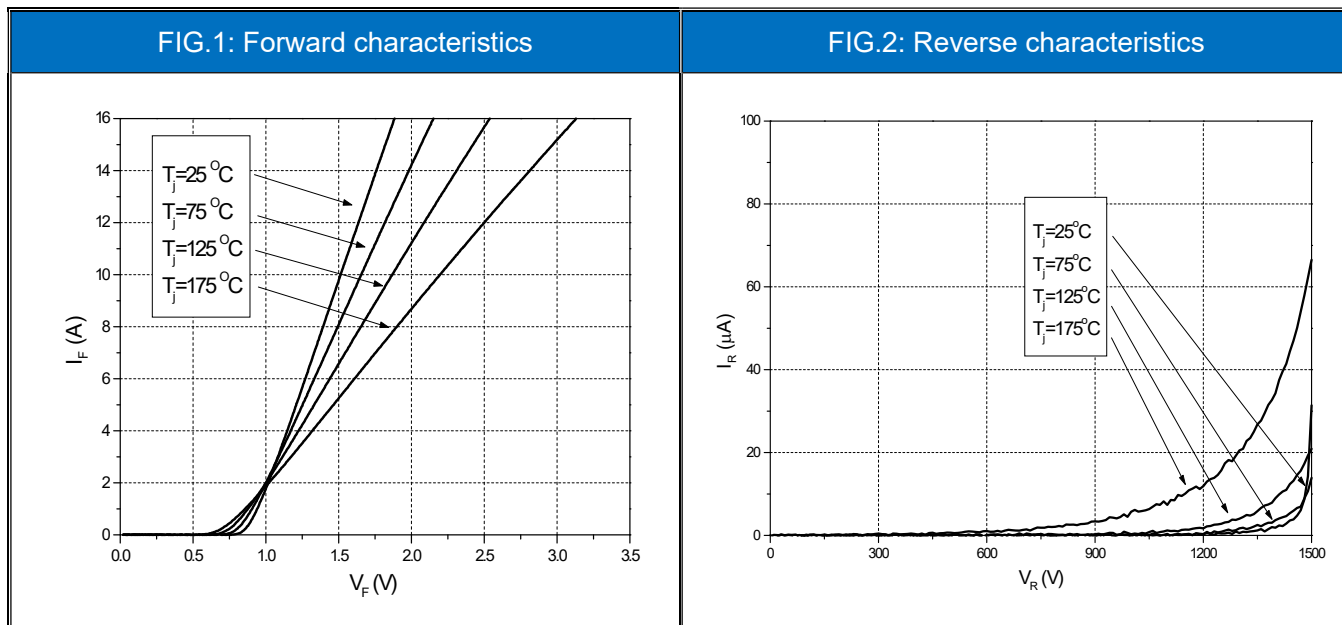
PACKAGE MECHANICAL DATA



TO-3P

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.35		1.50	0.053		0.059
M	12.37		12.77	0.487		0.503
P	2.80		3.00	0.110		0.118
R		4.35			0.171	

CHARACTERISTICS CURVE



CHARACTERISTICS CURVE

FIG.3: Capacitance vs. reverse voltage

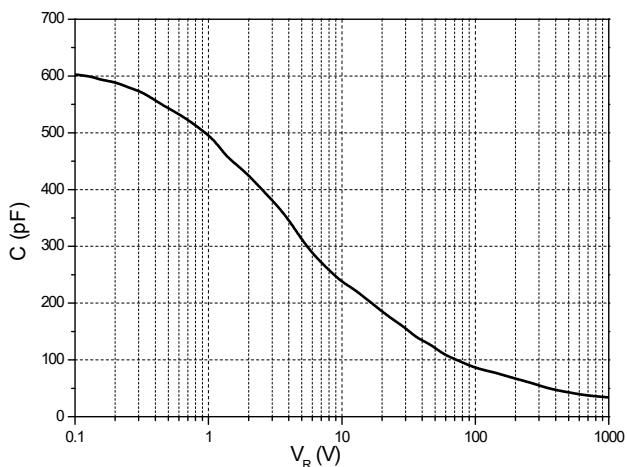


FIG.4: Transient thermal impedance

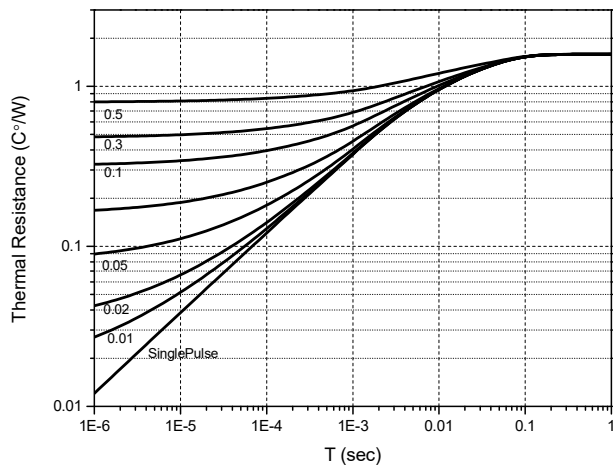


FIG.5: Capacitance charge vs. reverse voltage

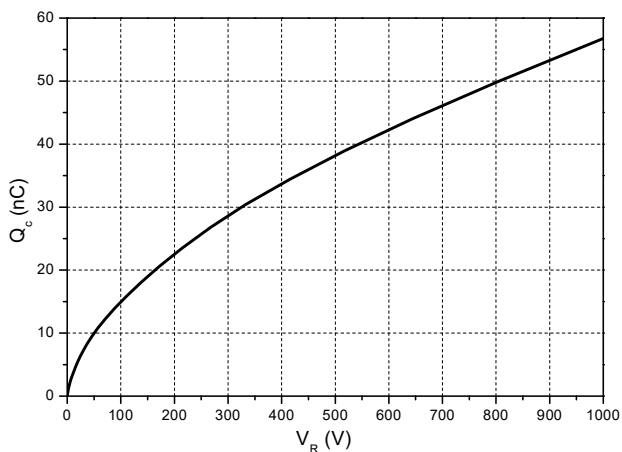


FIG.6: Capacitance stored energy

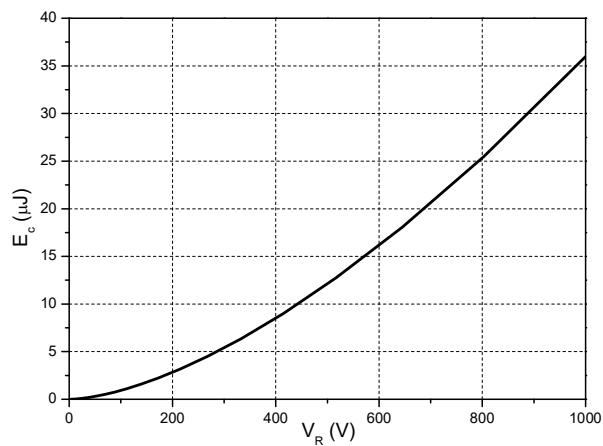


FIG.7: Power derating

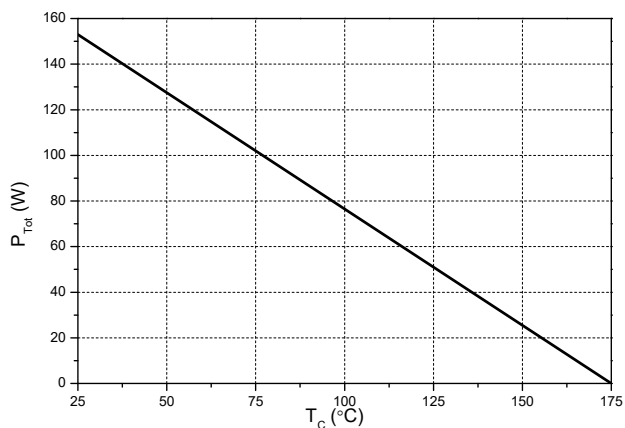
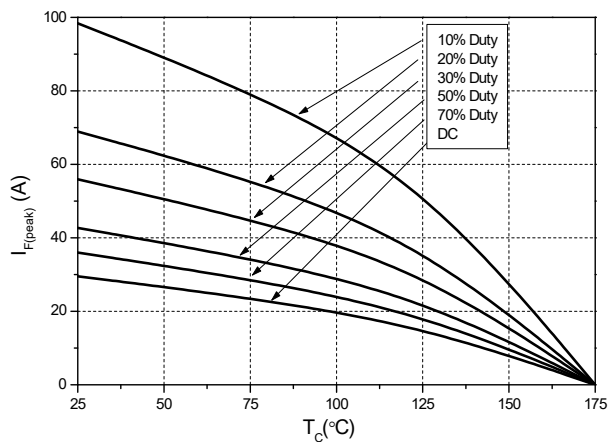


FIG.8: Current derating




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