



JCD20Z12ACT SiC Schottky Diode

Rev.2.0

DESCRIPTION:

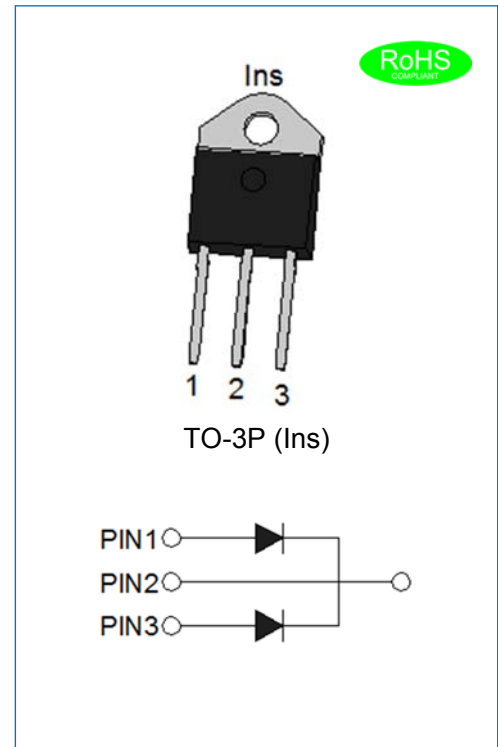
- ✧ 1200V Schottky rectifier
- ✧ Zero reverse recovery current
- ✧ Zero forward recovery voltage
- ✧ High frequency operation
- ✧ Switching characteristics independent of temperature
- ✧ Fast switch
- ✧ Positive temperature coefficient of forward voltage (V_F)

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}	1200	V
Maximum DC blocking voltage		V_{DC}	1200	V
Continuous forward current	$T_C=150^\circ\text{C}$	I_F	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	$T_C=25^\circ\text{C}, t_p=10\mu\text{s}, \text{Pulse}$	I_{FMax}	600	A
Power dissipation	$T_C=25^\circ\text{C}$	P_{tot}	153	W
	$T_C=110^\circ\text{C}$		66	
Operating junction and storage temperature		T_j, T_{stg}	-55 to +175	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

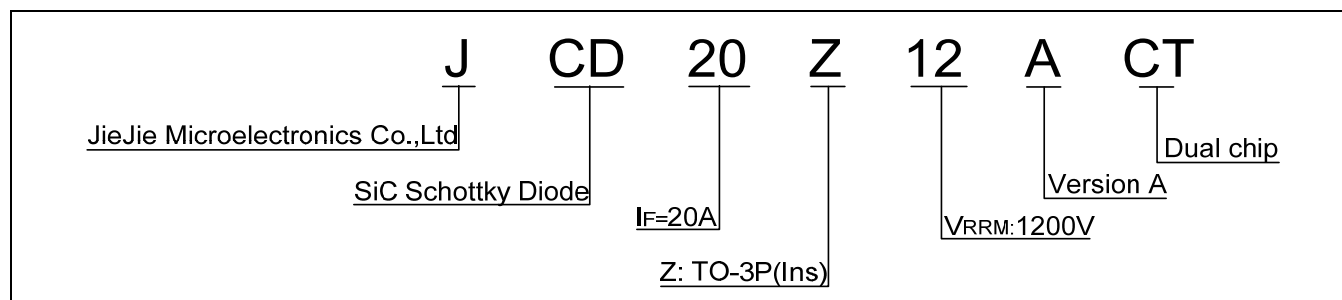
Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	$I_F=10A, T_j=25^{\circ}C$	V_F	-	1.5	1.8	V
	$I_F=10A, T_j=175^{\circ}C$		-	2.2	3.0	
Reverse current	$V_R=1200V, T_j=25^{\circ}C$	I_R	-	2	5	μA
	$V_R=1200V, T_j=175^{\circ}C$		-	20	40	
Total capacitance	$V_R=0V, f=1MHz$	C	-	610	-	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

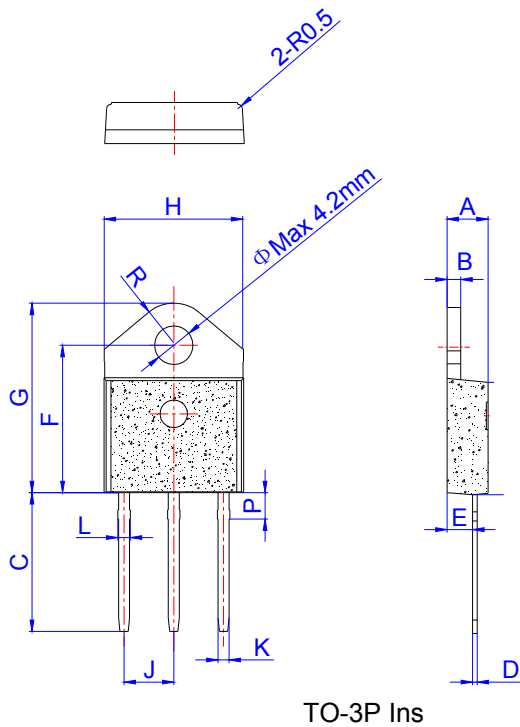
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to Case	1.8* 0.9**	$^{\circ}C/W$

Note: *per leg, **per device

ORDERING INFORMATION



PACKAGE MECHANICAL DATA



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
P	2.80		3.00	0.110		0.118
R		4.35			0.171	

CHARACTERISTICS CURVE

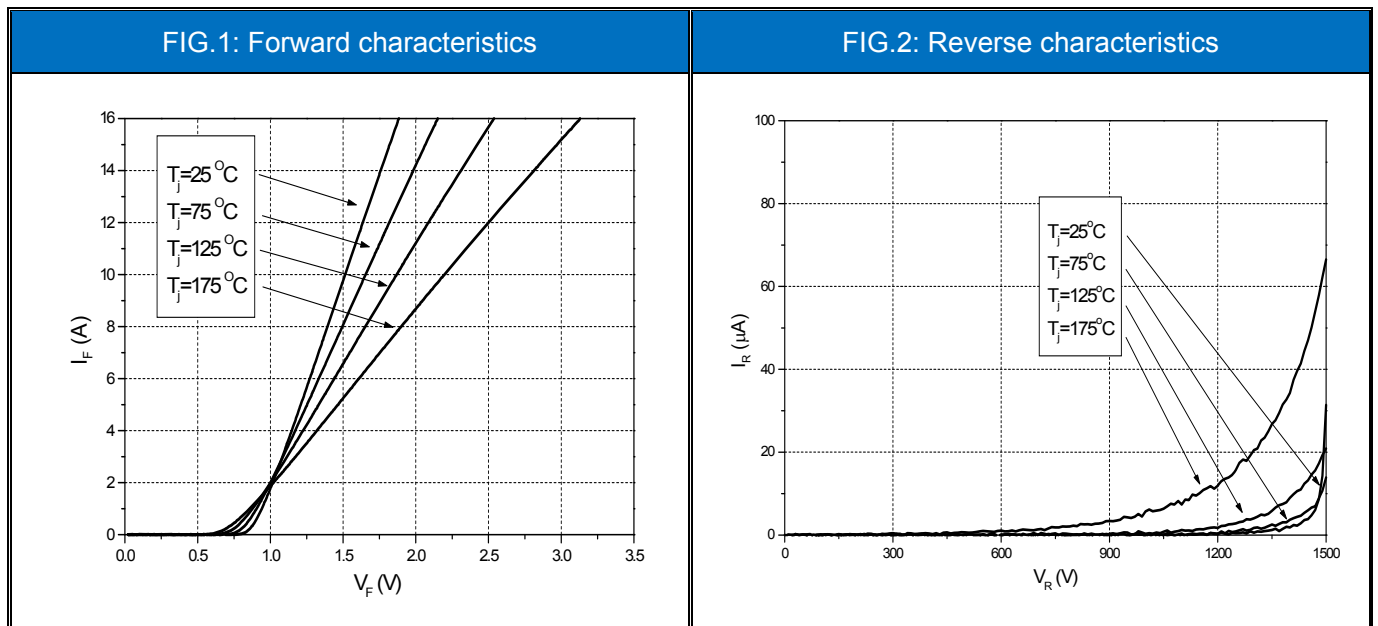


FIG.3: Capacitance vs. reverse voltage

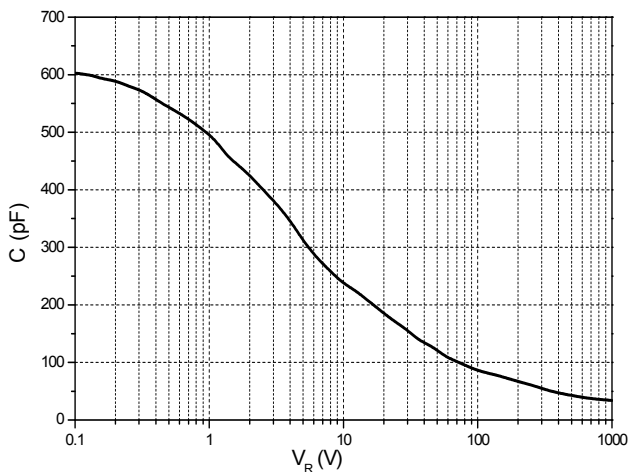
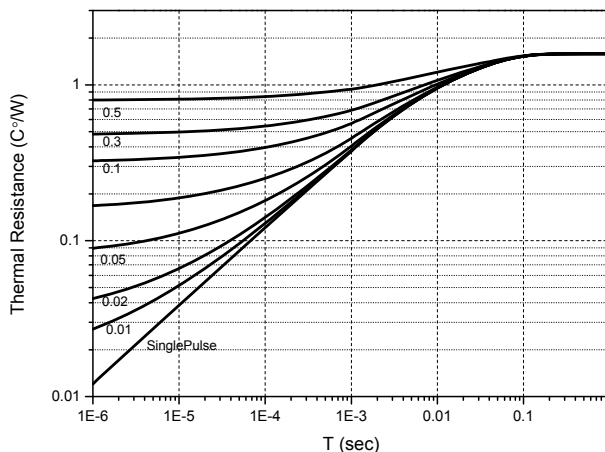


FIG.4: Transient thermal impedance



CHARACTERISTICS CURVE

FIG.5: Capacitance charge vs. reverse voltage

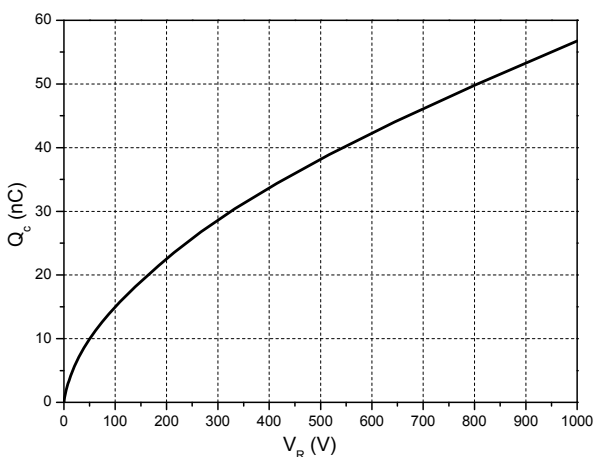


FIG.6: Capacitance stored energy

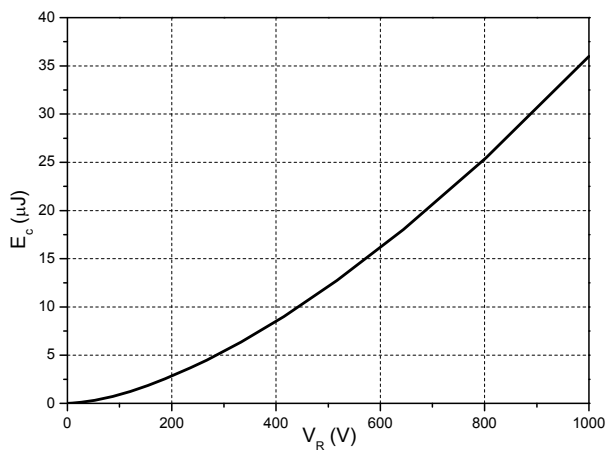


FIG.7: Power derating

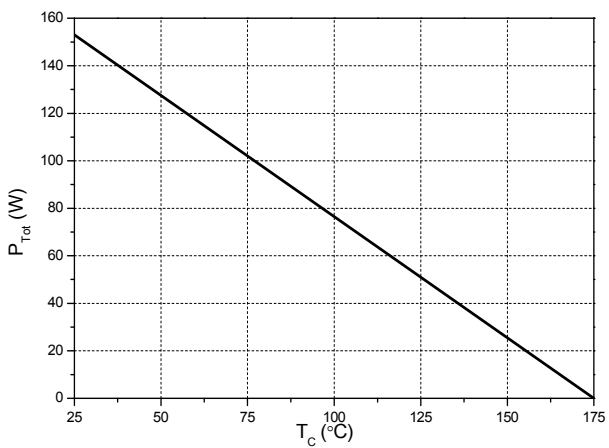
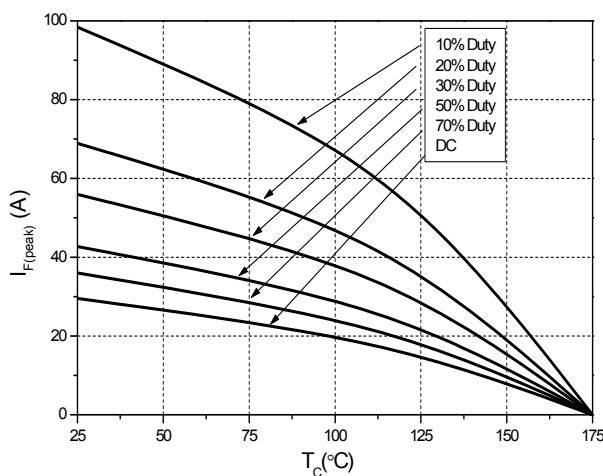


FIG.8: Current derating



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