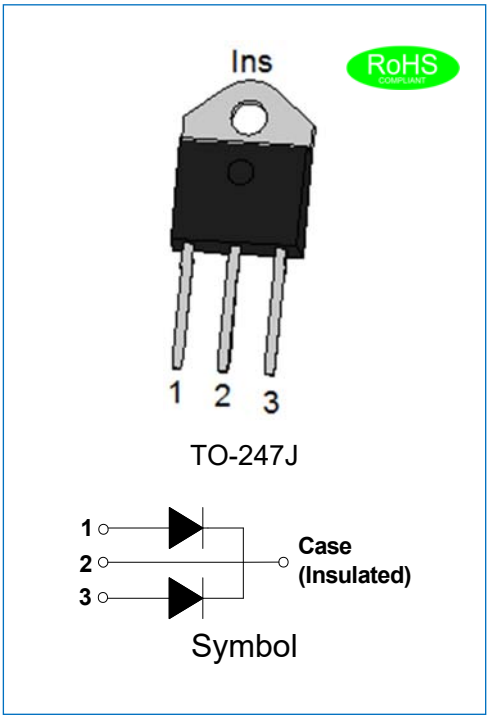
JCD30Z65ACT

SiC Schottky Diode

Rev.1.0

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
- ✧ 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℃	$I_{F(AV)}$	15* 30**	A
Repetitive peak forward surge current	t_P=10ms,T_C=25℃	I_{FRM}	105*	A
Non-repetitive peak forward surge current	t_P=10ms,T_C=25℃	I_{FSM}	135*	A
Non-repetitive peak forward surge current	T_C=25℃,t_P=10μs, Pulse	I_{FMax}	1200*	A
Power dissipation	T_C=25℃ T_C=110℃	P_{tot}	159* 68*	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.)

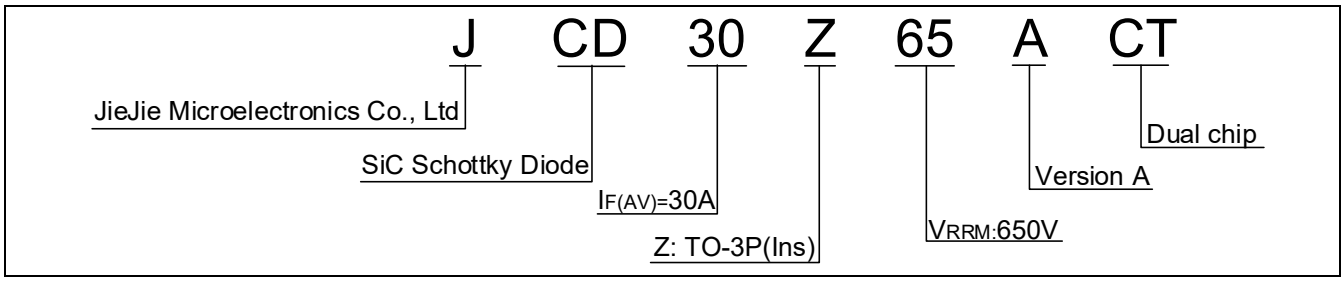
Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	I_F=15A,T_j=25℃	V_F	-	1.45	1.8	V
	I_F=15A,T_j=175℃		-	1.75	3.0	
Reverse current	V_R=650V,T_j=25℃	I_R	-	4	20	μA
	V_R=650V,T_j=175℃		-	40	200	
Total capacitance	V_R=0V,f=1MHz	C	-	860	-	pF
	V_R=200V,f=1MHz		-	85	-	
	V_R=400V,f=1MHz		-	60	-	
Total capacitance charge	V_R=400V,T_j=25℃	Q_C	-	41	-	nC
Capacitance stored energy	V_R=400V	Ec	-	8.2	-	μJ

THERMAL CHARACTERISTICS

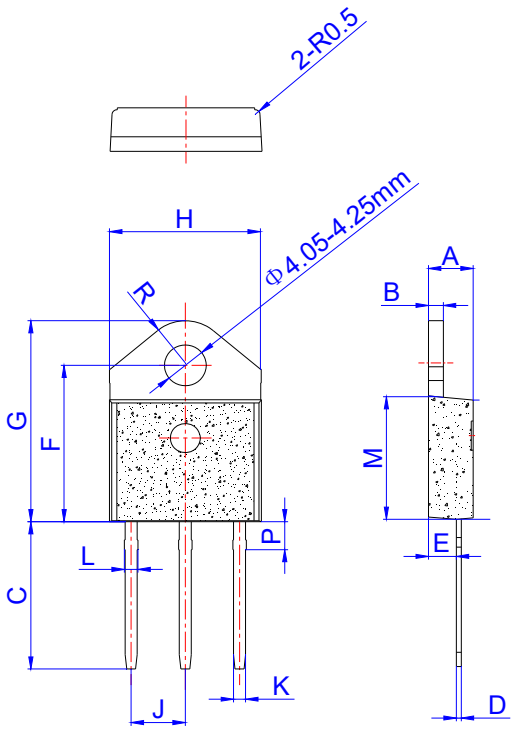
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	1.6* 0.8**	℃/W

Note: *per leg, **per device

ORDERING INFORMATION



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	

CHARACTERITICS CURVE

FIG.1: Forward characteristics

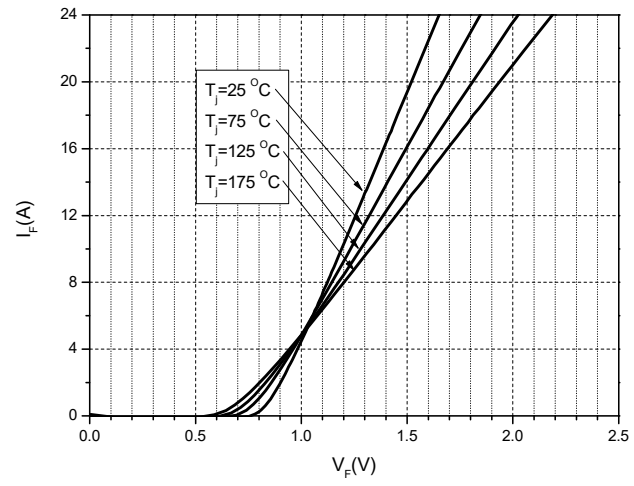
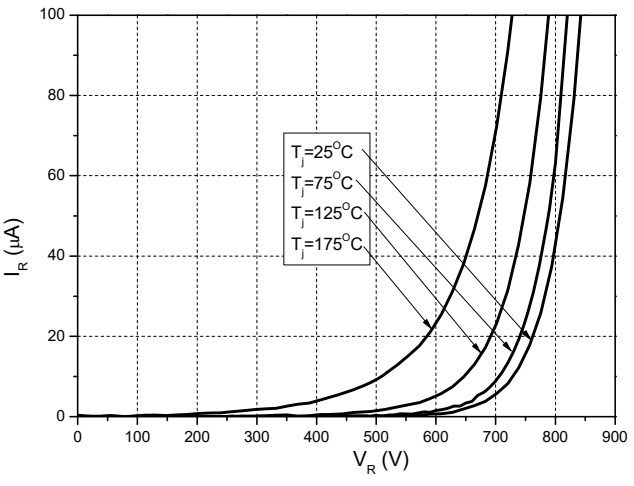


FIG.2: Reverse characteristics



CHARACTERITICS CURVE

FIG.3: Capacitance vs. reverse voltage

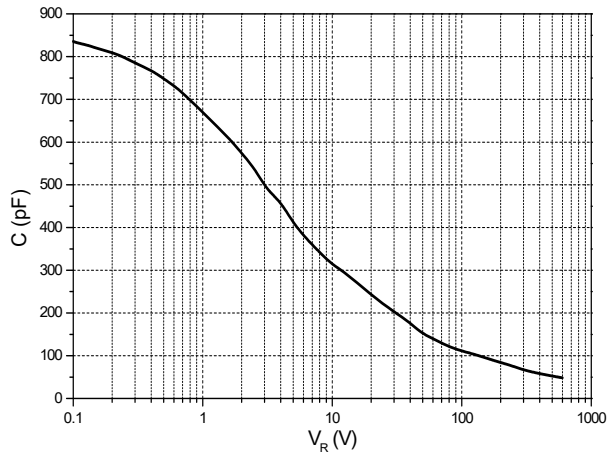


FIG.4: Capacitance charge vs. reverse voltage

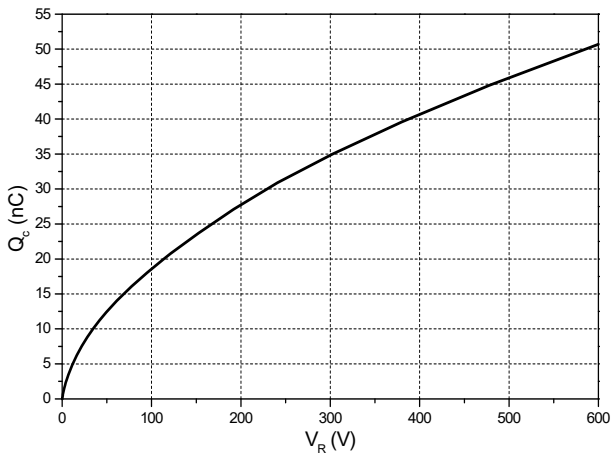


FIG.5: Capacitance stored energy

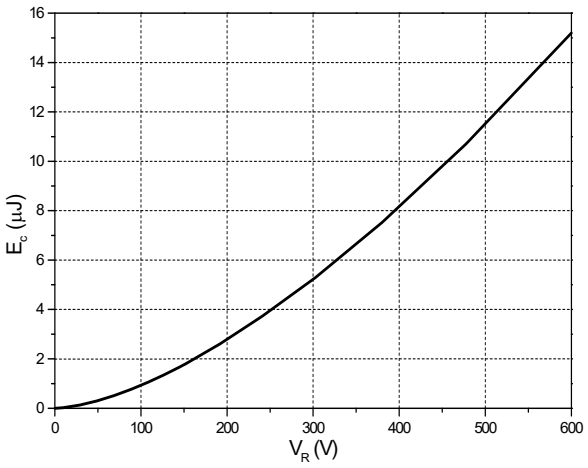


FIG.6: Power derating

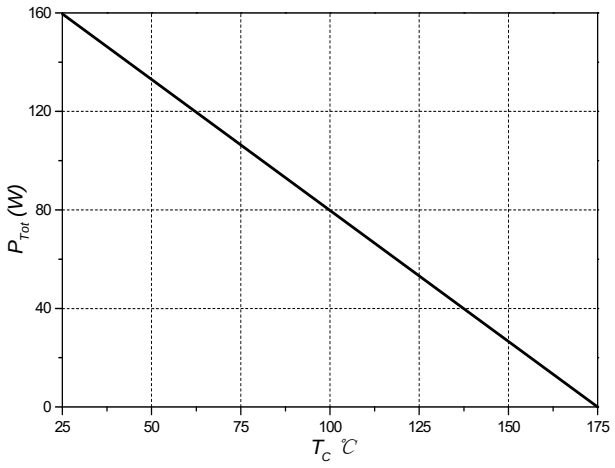
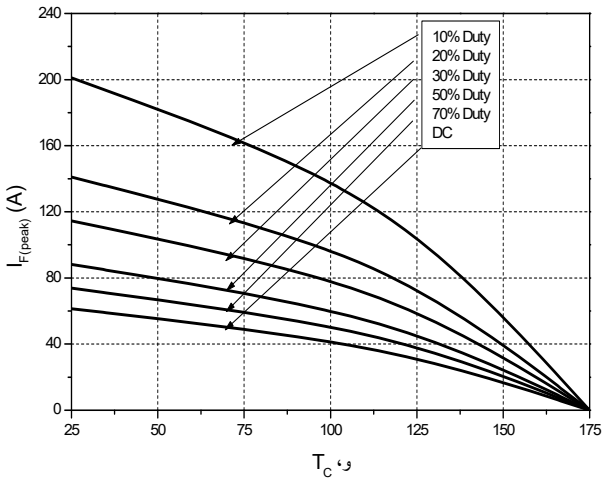


FIG.7: Current derating



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