



JCD12SJ65ACT

SiC Schottky Diode

Rev.2.0

DESCRIPTION:

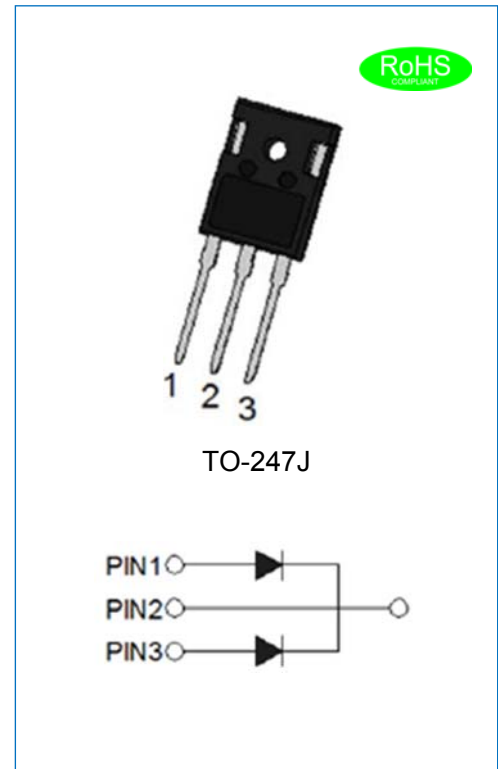
- ✧ 650V Schottky rectifier
- ✧ Zero reverse recovery current
- ✧ Zero forward recovery voltage
- ✧ High frequency operation
- ✧ Switching characteristics independent of temperature
- ✧ Fast switch
- ✧ Positive temperature coefficient of forward voltage (V_F)

BENEFIT:

- ✧ Lower switching loss
- ✧ No thermal runaway in parallel devices
- ✧ Lower heatsink dependent

APPLICATION:

- ✧ HVAC
- ✧ 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	$T_C=150^{\circ}C$	I_F	6* 12**	A
Repetitive peak forward surge current	$t_p=10ms, T_C=25^{\circ}C$	I_{FRM}	40*	A
Non-repetitive peak forward surge current	$t_p=10ms, T_C=25^{\circ}C$	I_{FSM}	65*	A
Non-Repetitive peak forward surge current	$T_C=25^{\circ}C, t_p= 10\mu s,$ Pulse	I_{FMax}	520*	A
Power dissipation	$T_C=25^{\circ}C$	P_{tot}	136*	W
	$T_C=110^{\circ}C$		59*	
Operating junction temperature		T_j	-55 to+175	°C
Storage temperature range		T_{stg}	-55 to+175	°C

ELECTRICAL CHARACTERISTICS

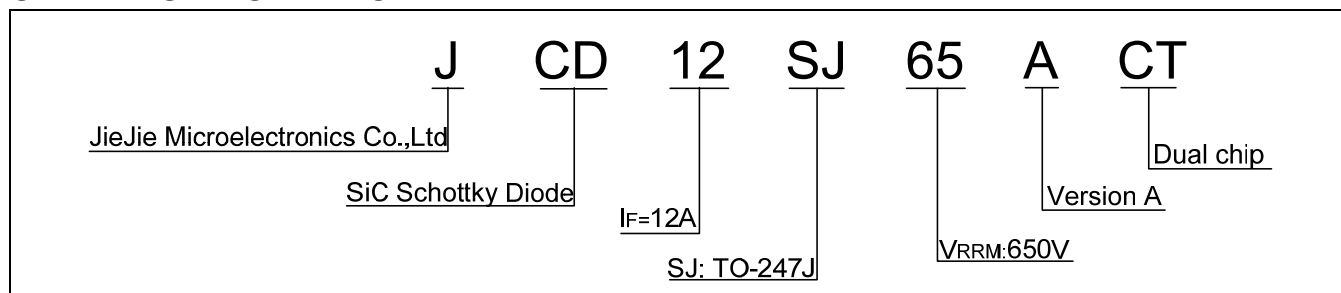
Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	$I_F=6A, T_j=25^\circ C$	V_F	-	1.45	1.70	V
	$I_F=6A, T_j=175^\circ C$		-	1.75	2.40	
Reverse current	$V_R=650V, T_j=25^\circ C$	I_R	-	2	20	μA
	$V_R=650V, T_j=175^\circ C$		-	40	200	
Total capacitance	$V_R=0V, f=1MHz$	C	-	332	-	pF
	$V_R=200V, f=1MHz$		-	33	-	
	$V_R=400V, f=1MHz$		-	28	-	
Total capacitance charge	$V_R=400V, T_j=25^\circ C$	Q_C	-	17	-	nC
Capacitance stored energy	$V_R=400V$	E_C	-	4.3	-	μJ

THERMAL CHARACTERISTICS

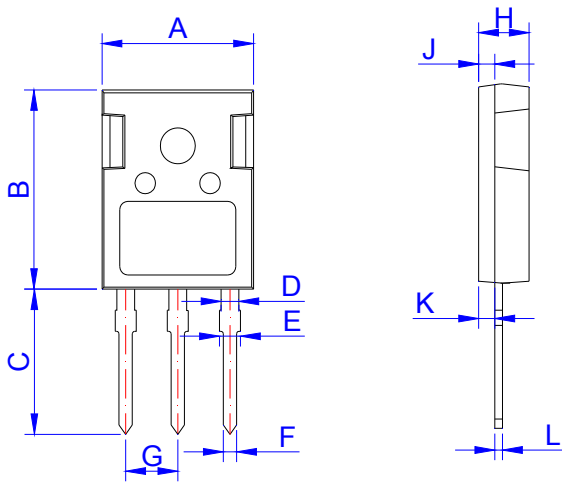
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to Case	1.1	$^\circ C/W$

Note: *per leg, **per device

ORDERING INFORMATION



PACKAGE MECHANICLA DATA



TO-247J

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	22.20	0.819	0.828	0.874
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		5.44			0.214	
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031

CHARACTERITICS CURVE

FIG.1: Forward characteristics

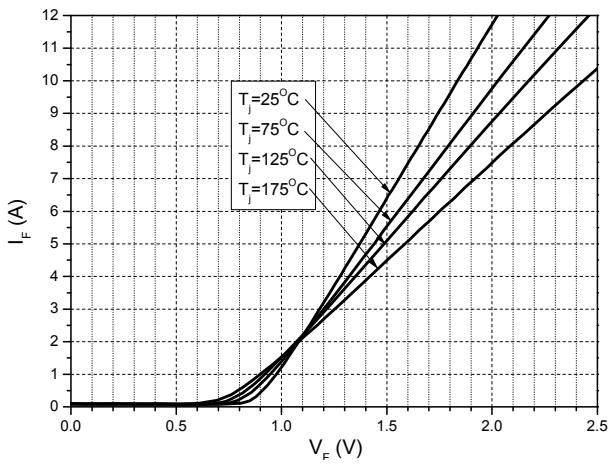


FIG.2: Reverse characteristics

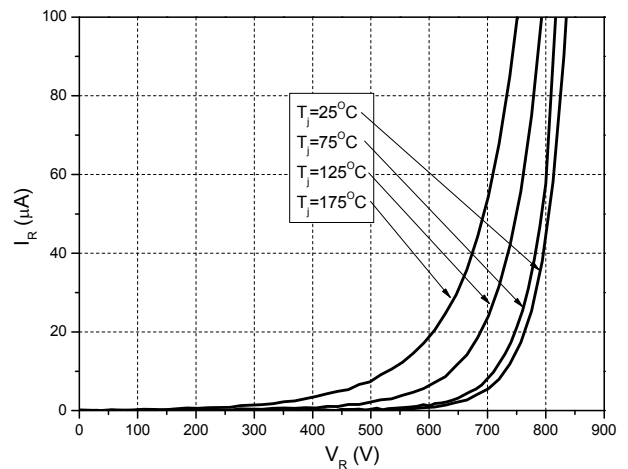


FIG.3: Capacitance vs. reverse voltage

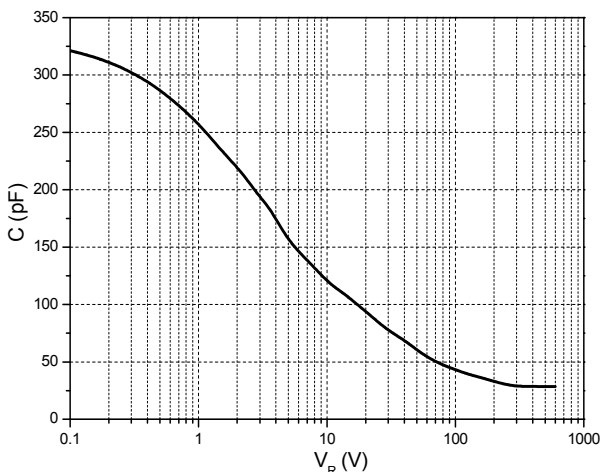
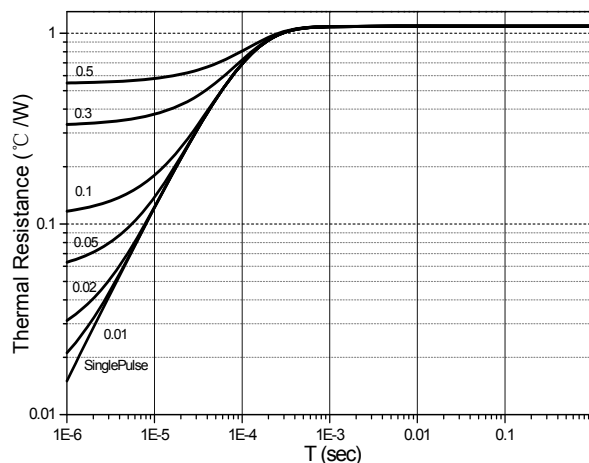


FIG.4: Transient thermal impedance



CHARACTERISTICS CURVE

FIG.5: Capacitance charge vs. reverse voltage

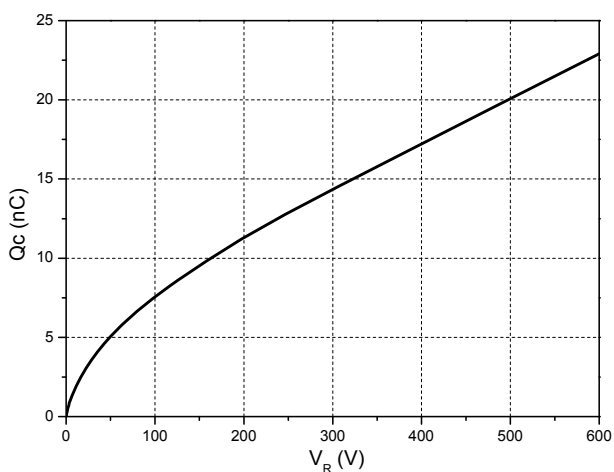


FIG.6: Capacitance stored energy

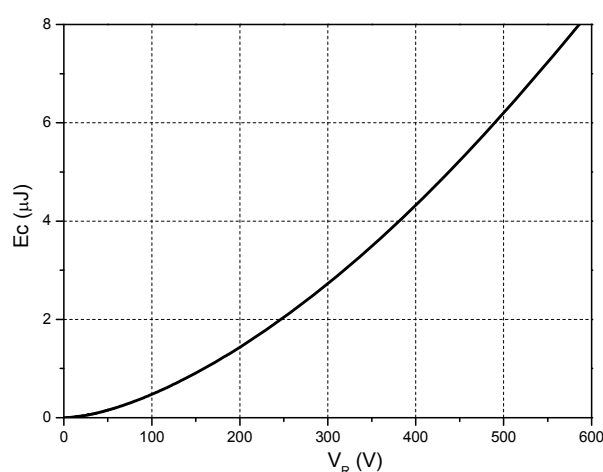


FIG.7: Power derating

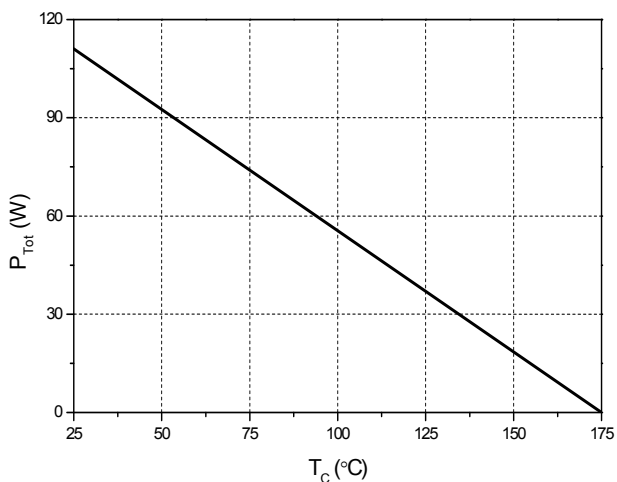
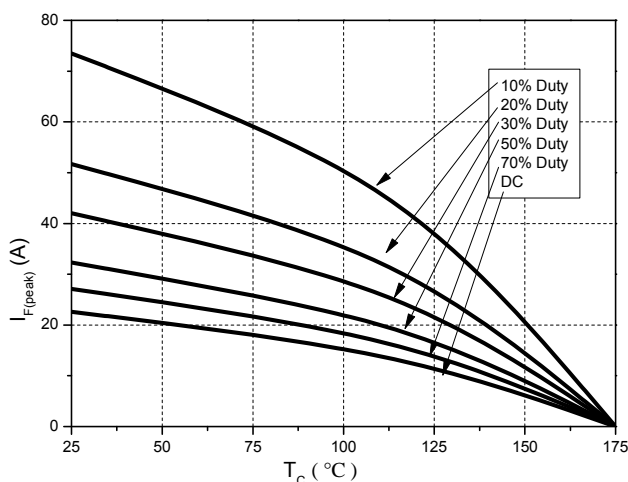


FIG.8: Current derating



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