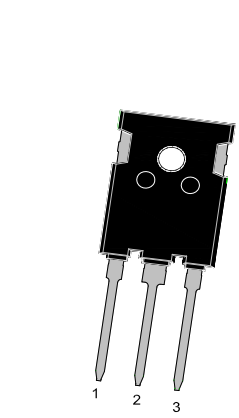
JCD30IS065A

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)



TO-247i-3L

Symbol

BENEFIT

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

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=130℃	$I_{F(AV)}$	30	A
Repetitive peak forward surge current	t_P=10ms,T_C=25℃	I_{FRM}	200	A
Non-repetitive peak forward surge current	t_P=10ms,T_C=25℃	I_{FSM}	240	A
Non-repetitive peak forward surge current	T_C=25℃,t_P=10μs, Pulse	I_{FMax}	1600	A
Power dissipation	T_C=25℃ T_C=110℃	P_{tot}	283 123	W
Operating junction temperature range		T_j	-55 to+175	℃
Storage temperature range		T_{stg}	-55 to+175	℃

ISOLATION CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{isol(RMS)}$	RMS isolation voltage	50Hz≤f≤60Hz;RH≤65%;from all pins to external heatsink; sinusoidal waveform; clean and dust free	-	-	2500	V
C_{isol}	Isolation capacitance	from cathode to external heatsink	-	10	-	pF

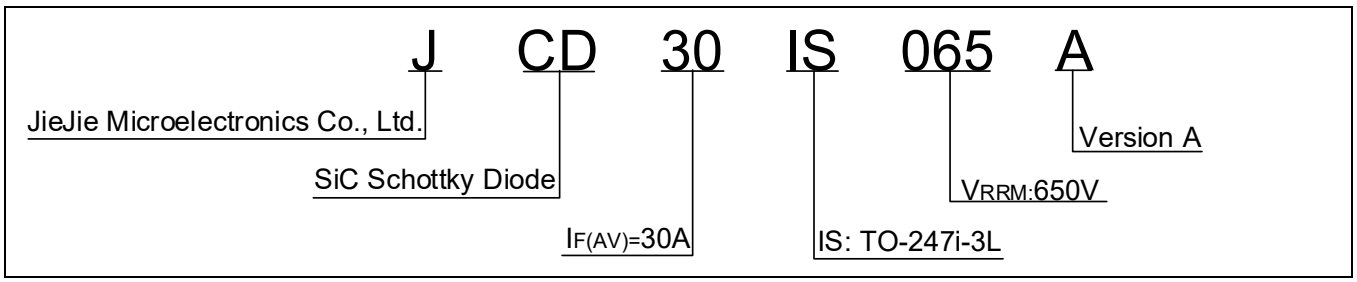
ELECTRICAL CHARACTERISTICS(Rating at 25℃ junction temperature unless otherwise specified.)

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	I_F=30A,T_j=25℃	V_F	-	1.45	1.80	V
	I_F=30A,T_j=175℃		-	1.95	2.40	
Reverse current	V_R=650V,T_j=25℃	I_R	-	2	20	μA
	V_R=650V,T_j=175℃		-	40	200	
Total capacitance	V_R=0V,f=1MHz	C	-	2050	-	pF
	V_R=200V,f=1MHz		-	162	-	
	V_R=400V,f=1MHz		-	137	-	
Total capacitance charge	V_R=400V,T_j=25℃	Q_C	-	85	-	nC
Capacitance stored energy	V_R=400V	Ec	-	21	-	μJ

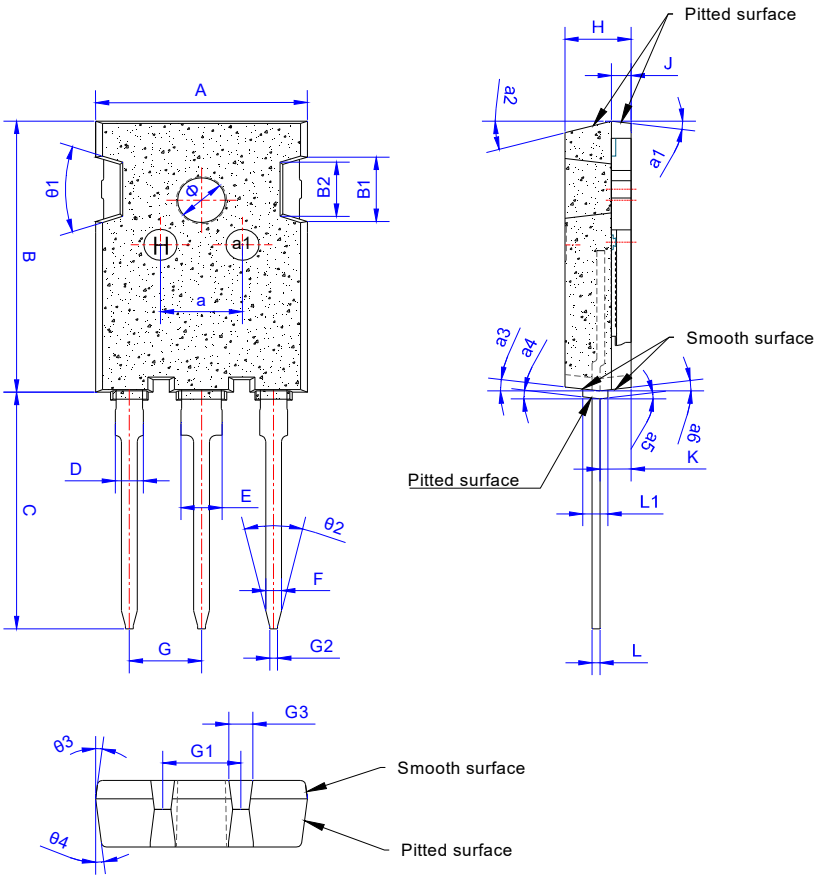
THERMAL CHARACTERISTICS

Symbol	Parameter	Min.	Typ.	Max.	Unit
$R_{th(j-c)}$	Junction to case	-	-	1	℃/W

ORDERING INFORMATION



PACKAGE MECHANICAL DATA



Symbol	Dimension			Inches			Symbol	Dimension			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.		Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.95	16.00	16.05	0.628	0.630	0.632	K	2.30	2.35	2.40	0.091	0.093	0.094
a	6.15	6.20	6.25	0.242	0.244	0.246	L	0.59	0.60	0.61	0.023	0.024	0.024
B	21.85	21.90	21.95	0.860	0.862	0.864	L1	1.85	1.90	1.95	0.073	0.075	0.077
B1	5.15	5.20	5.25	0.203	0.205	0.207	φ	3.55	3.60	3.65	0.140	0.142	0.144
B2	4.32	4.37	4.42	0.170	0.172	0.174	θ1	35°	36°	37°	35°	36°	37°
C	19.01	19.11	19.21	0.748	0.752	0.756	θ2	26°	27°	28°	26°	27°	28°
D	2.07	2.10	2.13	0.081	0.083	0.084	θ3	6°	7°	8°	6°	7°	8°
E	3.07	3.10	3.13	0.121	0.122	0.123	θ4	6°	7°	8°	6°	7°	8°
F	1.15	1.20	1.25	0.045	0.047	0.049	α1	6°	7°	8°	6°	7°	8°
G	5.45REF			0.215REF			α2	14°	15°	16°	14°	15°	16°
G1	5.85	5.90	5.95	0.230	0.232	0.234	α3	6°	7°	8°	6°	7°	8°
G2		0.60			0.024		α4	6°	7°	8°	6°	7°	8°
G3	1.76	1.81	1.86	0.069	0.071	0.073	α5	6°	7°	8°	6°	7°	8°
H	4.95	5.00	5.05	0.195	0.197	0.199	α6	6°	7°	8°	6°	7°	8°
J	1.44	1.49	1.54	0.057	0.059	0.061							

CHARACTERITICS CURVE

FIG.1: Forward characteristics

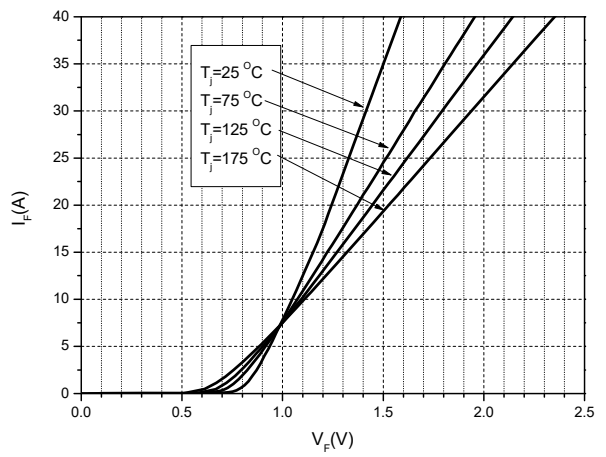


FIG.2: Reverse characteristics

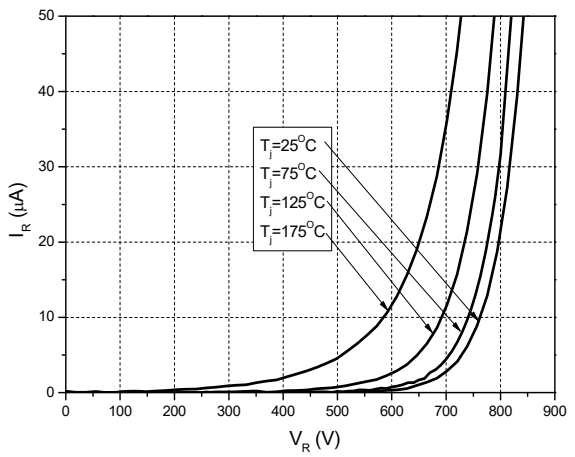


FIG.3: Capacitance vs. reverse voltage

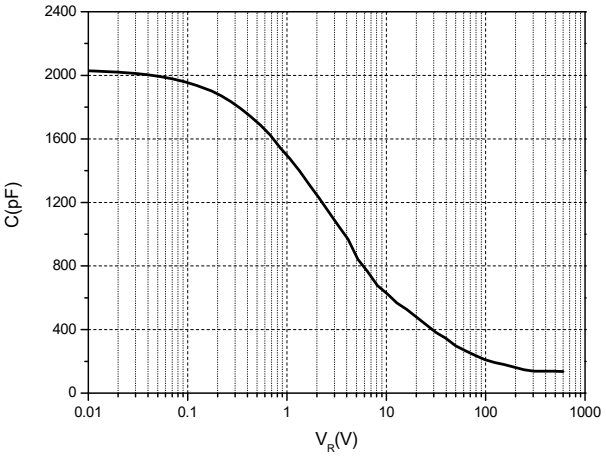


FIG.4: Capacitance charge vs. reverse voltage

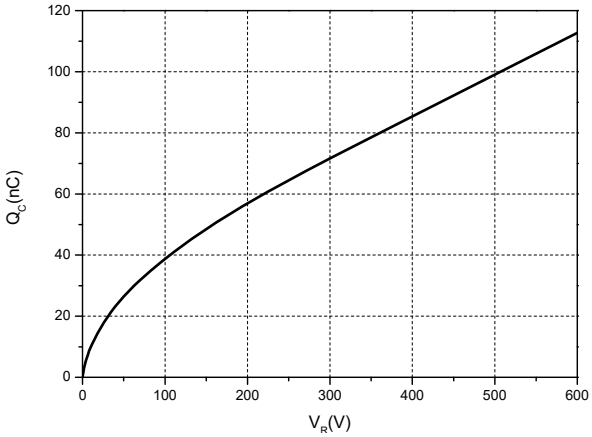


FIG.5: Capacitance stored energy

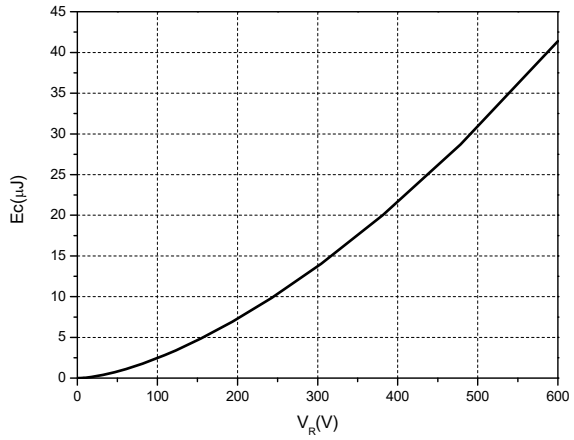
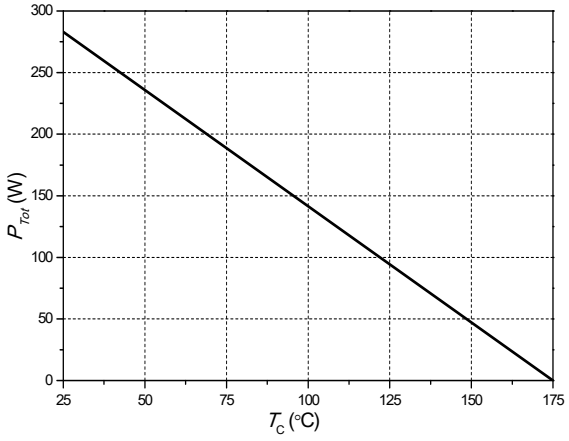


FIG.6: Power derating



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