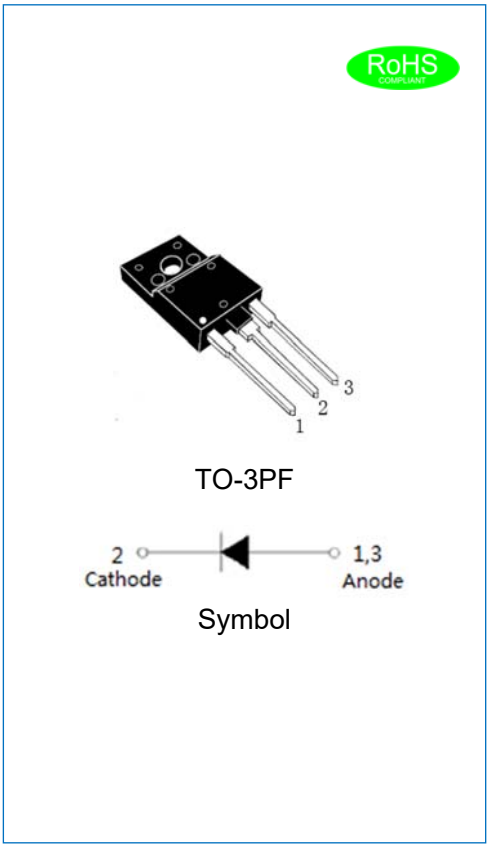
JCD30Y065A

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
- ✧ 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℃ 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=80℃	$I_{F(AV)}$	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

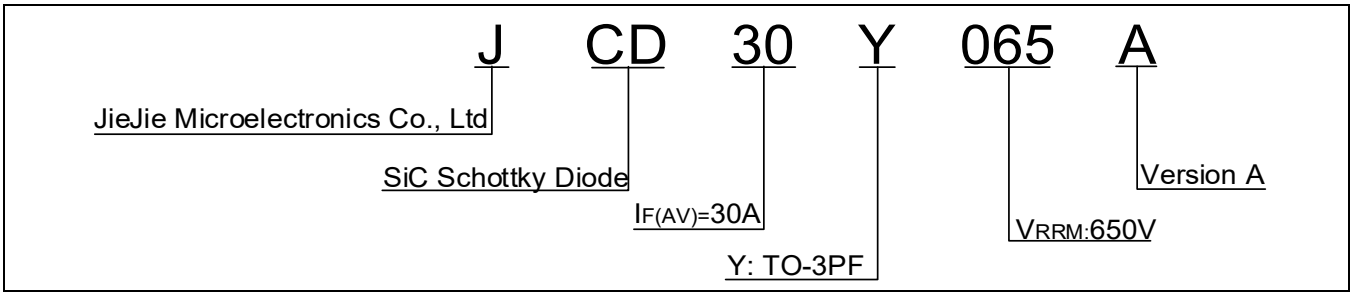
ELECTRICAL CHARACTERISTICS(Rating at 25℃ junction temperature unless otherwise specified.)

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

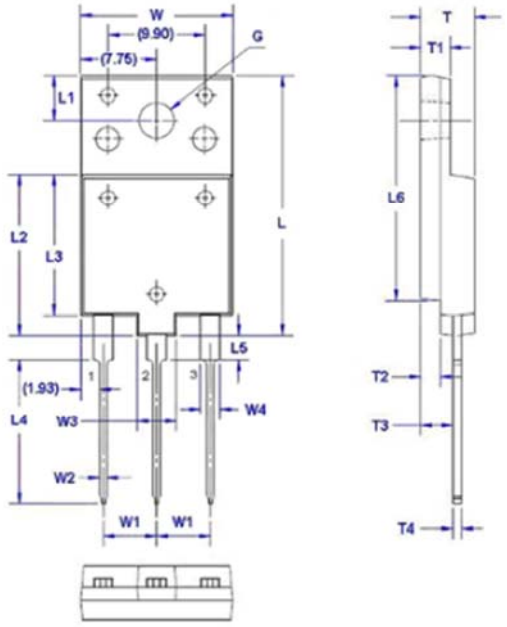
THERMAL CHARACTERISTICS

Symbol	Parameter	Min.	Typ.	Max.	Unit
$R_{th(j-c)}$	Junction to case	-	-	2.2	℃/W

ORDERING INFORMATION



PACKAGE MECHANICAL DATA



(Unit: mm)

Symbol	Dimension		Symbol	Dimension	
	Min	Max		Min	Max
W	15.30	15.70	L4	14.60	15.00
W1	5.15	5.75	L5	2.30	2.70
W2	0.65	0.95	L6	22.80	23.20
W3	3.80	4.20	T	5.30	5.70
W4	1.80	2.20	T1	2.80	3.20
L	26.30	26.70	T2	1.80	2.20
L1	4.40	4.60	T3	3.10	3.50
L2	16.30	16.70	T4	0.80	1.10
L3	14.30	14.70	G(Φ)	3.40	3.80

CHARACTERITICS CURVE

FIG.1: Forward characteristics

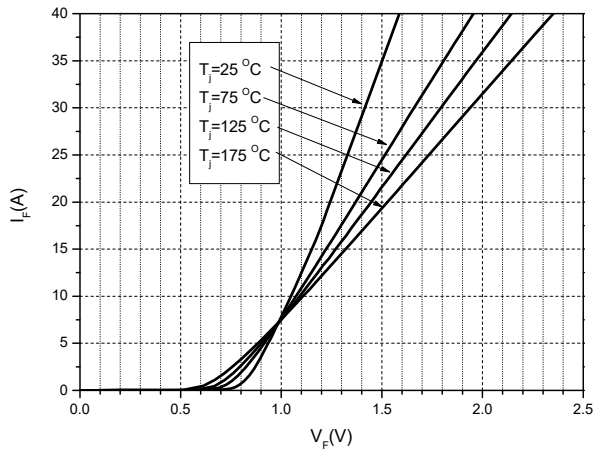
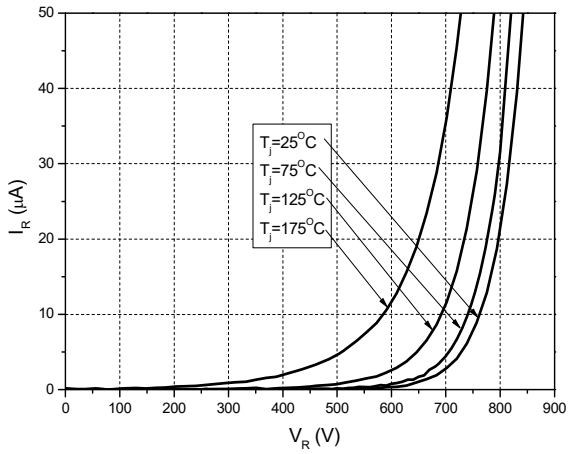


FIG.2: Reverse characteristics



CHARACTERITICS CURVE

FIG.3: Capacitance vs. reverse voltage

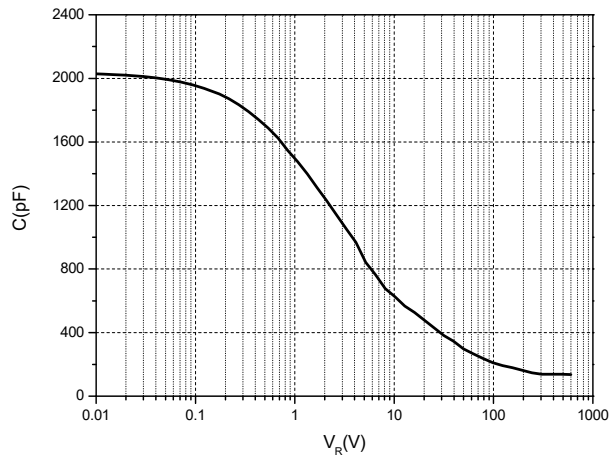


FIG.4: Capacitance charge vs. reverse voltage

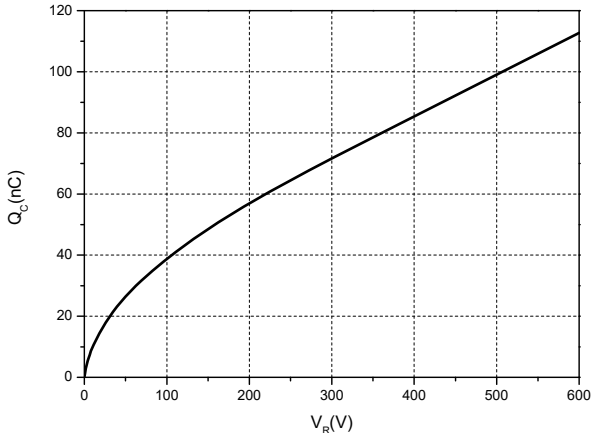


FIG.5: Capacitance stored energy

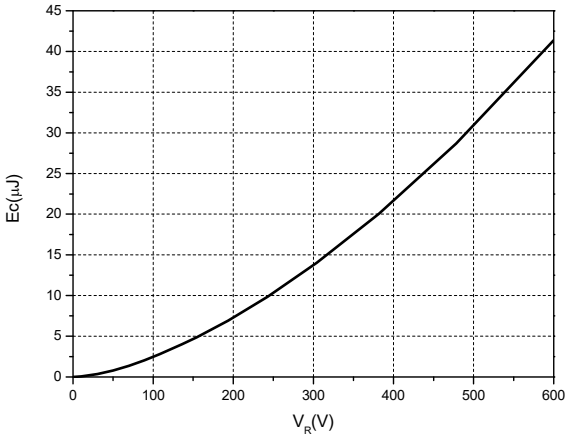
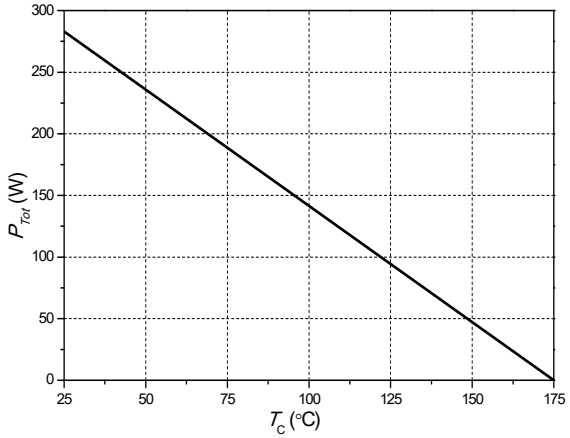


FIG.6: Power derating



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