



JCD20Y065B

SiC Schottky Diode

Rev.1.0

DESCRIPTION

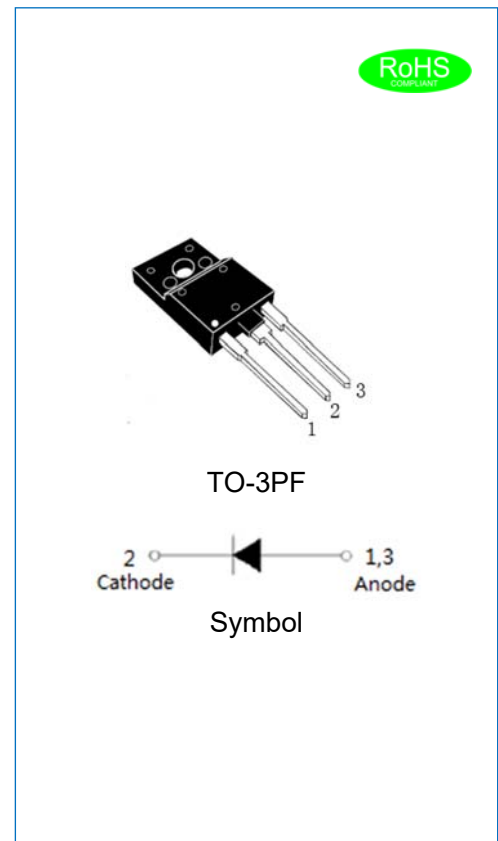
- ✧ 650V Schottky diode
- ✧ Zero reverse recovery current
- ✧ Zero forward recovery voltage
- ✧ High frequency operation
- ✧ Switching characteristics independent of temperature
- ✧ Fast switch
- ✧ Positive temperature coefficient of forward voltage (V_F)

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°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
Average forward current	$I_{F(AV)}$	20	A
Repetitive peak forward surge current	I_{FRM}	57	A
Non-repetitive peak forward surge current	I_{FSM}	115	A
Power dissipation	P_{tot}	83 36	W
Operating junction temperature range	T_j	-55 to+175	°C
Storage temperature range	T_{stg}	-55 to+175	°C

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°C junction temperature unless otherwise specified.)

Parameter	Conditions	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	$I_F=20A, T_j=25^\circ C$	V_F	-	1.35	1.62	V
	$I_F=20A, T_j=150^\circ C$		-	1.61	-	
Reverse current	$V_R=650V, T_j=25^\circ C$	I_R	-	3	80	μA
	$V_R=650V, T_j=175^\circ C$		-	13	-	
Total capacitance	$V_R=1V, f=1MHz$	C	-	870	-	pF
	$V_R=200V, f=1MHz$		-	125	-	
	$V_R=400V, f=1MHz$		-	90	-	
Total capacitance charge	$V_R=400V, T_j=25^\circ C$	Q_C	-	64	-	nC
Capacitance stored energy	$V_R=400V$	E_C	-	9.5	-	μJ

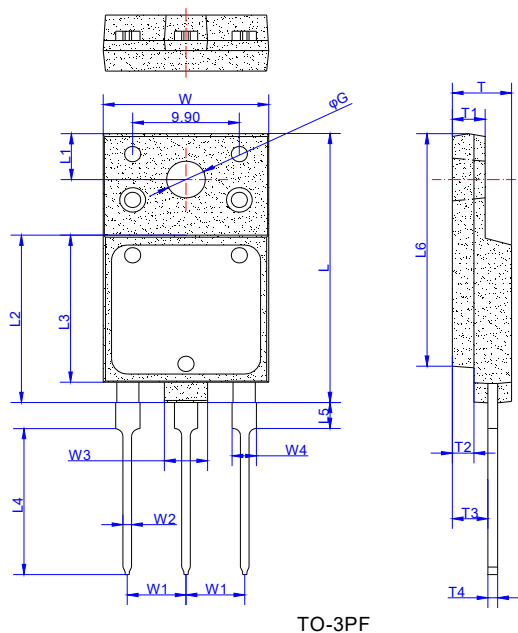
THERMAL CHARACTERISTICS

Symbol	Parameter	Min.	Typ.	Max.	Unit
$R_{th(j-c)}$	Junction to case	-	1.8	-	$^\circ C/W$

ORDERING INFORMATION

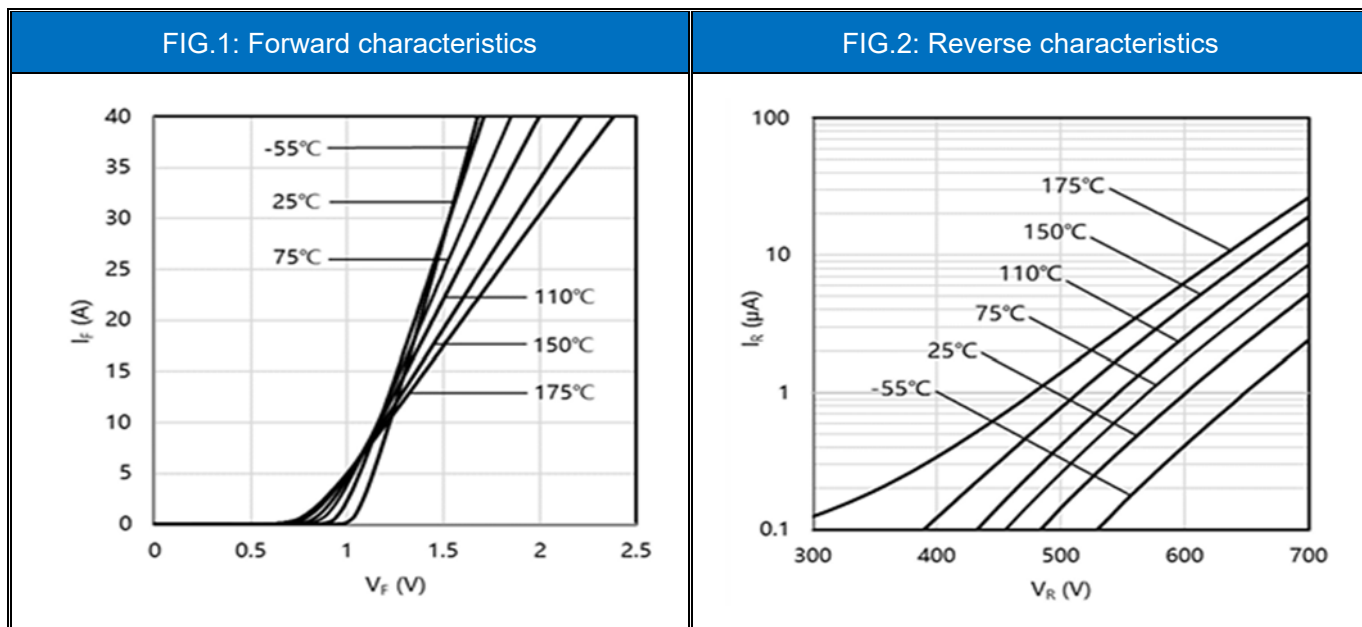
<p>J CD 20 Y 065 B</p> <p>JieJie Microelectronics Co., Ltd</p> <p>SiC Schottky Diode</p> <p>$I_{F(AV)}=20A$</p> <p>Y: TO-3PF</p> <p>$V_{RRM}:650V$</p> <p>Version B</p>

PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
W	15.25	15.70	0.600	0.618
W1	5.15	5.75	0.203	0.226
W2	0.65	0.95	0.026	0.037
W3	3.80	4.20	0.150	0.165
W4	1.70	2.30	0.067	0.091
L	26.30	26.70	1.035	1.051
L1	4.40	4.60	0.173	0.181
L2	16.30	16.70	0.642	0.657
L3	14.10	14.90	0.555	0.587
L4	14.15	15.00	0.557	0.591
L5	2.30	2.70	0.091	0.106
L6	21.50	24.50	0.846	0.965
T	5.30	5.70	0.209	0.224
T1	2.80	3.20	0.110	0.126
T2	1.80	2.20	0.071	0.087
T3	3.10	3.50	0.122	0.138
T4	0.80	1.10	0.031	0.043
φG	3.30	3.90	0.130	0.154

CHARACTERISTICS CURVE



CHARACTERISTICS CURVE

FIG.3: Capacitance vs. reverse voltage

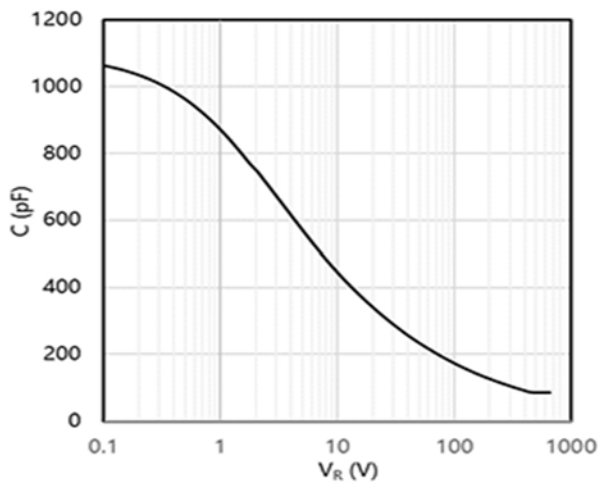


FIG.4: Transient thermal impedance

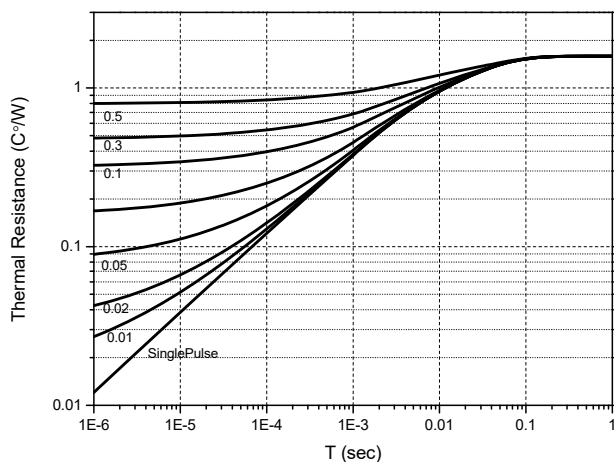


FIG.5: Reverse characteristics

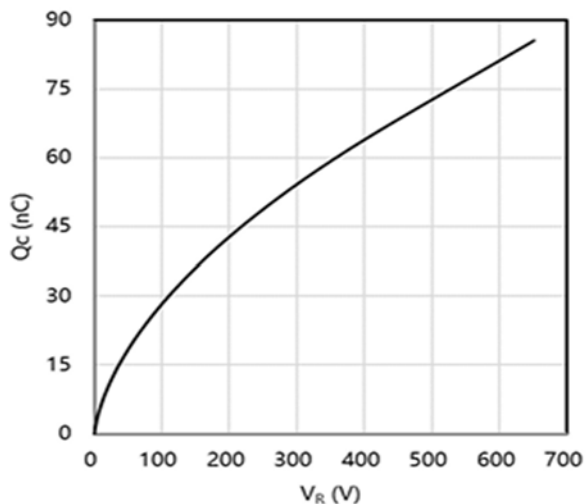


FIG.6: Capacitance stored energy

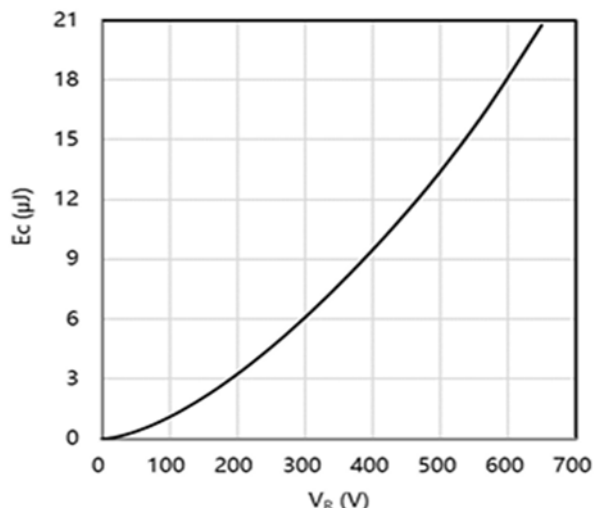


FIG.7: Power derating

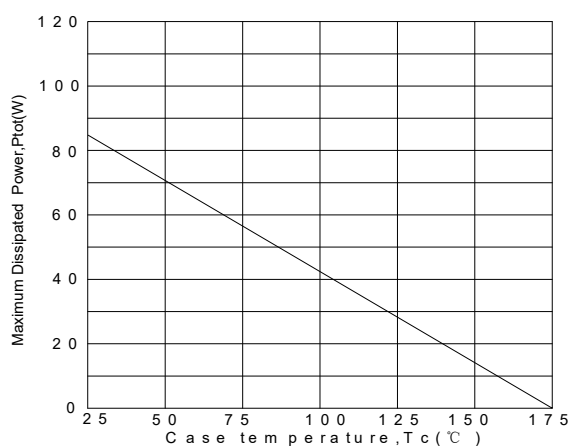
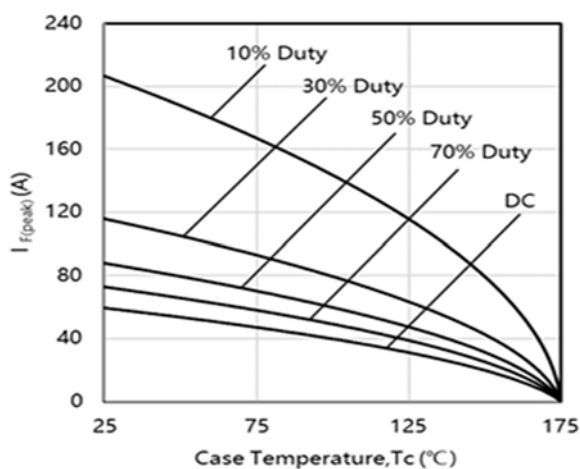


FIG.8: Current derating




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