JJMICROELECTRONICS

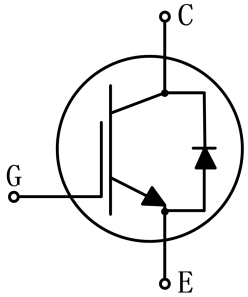
650V 30A T c a d F d S IGBT

JJT30N65SC

TO-263

- $_{CE}$=650V
- $_{C}$=30A@ $_{C}$=100
- $_{CE(sat)}$=1.7 V

- High ruggedness performance.
- 10μs short circuit capability.
- Positive $_{CE\ (sat)}$ temperature coefficient.
- High efficiency for motor control.
- Excellent current sharing in parallel operation.
- RoHS compliant.



- Home appliances
- Motor drives
- General inverter

Type	Marking	Package	Packaging method
JJT30N65SC	T3065SC	TO-263	Tape and reel

CES	Collector-emitter voltage	650	V
GES	Gate-emitter voltage	±20	V
C	Continuous collector current (C=25℃)	60	A
	Continuous collector current (C=100℃)	30	A
CM	Pulsed collector current, p limited by vjmax	120	A
F	Diode continuous forward current (C=100℃)	30	A
FM	Diode maximum current, p limited by vjmax	80	A
sc	Short circuit withstand time	10	s
tot	Power dissipation (C=25℃)	250	W
	Power dissipation (C=100℃)	125	W
vj	Operating junction temperature range	-40 to +175	℃
stg	Storage temperature range	-55 to +150	℃

th(j-c)	Thermal resistance, junction to case for IGBT	-	0.6	K/ W
th(j-c)	Thermal resistance, junction to case for Diode	-	1.1	K/ W
th(j-a)	Thermal resistance, junction to ambient	-	40	K/ W

($_{vj}$=25 unless otherwise specified)

Static characteristics

$_{CES}$	Collector-emitter breakdown voltage	$_{GE}$=0V, $_{C}$=250 A	650	-	-	V
$_{CES}$	Collector-emitter leakage current	$_{CE}$=650V, $_{GE}$=0V	-	-	50	A
$_{GES}$	Gate leakage current, forward	$_{GE}$=20V, $_{CE}$=0V	-	-	100	nA
	Gate leakage current, reverse	$_{GE}$=-20V, $_{CE}$=0V	-	-	-100	nA
$_{GE(th)}$	Gate-emitter threshold voltage	$_{GE}$= $_{CE}$, $_{C}$=1mA	5.2	5.7	6.2	V
$_{CE(sat)}$	Collector-emitter saturation voltage	$_{GE}$=15V, $_{C}$=30A	-	1.7	-	V
		$_{GE}$=15V, $_{C}$=30A, $_{vj}$=175	-	2.2	-	V

Dynamic characteristics

$_{ies}$	Input capacitance	$_{CE}$=30V $_{GE}$=0V =1MHz	-	1978	-	pF
$_{oes}$	Output capacitance		-	100	-	pF
$_{res}$	Reverse transfer capacitance		-	23	-	pF
$_{g}$	Total gate charge	$_{CC}$=520V $_{GE}$=15V $_{C}$=30A	-	103	-	nC

($_{vj}$=25 unless otherwise specified)

$_{F}$	Diode forward voltage	$_{F}$=30A	-	1.7	-	V
		$_{F}$=30A, $_{vj}$=175	-	1.4	-	V
$_{rr}$	Diode reverse recovery time	$_{R}$=400V $_{F}$=30A d $_{F}$/d =-550A/ s	-	105	-	ns
$_{rrm}$	Diode peak reverse recovery current		-	16	-	A
$_{rr}$	Diode reverse recovery charge		-	876	-	nC
$_{rr}$	Diode reverse recovery time	$_{R}$=400V $_{F}$=30A d $_{F}$/d =-550A/ s $_{vj}$=175	-	171	-	ns
$_{rrm}$	Diode peak reverse recovery current		-	26	-	A
$_{rr}$	Diode reverse recovery charge		-	2650	-	nC

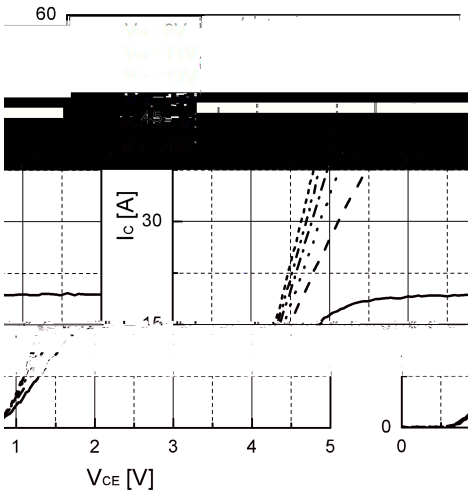


Fig 1. Typical output characteristic (vj=25)

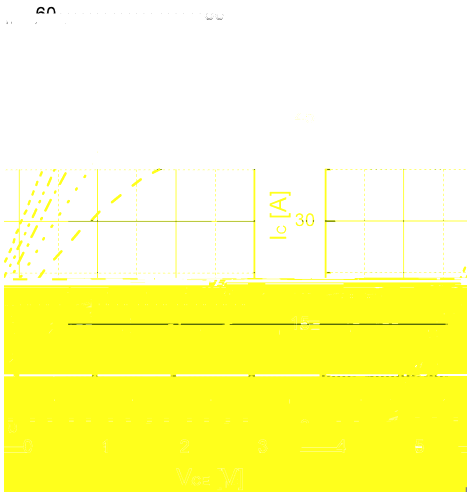


Fig 2. Typical output characteristic(vj=175)

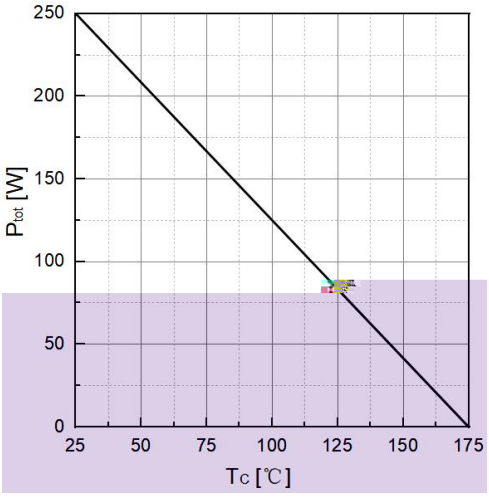


Fig 3. Power dissipation as a function of

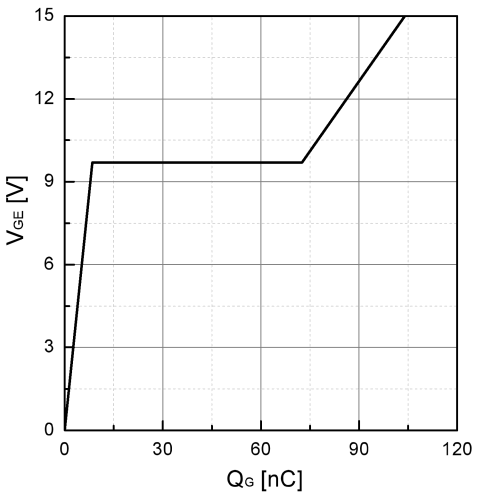


Fig 4. Typical Gate charge

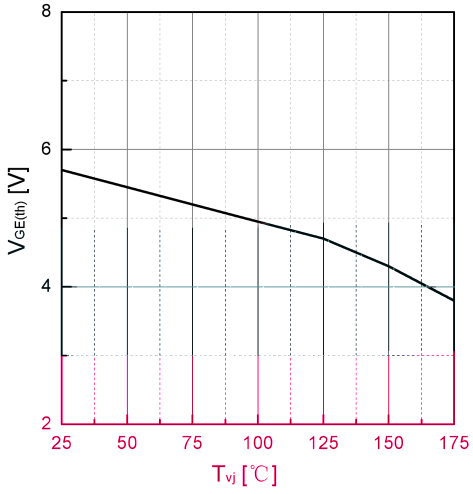


Fig 5. Typical GE(th) as a function of vj (C=1mA)

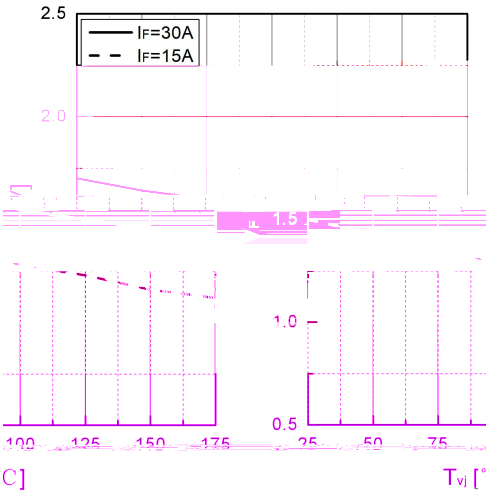
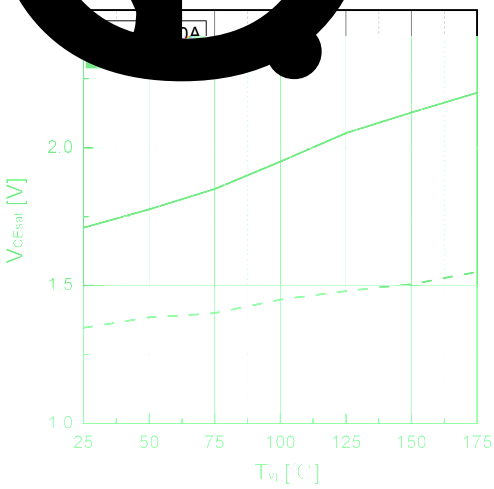


Fig 6. Typical F as a function of vj



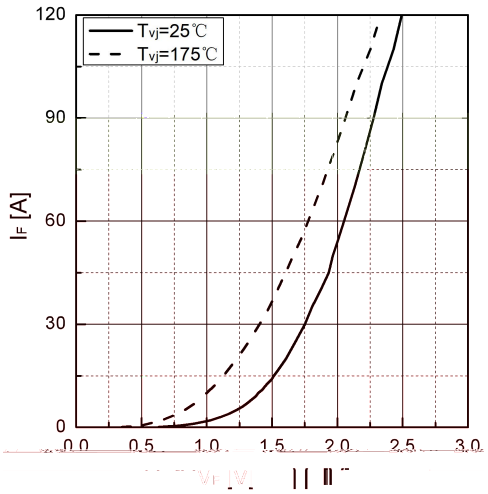


Fig 7. Typical $_{CEsat}$ as a function of $_{vj}$

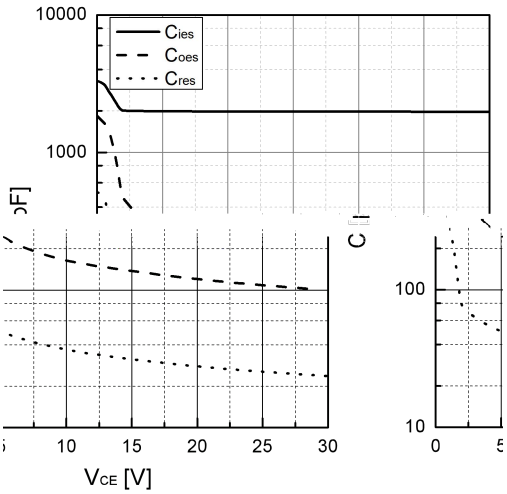


Fig 13. Typical capacitance as a function of $_{CE}$ (f=1Mhz, $_{GE}$=0V)

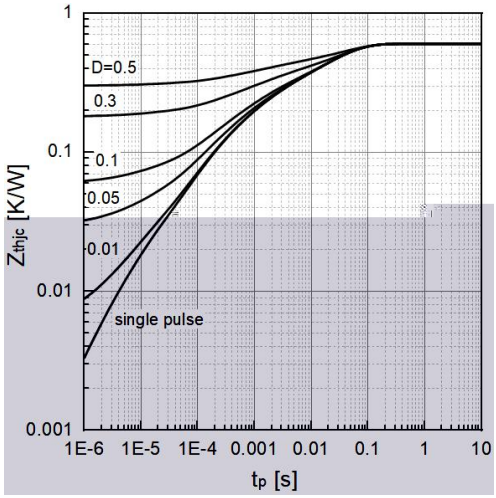


Fig 14. Transient thermal impedance, IGBT

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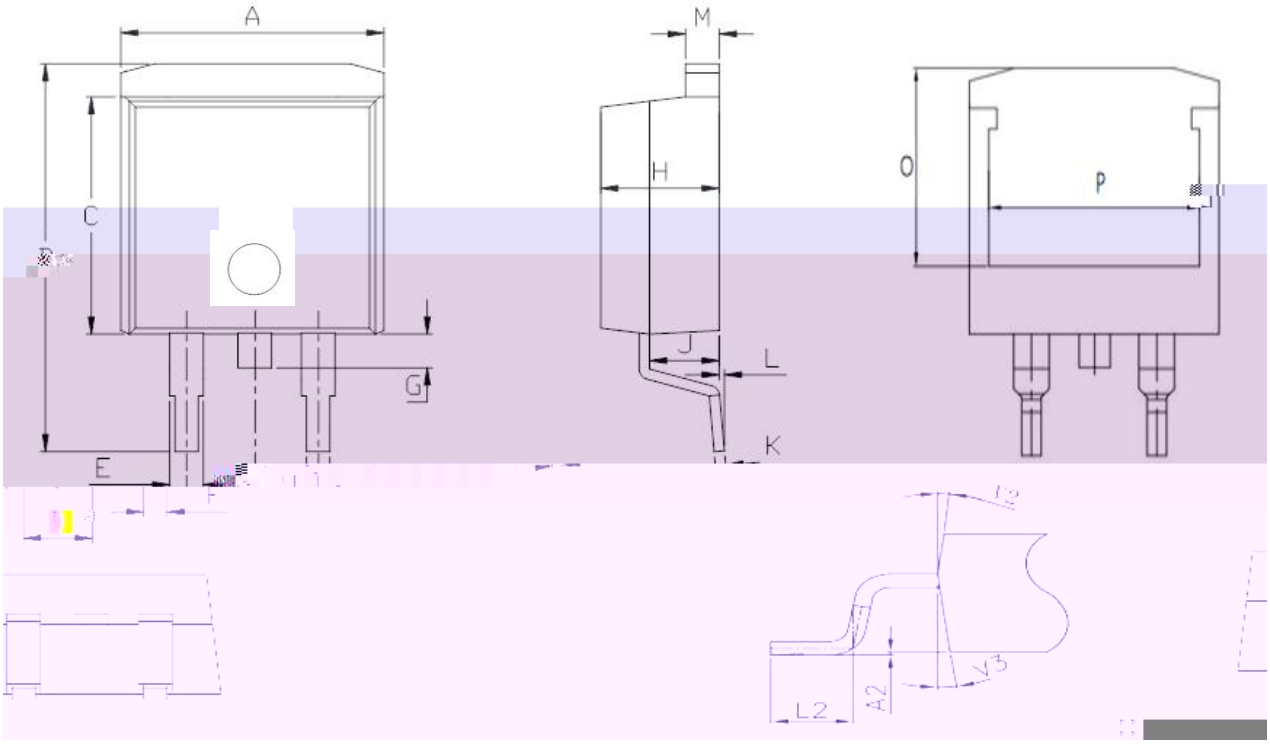

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90	-	10.20	0.390	-	0.402
B	14.70	-	15.80	0.579	-	0.622
C	8.8	-	9.4	0.346	-	0.370
D	-	2.54	-	-	0.100	-
E	1.37	-	1.57	0.054	-	0.062
F	0.75	-	0.85	0.029	-	0.033
G	-	-	1.75	-	-	0.069
H	4.30	-	4.70	0.169	-	0.185
J	2.30	-	2.70	0.091	-	0.106
K	0.38	-	0.55	0.015	-	0.022
L	0	0.15	0.25	0	0.006	0.010
M	1.25	-	1.35	0.049	-	0.053
O	7.4	7.65	7.9	0.291	0.301	0.311
P	8.3	8.6	8.9	0.327	0.339	0.350
L2	2.20	2.35	2.50	0.087	0.093	0.098