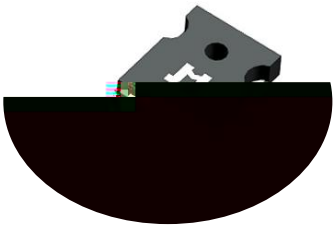
JJMICROELECTRONICS

650V 50A Trench and Field Stop IGBT

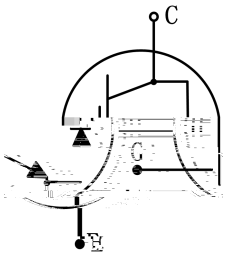
JJT50N65UK

- $_{CE}$ =650V
- $_{C}$=50A@ $_{C}$=100
- $_{CE(sat)}$=1.5V

TO-247i



- Trench and field-stop technology.
- Easy parallel switching capability.



- High efficiency for inverters.
- High ruggedness performance.
- RoHS compliant.

- PFC applications
- Welding machines

Type	Marking	Package	Packaging Method
JJT50N65UK	T5065UK	TO-247i	Tube

V_{CES}	Collector-emitter voltage	650	V
V_{GES}	Gate-emitter voltage	±20	V
I_C	Continuous collector current ($_C$=25)	100	A
	Continuous collector current ($_C$=100)	50	A
I_{CM}	Pulsed collector current, $_p$ limited by $_{vjmax}$	200	A
I_F	Diode continuous forward curren		

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

Static characteristics

$_{CES}$	Collector-emitter breakdown voltage	$_{GE}$=0V, I_C=250μA	650	-	-	V
$_{CES}$	Collector-emitter leakage current	$_{CE}$=650V, $_{GE}$=0V	-	-	50	μA
$_{GES}$	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	4.0	4.4	4.8	V
$_{CE(sat)}$	Collector-emitter saturation voltage	$_{GE}$=15 V, $_{C}$=50A	1.2	1.5	1.8	V
		$_{GE}$=15V, $_{C}$=50A, $_{vj}$=175	-	1.95	-	V

Dynamic characteristics

$_{ies}$	Input capacitance	$_{CE}$=30V $_{GE}$=0V =1MHz	-	5096	-	pF
$_{oes}$	Output capacitance		-	106	-	pF
$_{res}$	Reverse transfer capacitance		-	30	-	pF
$_{g}$	Total gate charge	$_{CC}$=520V =15V $_{C}$=50A	-	180	-	nC

		$_F$=50A	2.0	2.3	2.6	V
$_F$	Diode forward voltage	$_F$=50A, $_{vj}$=175	-	1.9	-	V
$_{rr}$	Diode reverse recovery time	$_R$=400V	-	100	-	ns
$_{rrm}$	Diode peak reverse recovery current	$_F$=50A	-	7.5	-	A
$_{rr}$	Diode reverse recovery char	d $_F$/d =-400A/μs				

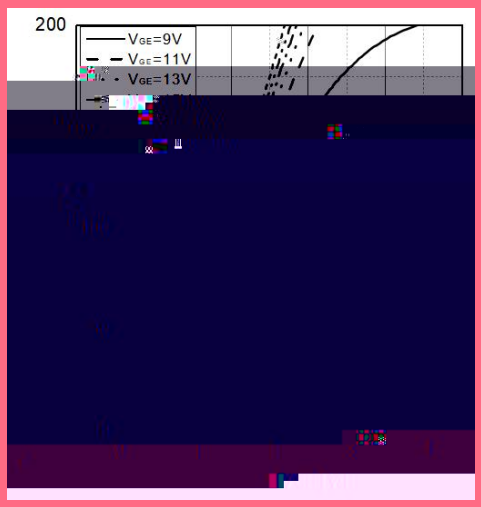


Fig 1. Typical output characteristic (vj=25)

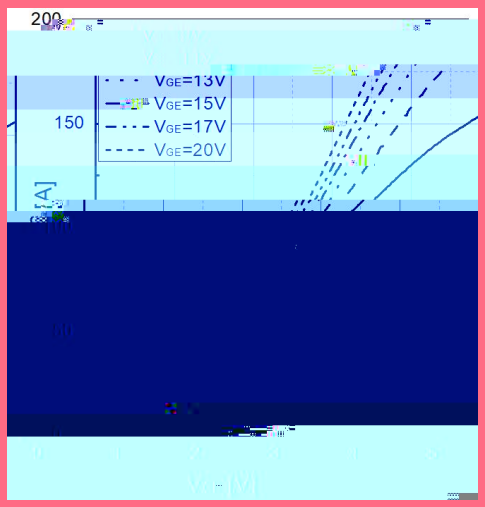


Fig 2. Typical output characteristic(vj=175)

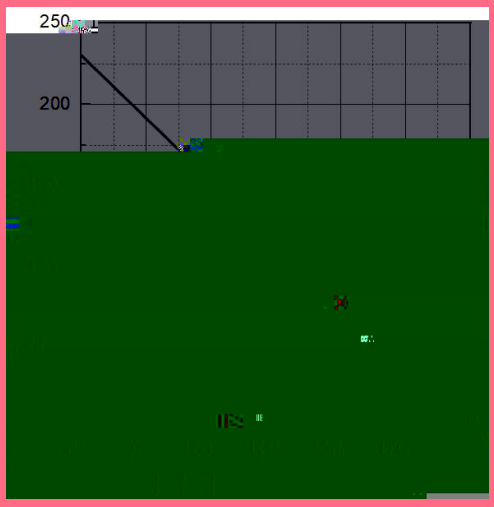
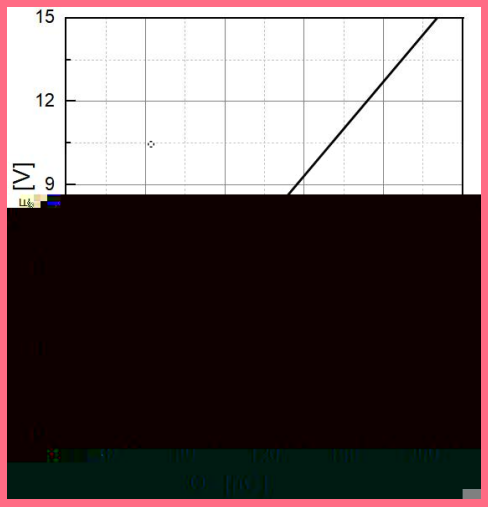


Fig 3. Power dissipation as a function of



Fig

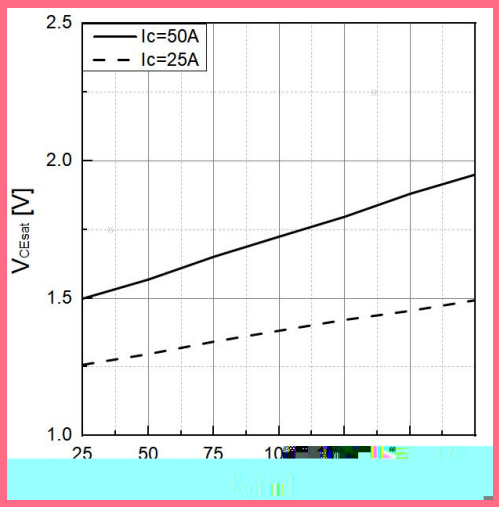


Fig 7. Typical $_{CEsat}$ as a function of $_{vj}$

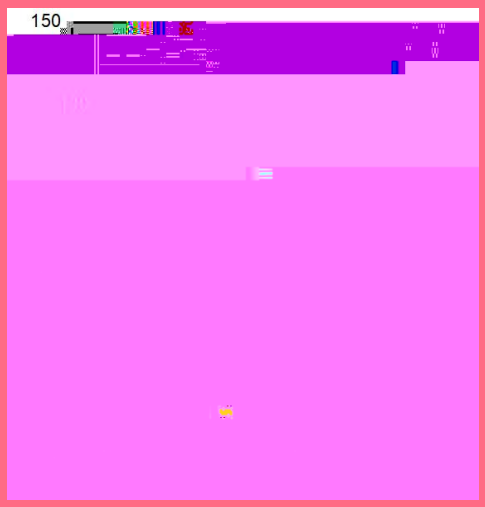


Fig 8. Typical $_{F}$ as a function of $_{F}$

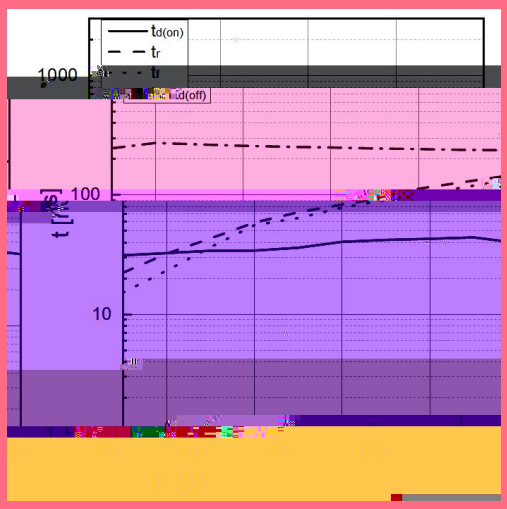


Fig 9. Typical switching time as a function of $_{C}$

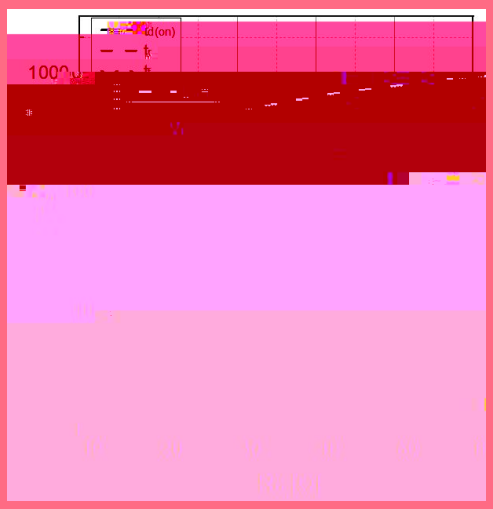


Fig 10. Typical switching times as a function of $_{G}$

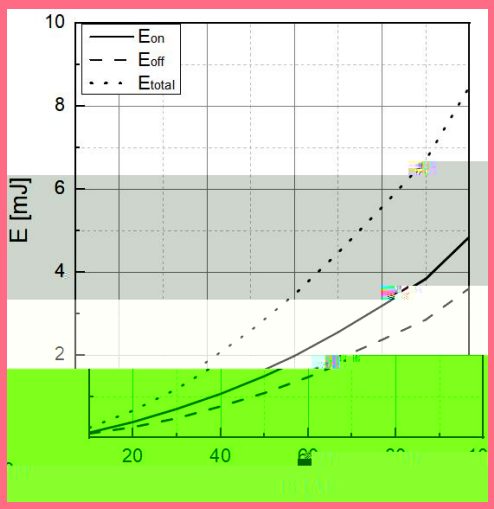


Fig 11. Typical switching energy losses as a function of $_{C}$

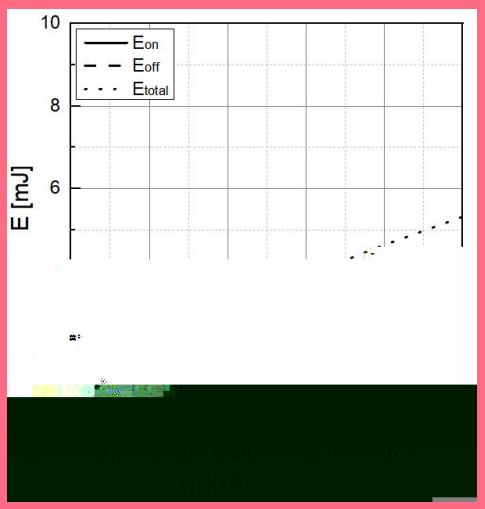


Fig 12. Typical switching energy losses as a function of $_{G}$

.04

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.95	16.00	16.05	0.627	0.629	0.631
B	21.85	21.90	21.92	0.860	0.862	0.864
B1	5.15	5.20	5.25	0.202	0.204	0.206
B2	4.32	4.37	4.42	0.170	0.172	0.174
C	19.01	19.11	19.21	0.748	0.752	0.756
D	2.07	2.10	2.13	0.081	0.082	0.083
E	3.07	3.10	3.13	0.120	0.122	0.123
F	1.15	1.20	1.25	0.045	0.047	0.049
G	5.45REF			0.214REF		
G1	5.85	5.90	5.95	0.230	0.232	0.234
G2	-	0.60	-	-	0.023	-
G3	1.76	1.81	1.86	0.069	0.071	0.073
H	4.95	5.00	5.05	0.194	0.196	0.198
J	1.44	1.49	1.54	0.056	0.058	0.060
K	2.30	2.35	2.40	0.090	0.092	0.094
L	0.59	0.60	0.61	0.023	0.023	0.024
L1	1.85	1.90	1.95	0.072	0.074	0.076

Date	Revision	Changes
2025-05-17	Rev A.1.2	Update
2026-02-05	Rev 1.3	Update
2026-04-17	Rev 1.4	Update Thermal

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