JJMICROELECTRONICS

650V 40A Trench and Field Stop IGBT

JJT40N65HK

- $_{CE}$ =650V
- $_{C}$=40A@ $_{C}$=100
- $_{CE(sat)}$=1< " s" î ı p

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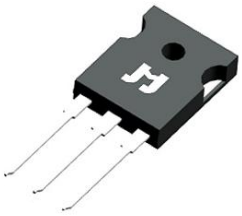

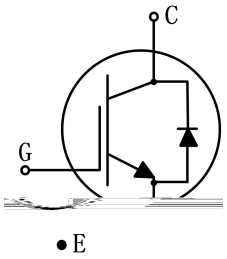

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CES	Collector-emitter voltage	650	V
GES	Gate-emitter voltage	±20	V
C	Continuous collector current (C=25)	80	A
	Continuous collector current (C=100)	40	A
CM	Pulsed collector current, p limited by vjmax	160	A
F	Diode continuous forward current (C=100)	40	A
FM	Diode maximum current, p limited by vjmax	160	A
tot	Power dissipation (C=25)	174	W
	Power dissipation (C=100)	87	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 IGB \ l "

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$_{CES}$	Collector-emitter breakdown voltage	$_{GE}$=0V, I_C=250μA	650	-	-	V
$_{CES}$	Collector-emitter leakage current	$_{CE}$=650V, $_{GE}$=0V	-	-	50	μA

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

$_{F}$	Diode forward voltage	$_{F}$=40A	-	1.5	-	V
		$_{F}$=40A, $_{vj}$=175	-	1.3	-	V
$_{rr}$	Diode reverse recovery time	$_{R}$=400V $_{F}$=40A d $_{F}$/d =-1200A/μs	-	82	-	ns
$_{rrm}$	Diode peak reverse recovery current		-	15	-	A
$_{rr}$	Diode reverse recovery charge		-	1620	-	nC
$_{rr}$	Diode reverse recovery time	$_{R}$=400V $_{F}$=40A d $_{F}$/d =-1200A/μs $_{vj}$=175	-	132	-	ns
$_{rrm}$	Diode peak reverse recovery current		-	43	-	A
$_{rr}$	Diode reverse recovery charge		-	3580	-	nC

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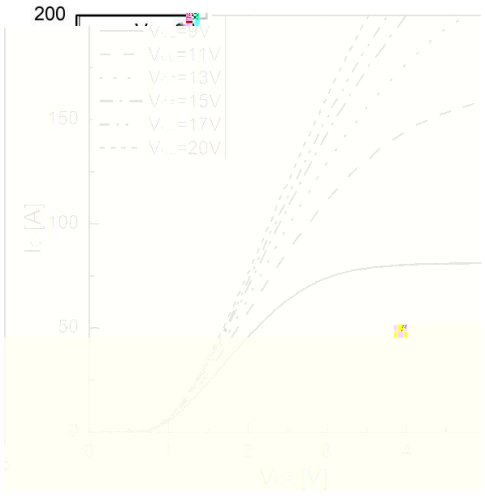

Fig 1. Typical output characteristic (vj=25)

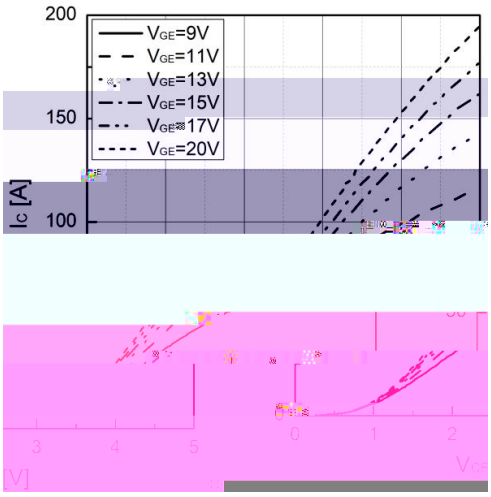

Fig 2. Typical output characteristic(vj=175)

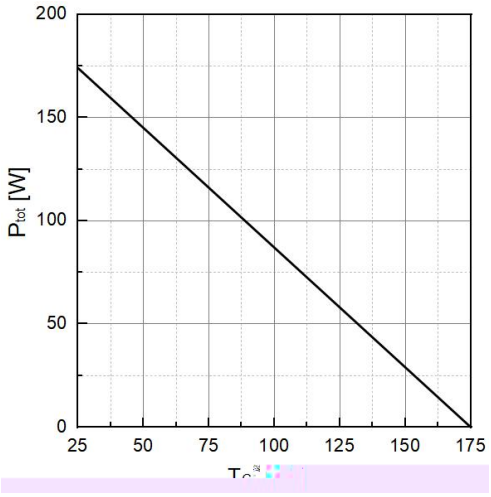

Fig 3. Power dissipation as a function of

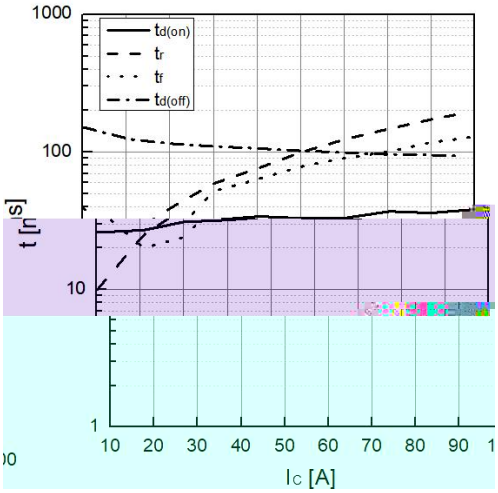

Fig 4. Typical switching time as a function of C

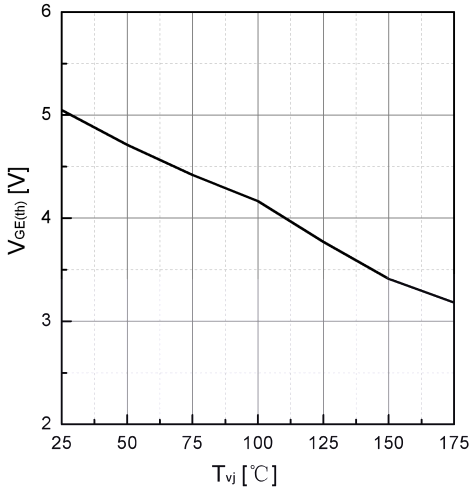

Fig 5. Typical GE(th) as a function of vj (C=1mA)

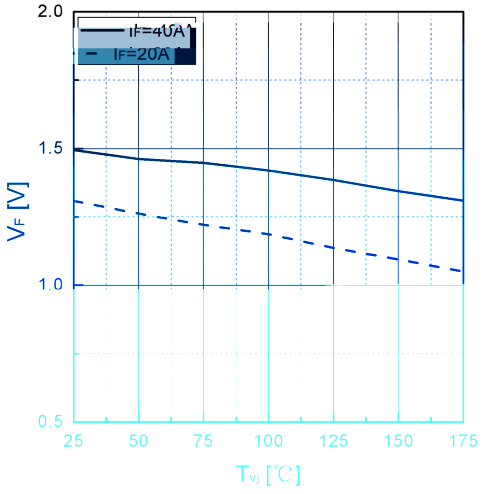

Fig 6. Typical F as a function of vj

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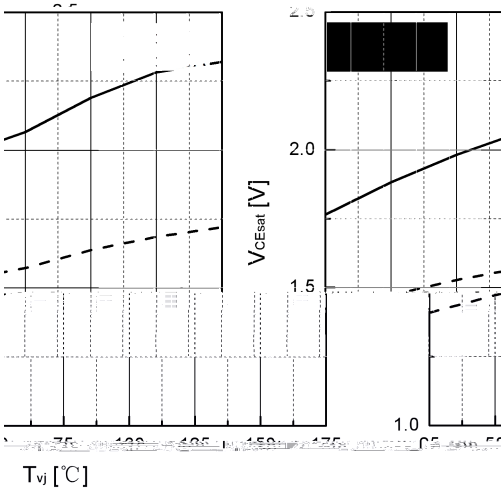

Fig 7. Typical $_{CEsat}$ as a function of $_{vj}$

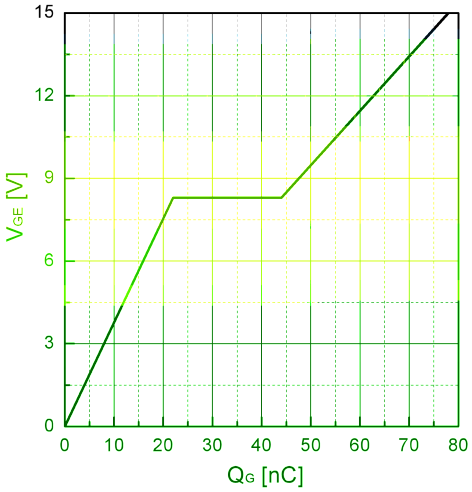

Fig 8. Typical Gate charge

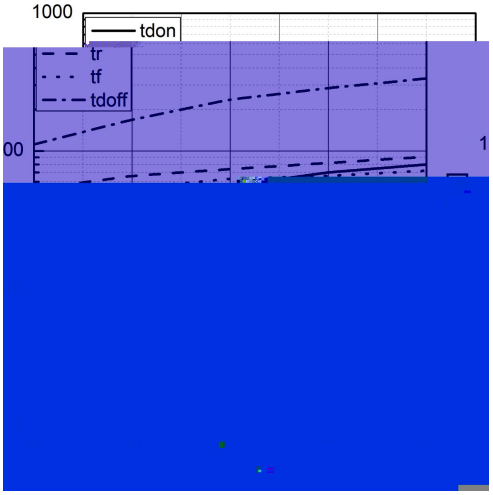

Fig 9. Typical switching times as a function of $_{G}$

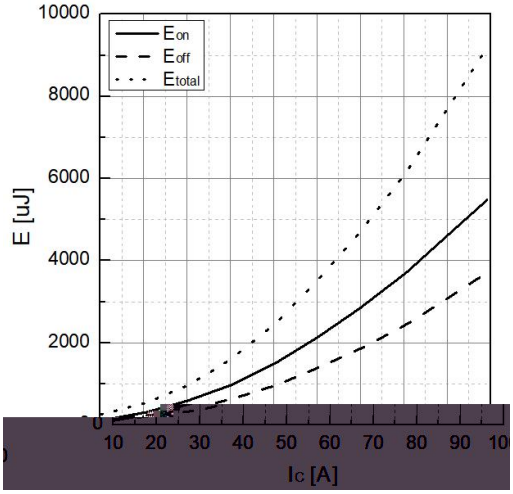

Fig 10. Typical switching energy losses as a function of $_{C}$

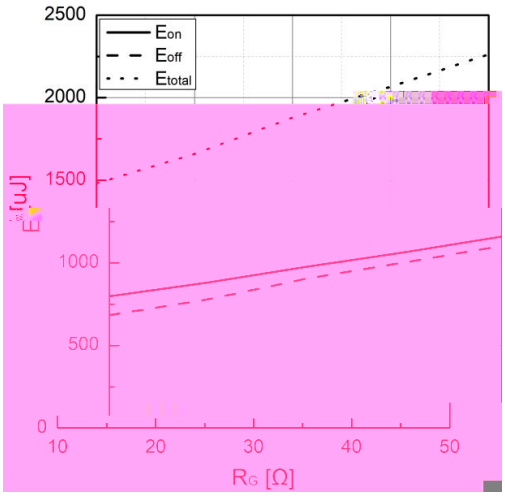

Fig 11. Typical switching energy losses as a function of $_{G}$

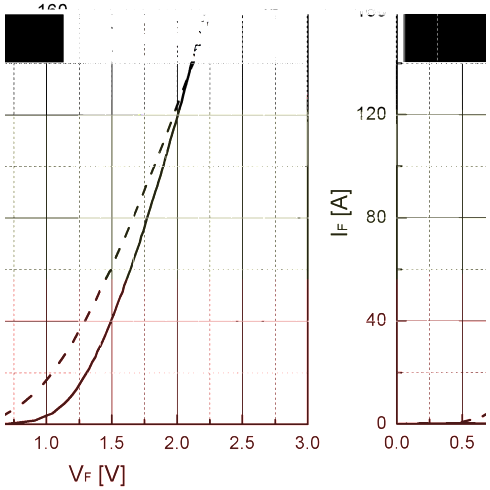

Fig 12. Typical $_{F}$ as a function of $_{F}$

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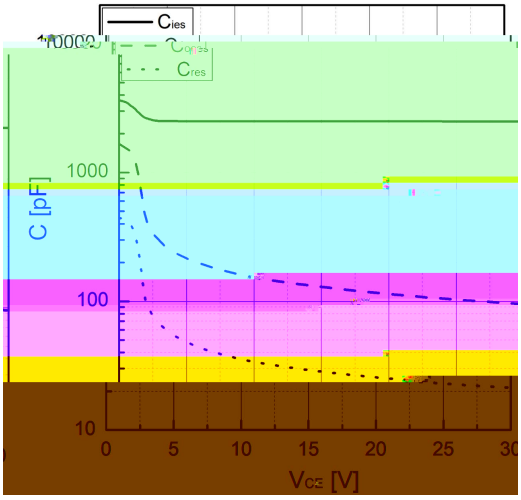

Fig 13. Typical capacitance as a function of $_{CE}$ (f=1Mhz, $_{GE}$=0V)

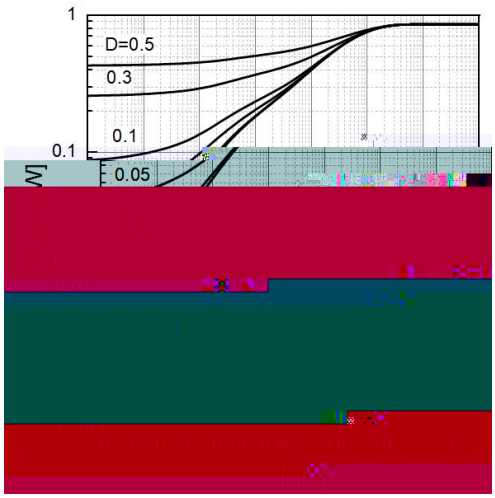

Fig 14. Transient thermal impedance of IGBT

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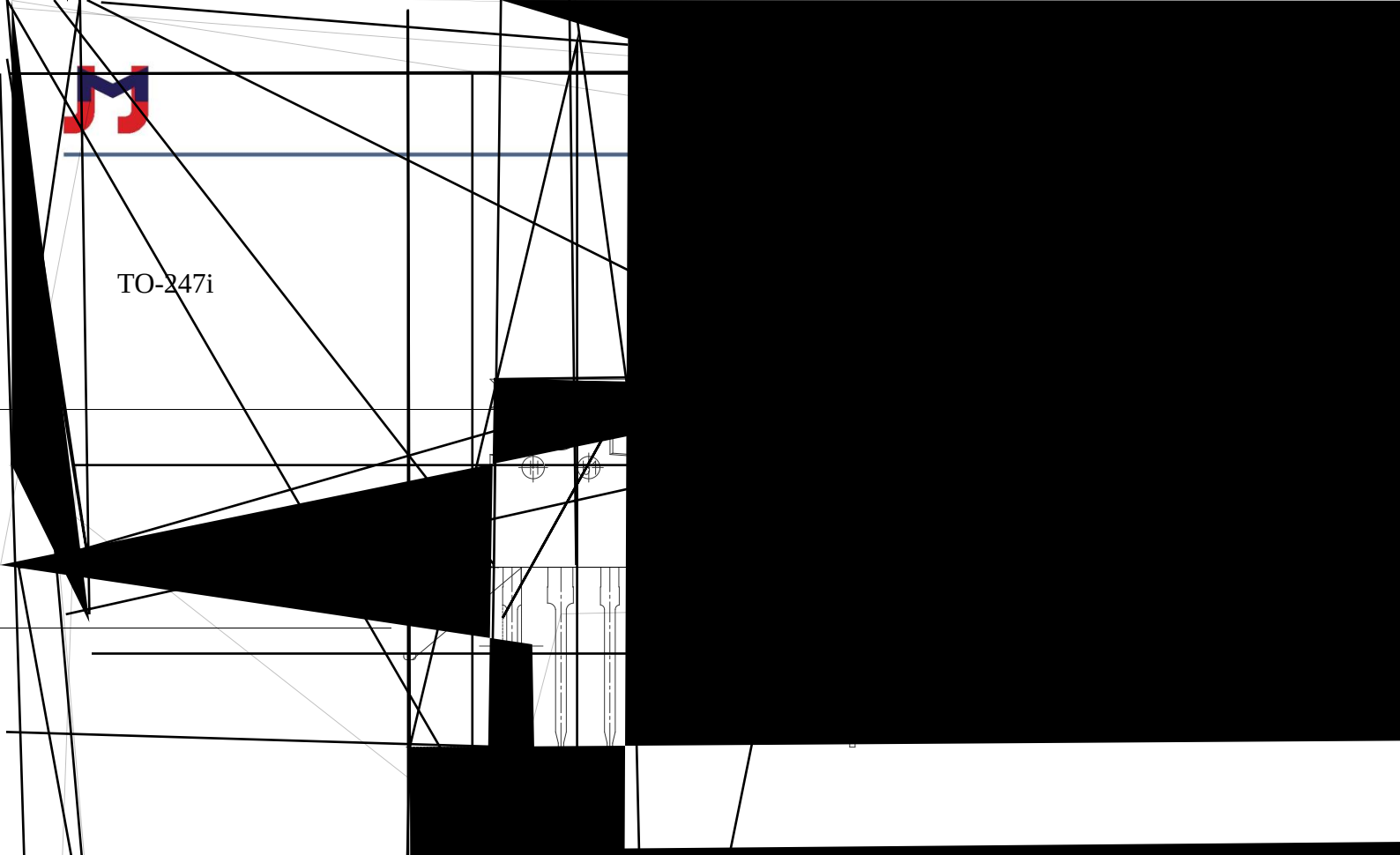

Ref.	
	Min.
A	15.95
B	21.85
B1	5.15
B2	4.32
C	19.01
D	2.07
E	3.07
F	1.15
G	
G1	5.85
G2	-
G3	1.76
H	4.95
J	1.44
K	2.30
L	0.59
L1	1.85

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Date	Revision	Changes
2024-10-22	Rev 1.0	Release of the datasheet
2025-01-18	Rev 1.1	Modify Rth
2026-06-25	Rev 1.2	Update thermal

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