

650V 75A Trench and Field Stop IGBT

JJT75N65HE

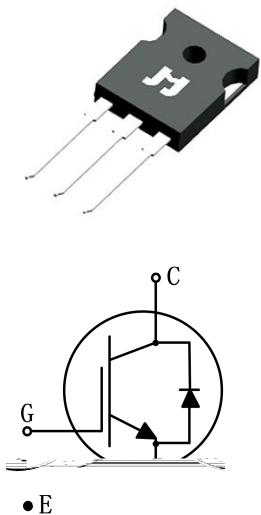
- $V_{CE}=650V$
- $I_C=75A@T_C=100$
- $V_{CE(sat)}=1.8V$

TO-247

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

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

- PFC applications
- Uninterruptible power supplies
- Solar inverters



Type	Marking	Package	Packaging Method
JJT75N65HE	T7565HE	TO-247	Tube



V_{CES}	Collector-emitter voltage	650	V
V_{GES}	Gate-emitter voltage	± 20	V
I_C	Continuous collector current ($T_C=25^\circ\text{C}$)	150	A
	Continuous collector current ($T_C=100^\circ\text{C}$)	75	A
I_{CM}	Pulsed collector current, t_p limited by T_{vjmax}	300	A
I_F	Diode continuous forward current ($T_C=100^\circ\text{C}$)	75	A
I_{FM}	Diode maximum current, t_p limited by T_{vjmax}	300	A
P_{tot}	Power dissipation ($T_C=25^\circ\text{C}$)	652	W
	Power dissipation ($T_C=100^\circ\text{C}$)	326	W
T_{vj}	Operating junction temperature range	-40 to +175	
T_{stg}	Storage temperature range	-55 to +150	

$R_{th(j-c)}$	Thermal resistance, junction to case for IGBT	-	0.23	K/ W
$R_{th(j-c)}$	Thermal resistance, junction to case for Diode	-	0.60	K/ W
$R_{th(j-a)}$	Thermal resistance, junction to ambient	-	40	K/ W



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

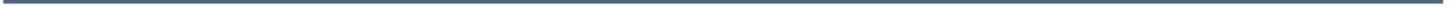
Static characteristics

BV_{CES}	Collector-emitter breakdown voltage	$V_{GE}=0V, I_C=250\mu A$	650	-	-	V
I_{CES}	Collector-emitter leakage current	$V_{CE}=650V, V_{GE}=0V$	-	-	50	μA
I_{GES}	Gate leakage current, forward	$V_{GE}=20V, V_{CE}=0V$	-	-	100	nA
	Gate leakage current, reverse	$V_{GE}=-20V, V_{CE}=0V$	-	-	-100	nA
$V_{GE(th)}$	Gate-emitter threshold voltage	$V_{GE}=V_{CE}, I_C=1mA$	5.0	5.4	5.6	V
$V_{CE(sat)}$	Collector-emitter saturation voltage	$V_{GE}=15V, I_C=75A$	-	1.8	-	V
		$V_{GE}=15V, I_C=75A, T_{vj}=175$	-	2.3	-	V

Dynamic characteristics

C_{ies}	Input capacitance	$V_{CE}=30V$ $V_{GE}=0V$ $f=1MHz$	-	4250	-	pF
C_{oes}	Output capacitance		-	205	-	pF
C_{res}	Reverse transfer capacitance		-	31	-	pF
Q_g	Total gate charge	$V_{CC}=520V$ $V_{GE}=15V$ $I_C=75A$	-	130	-	nC





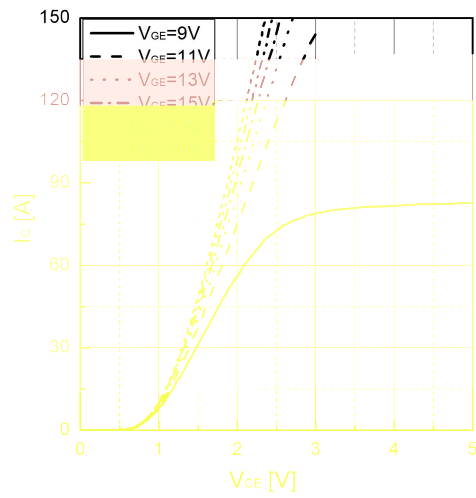


Fig 1. Typical output characteristic ($T_{vj}=25^{\circ}\text{C}$)

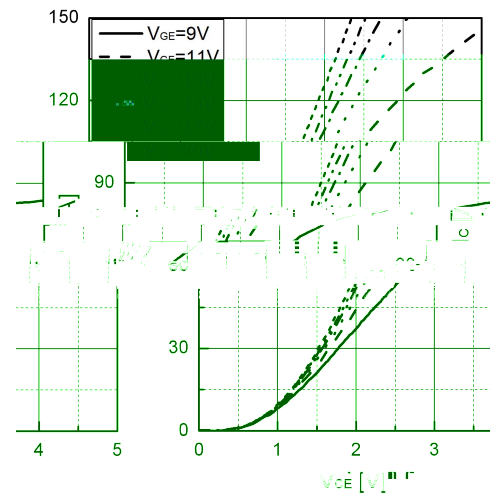


Fig 2. Typical output characteristic ($T_{vj}=175^{\circ}\text{C}$)

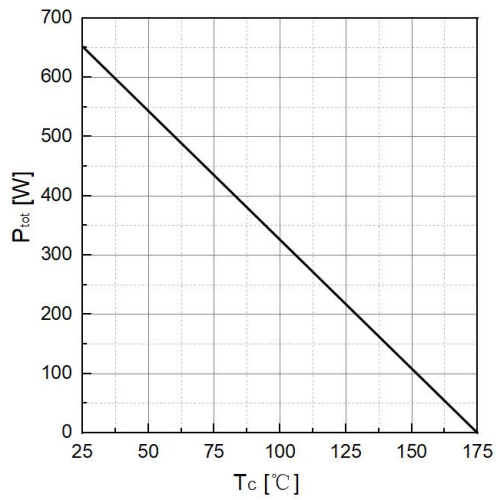
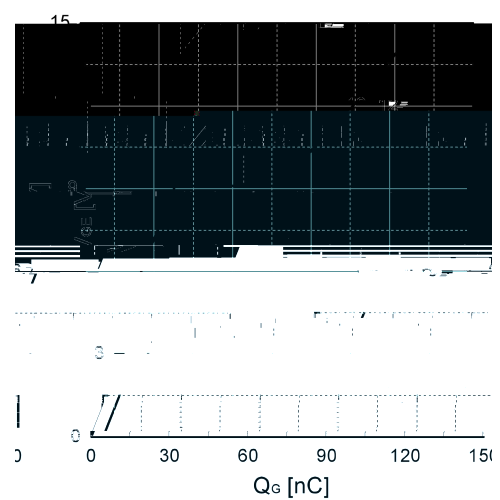


Fig 3. Power dissipation as a function of T_c



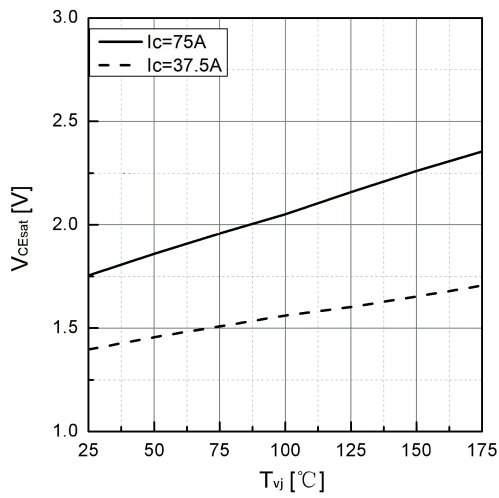


Fig 7. Typical V_{CEsat} as a function of T_{vj}

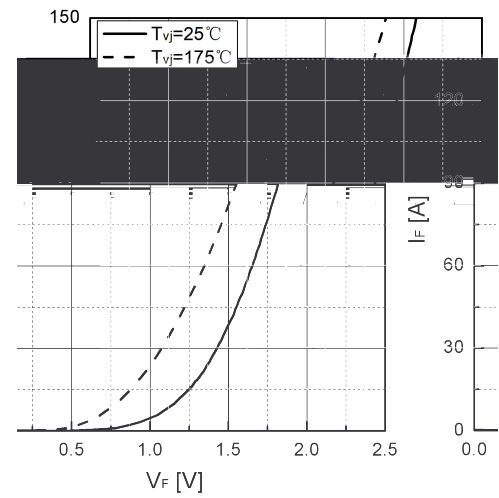


Fig 8. Typical I_F as a function of V_F

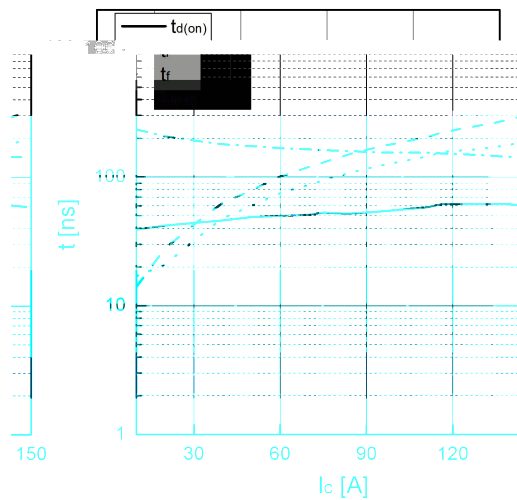


Fig 9. Typical switching time as a function of I_c

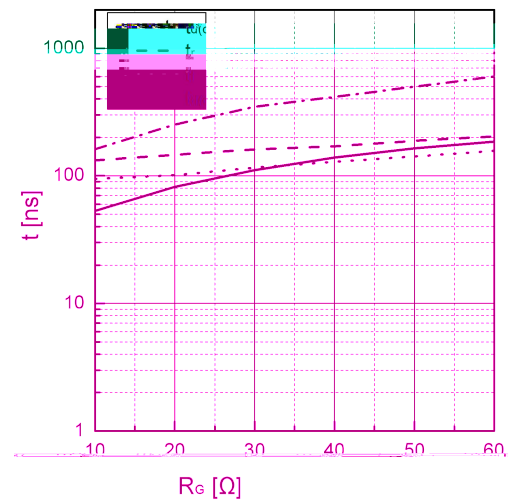


Fig 10. Typical switching times as a function of R_G

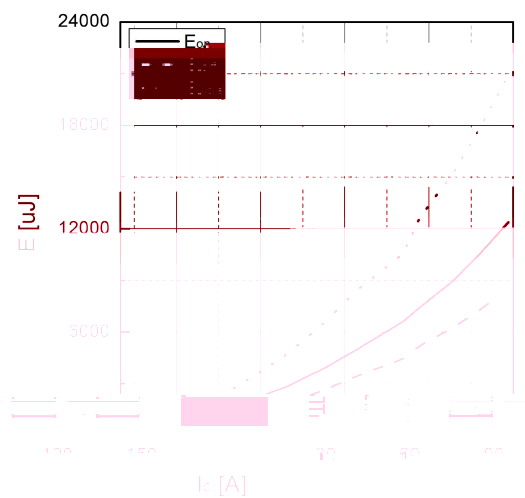


Fig 11. Typical switching energy losses as a function of I_c

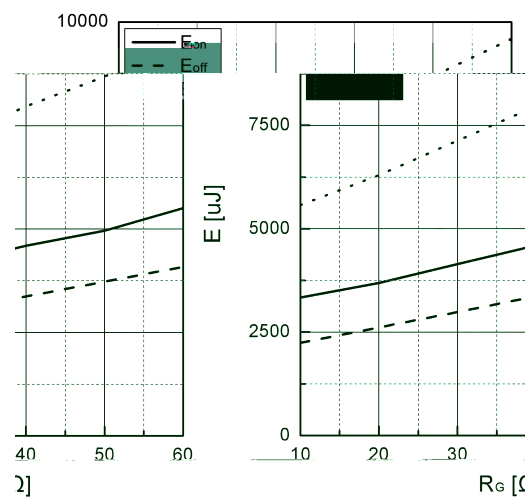
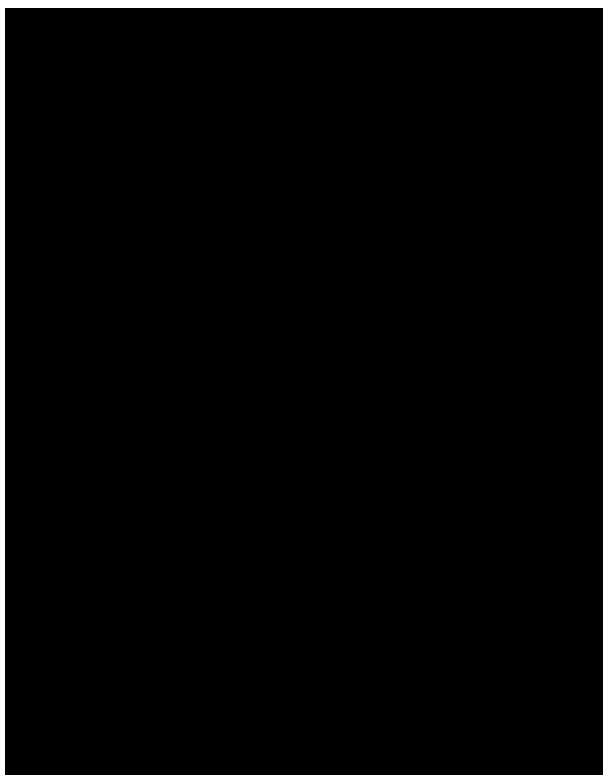


Fig 12. Typical switching energy losses as a function of R_G





TO-247



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	21.20	0.819	0.827	0.835
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G	5.25	-	5.65	0.207	-	0.222
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031
M	2.80	3.00	3.20	0.110	0.118	0.126
N	2.90	3.10	3.30	0.114	0.122	0.130



Date	Revision	Changes
2024-03-06	Rev 1.1	Update
2024-03-20	Rev 1.2	Update
2024-05-17	Rev 2.0	Update
2026-06-25	Rev 2.1	Update thermal

Or

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