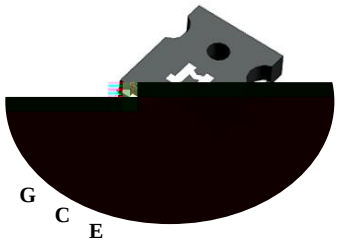
Key performance:

- V_{CE} =650V
- I_C=40A@ T_C=100
- $V_{CE(sat)}$=1.9V

TO-247

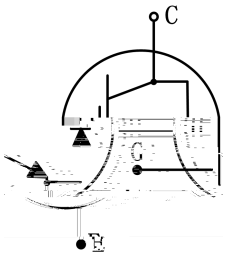


Features:

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

Benefits:

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



Applications:

- PFC applications
- Welding machines

Package parameters

Type	Marking	Package	Packaging Method
JJT40N65UE	T4065UE	TO-247	Tube

Symbol	Parameter	Values	Unit
V_{CES}	Collector-emitter voltage	650	V
V_{GES}	Gate-emitter voltage	±20	V
I_C	Continuous collector current (T_C=25)	80	A
	Continuous collector current (T_C=1		

Electrical characteristics of IGBT (vj=25 unless otherwise specified)

Static characteristics

Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
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	5.0	6.0	V
CE(sat)	Collector-emitter saturation voltage	GE=15 V, C=40A	-	1.9	-	V
		GE=15V, C=40A, vj=175	-	2.6	-	V

Dynamic characteristics

Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
ies	Input capacitance	CE=30V GE=0V =1MHz	-	2480	-	pF
oes	Output capacitance		-	95	-	pF
res	Reverse transfer capacitance		-	21	-	pF
g	Total gate charge	CC=520V GE=15V C=40A	-	78	-	nC

Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
d(on)	Turn-on delay time		-	32	-	ns
r	RĎъ					
		CC=400V GE=0/15V C=40A G=10 Inductive load				

A d c f a c ed a d bec e a d c a e .

Typical performance characteristics

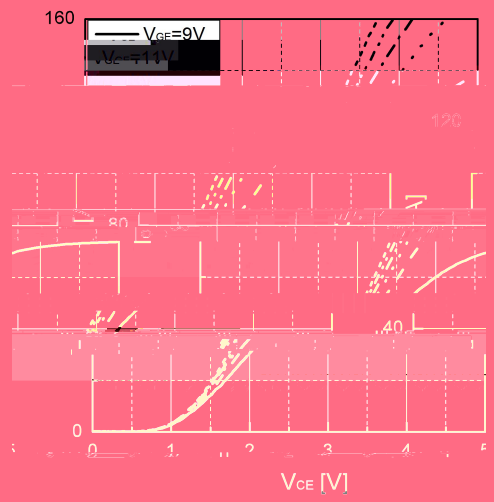


Fig 1. Typical output characteristic (vj=25)

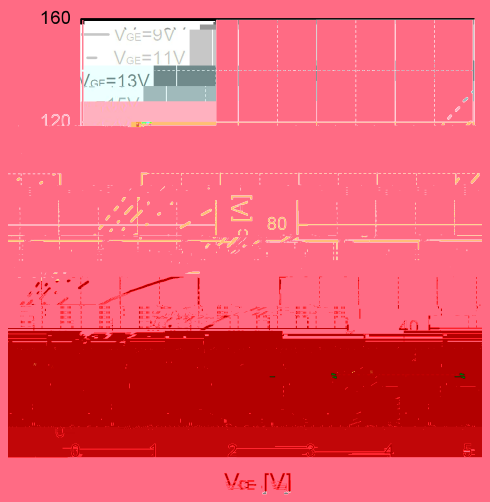


Fig 2. Typical output characteristic (vj=175)

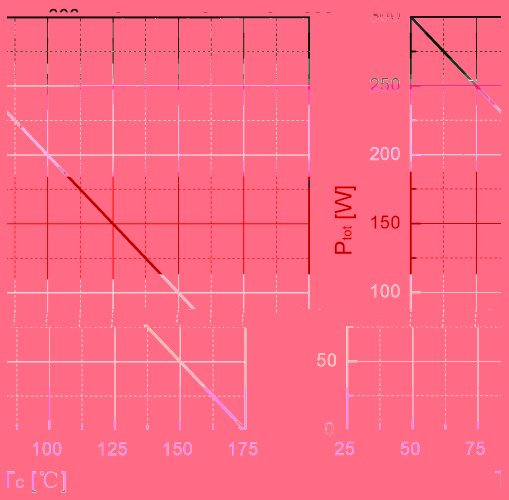


Fig 3. Power dissipation as a function of

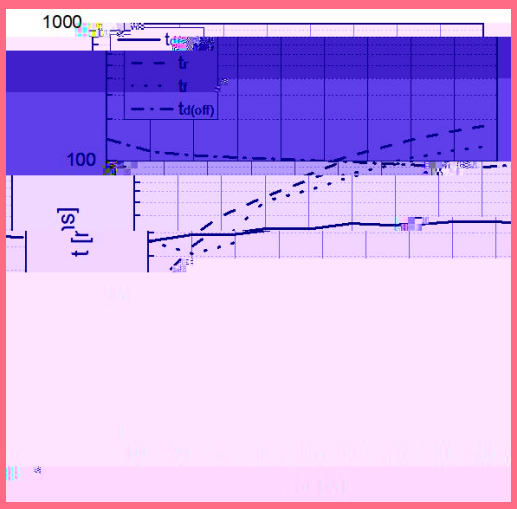


Fig 4. Typical switching time as a function of C

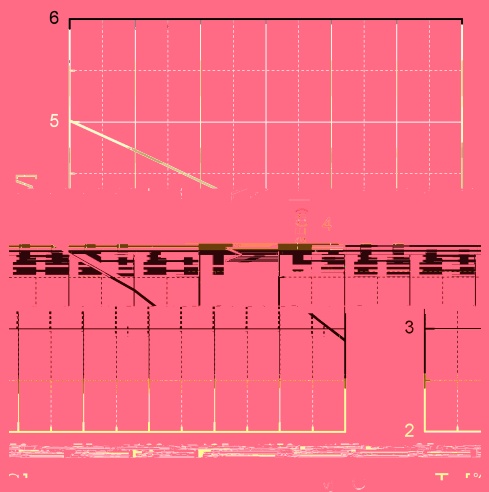


Fig 5. Typical GE(th) as a function of vj

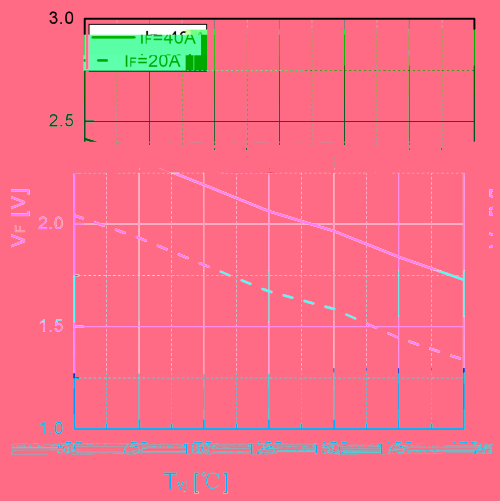


Fig 6. Typical F as a function of vj

Typical performance characteristics

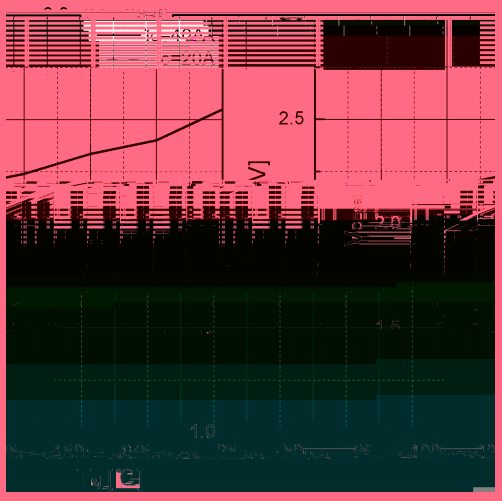


Fig 7. Typical $_{CEsat}$ as a function of $_{vj}$

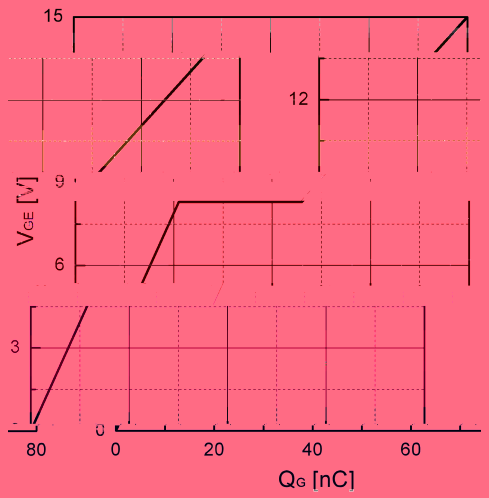


Fig 8. Typical Gate charge

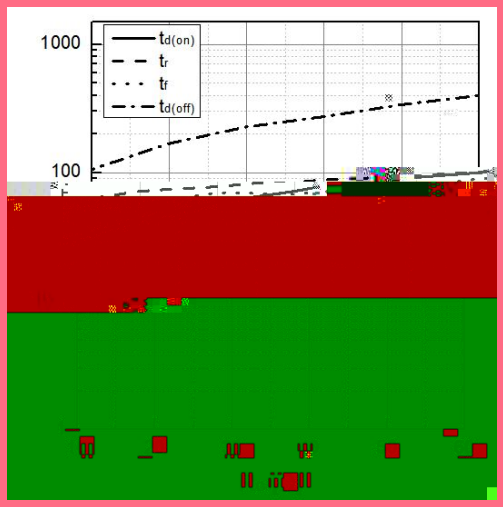


Fig 9. Typical switching times as a function of $_{G}$

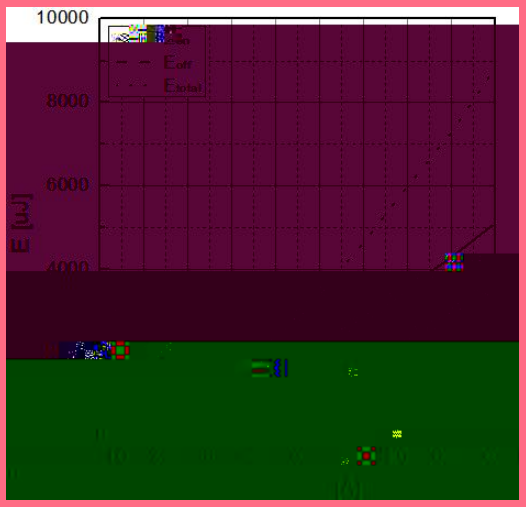


Fig 10. Typical switching energy losses as a function of $_{C}$

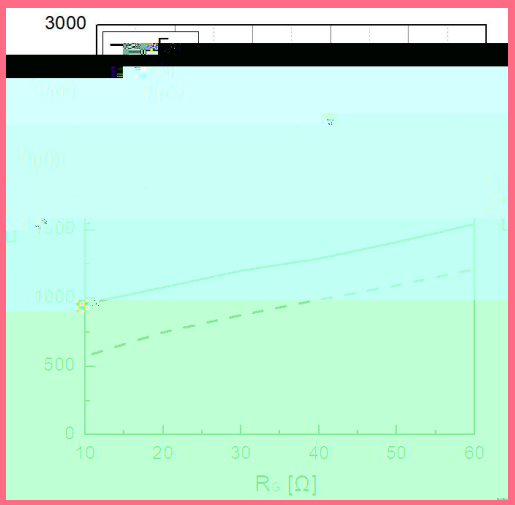


Fig 11. Typical switching energy losses as a function of $_{G}$



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

Typical performance characteristics

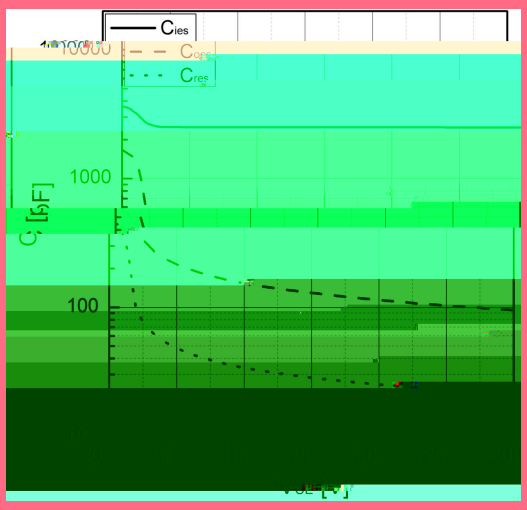


Fig 13. Typical capacitance as a function of $_{CE}$ (f=1Mhz, $_{GE}$=0V)

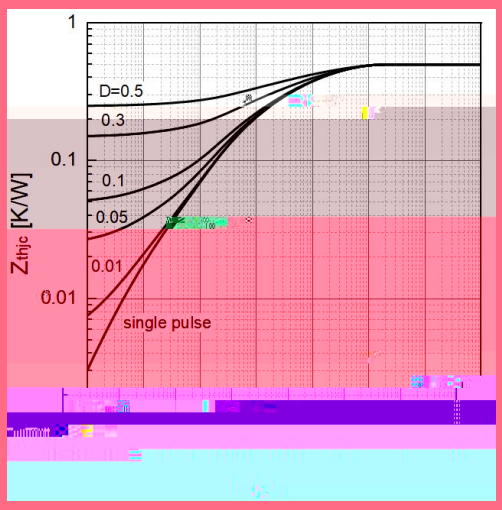


Fig 14. Transient thermal impedance of IGBT

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

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Date	Revision	Changes
2023-11-20	Rev 1.0	lease of the datasheet
2024-04-17	Rev 1.1	e
2024-05-17	Rev 1.2	Upda
2026-06-25	Rev 1.3	Upda ermal