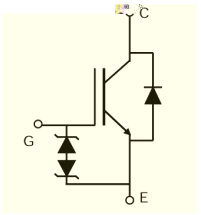
JJMICROELECTRONICS

650V 10A Tren. r T



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Symbol	Parameter	Values	Unit
CES	Collector-emitter voltage	650	V
GES	Gate-emitter voltage	±20	V
C	Continuous collector current (C=25)	20	A
	Continuous collector current (C=100)	10	A
CM	Pulsed collector current, p limited by vjmax	40	A
F	Diode continuous forward current (C=100)	10	
FM	Diode maximum current, p limited by vjmax	40	A
sc	Short circuit withstand time	8	μs
tot	Power dissipation (C=25)	60	W
	Power dissipation (C=100)	30	W
vj	Operating junction temperature range	-40 to +175	
stg	Storage temperature range	-55 to +150	

Symbol	Parameter	Values		Unit
		Typ.	Max.	
th(j-c)	Thermal resistance, ju			

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Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
$_{CES}$	Collector-emitter breakdown voltage	$_{GE}$=0V, $_{C}$=250μA	650	-	-	V
$_{CES}$	Collector-emitter leakage current	$_{CE}$=650V, $_{GE}$=0V	-	-	50	μA
$_{GES}$	Gate leakage current, forward	$_{GE}$=20V, $_{CE}$=0V	-	-	100	μA
	Gate leakage current, reverse	$_{GE}$=-20V, $_{CE}$=0V	-	-	-100	μA
$_{GE(th)}$	Gate-emitter threshold vol					

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Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
$t_{d(on)}$	Turn-on delay time					
		V_{CC}=400V				
		G= £ √ ٦,٤				

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Typical performance characteristics

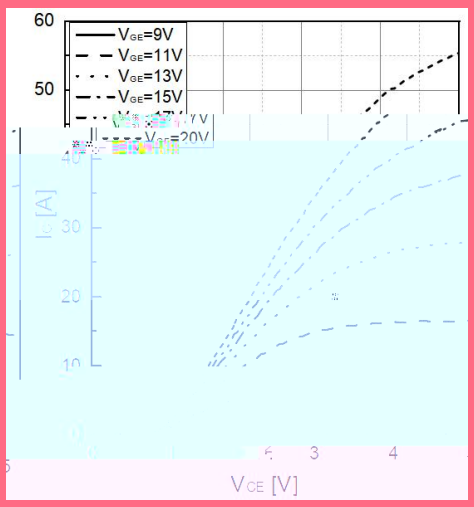


Fig 1. Typical output characteristic (vj=25)

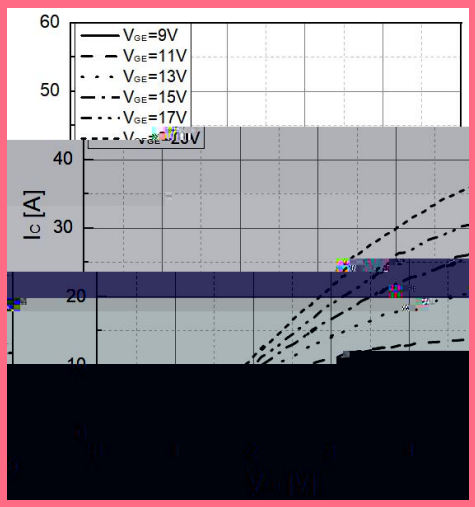


Fig 2. Typical output characteristic(vj=175)

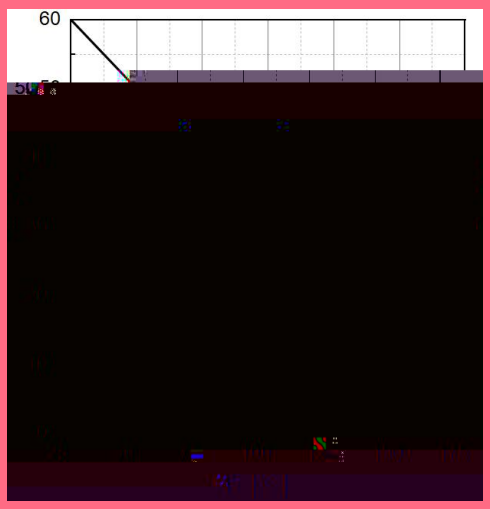


Fig 3. Power dissipation as a function of

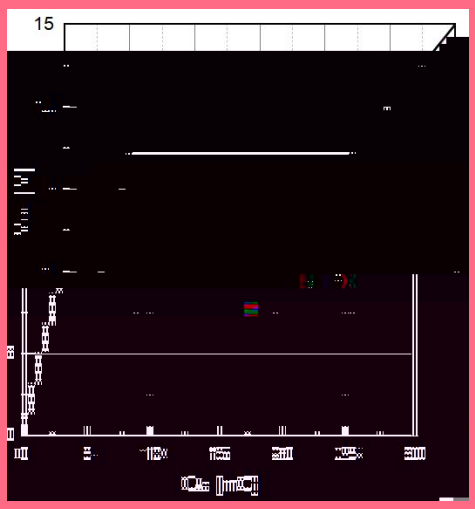


Fig 4. Typical Gate charge

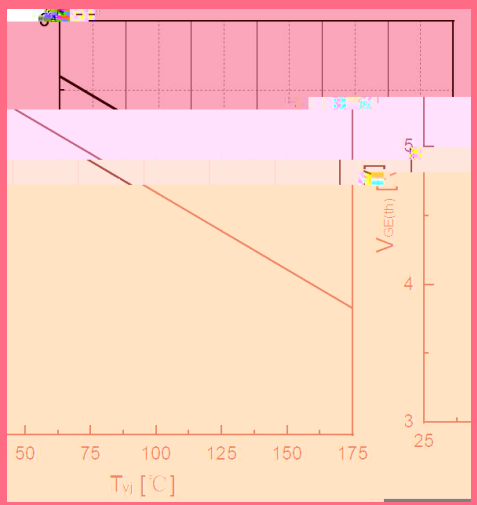


Fig 5. Typical GE(th) as a function of vj (C=1mA)

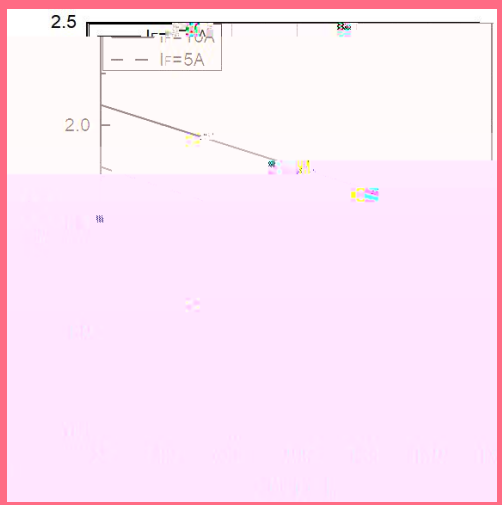


Fig 6. Typical F as function of vj

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Typical performance characteristics

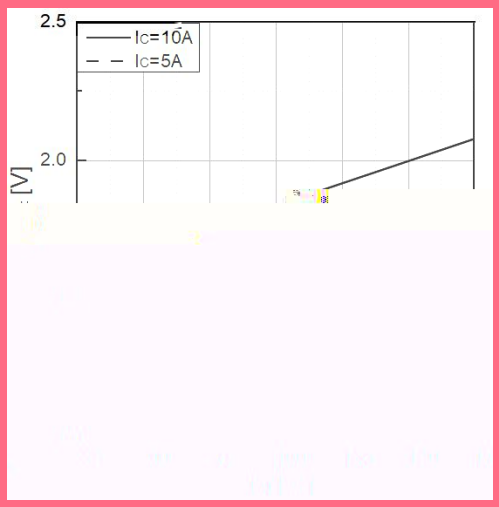


Fig 7. Typical $_{CEsat}$ as a function of $_{vj}$

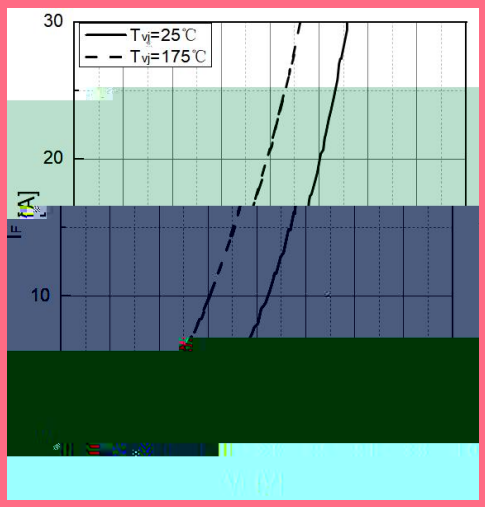


Fig 8. Typical $_{F}$ as a function of $_{F}$

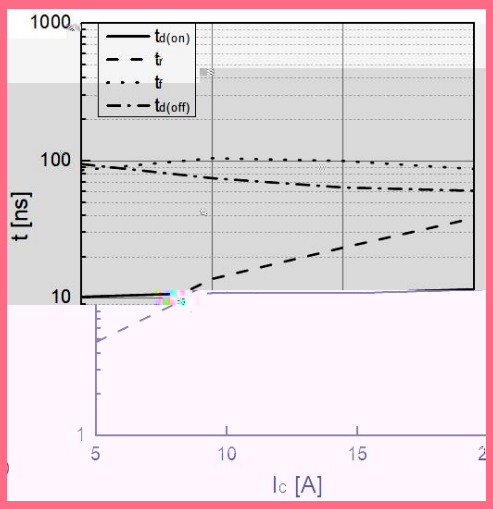


Fig 9. Typical switching time as a function of $_{C}$

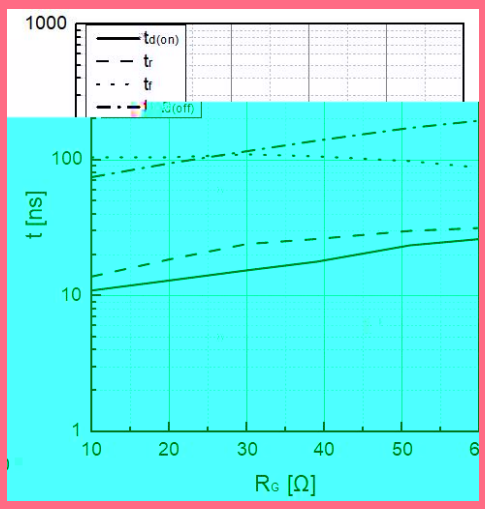


Fig 10. Typical switching times as a function of $_{G}$

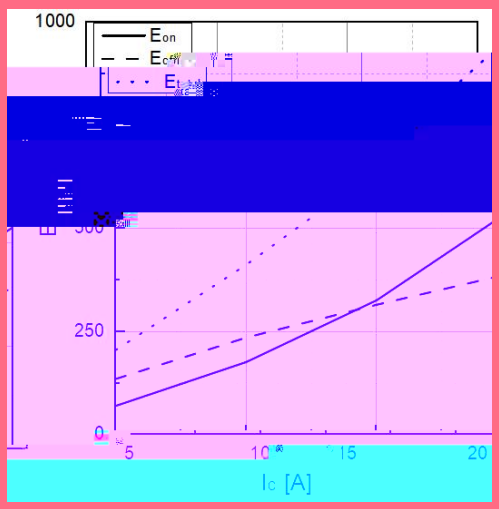


Fig 11. Typical switching energy losses as a function of $_{C}$

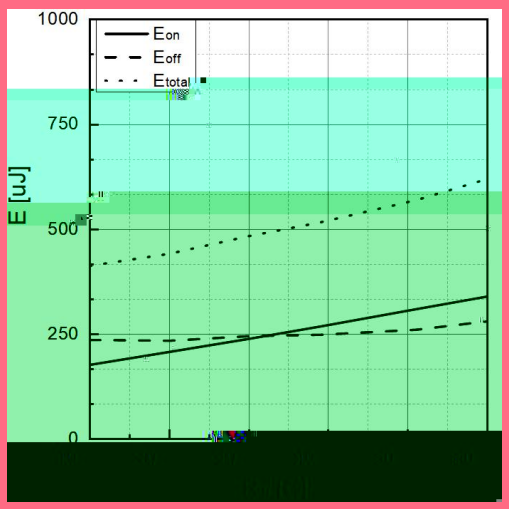


Fig 12. Typical switching energy losses as a function of $_{G}$

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Typical performance characteristics

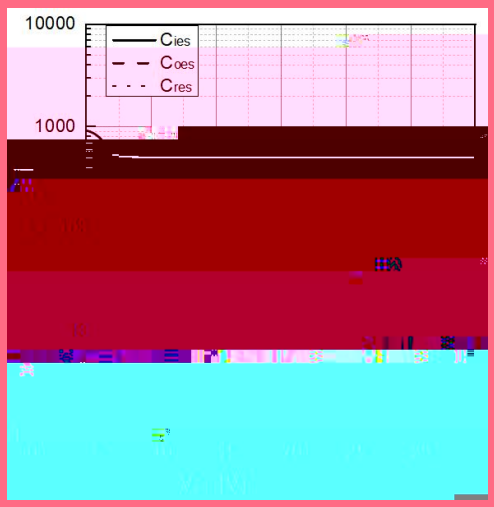


Fig 13. Typical capacitance as a function of $_{CE}$ (f=1Mhz, $_{GE}$=0V)

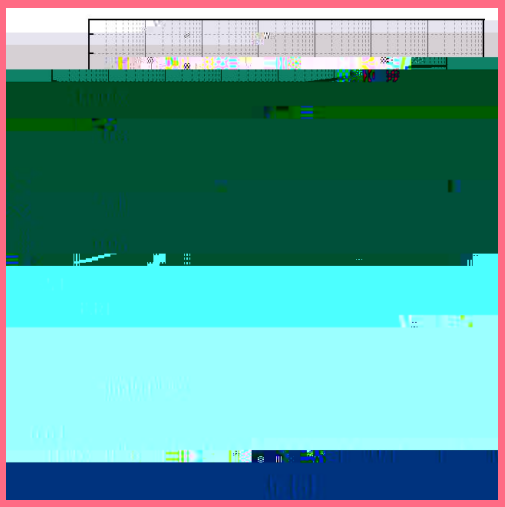
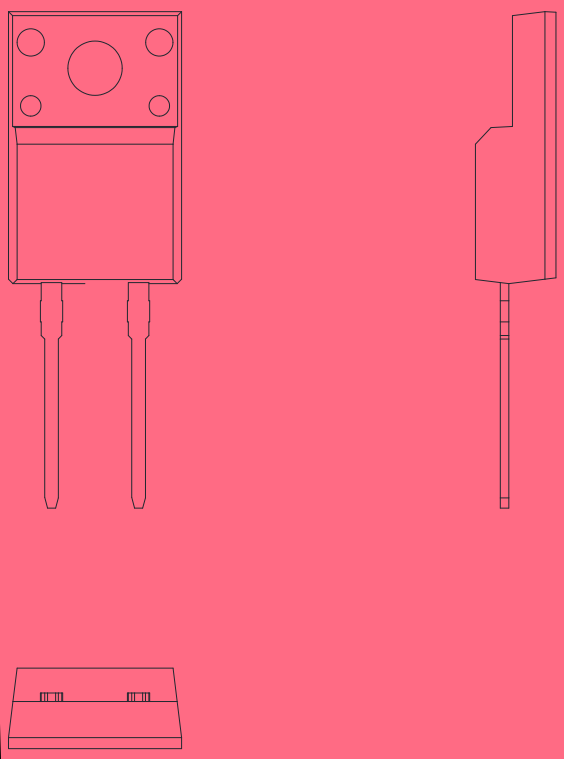


Fig 14. Transient thermal impedance of IGBT

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Package dimension

TO-220F



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50	-	4.90	0.177	-	0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47	-	0.66	0.019	-	0.026
C2	2.45	-	2.75	0.096	-	0.108
C3	2.60	-	3.00	0.102	-	0.118
D	8.80	-	9.30	0.346	-	0.366
E	9.80	-	10.40	0.386	-	0.410
F	6.40	-	6.80	0.252	-	0.268
G	2.40	-	2.70	0.094	-	0.106
H	28.0	-	29.80	1.102	-	1.173
L1	-	3.63	-	-	0.143	-
L2	1.14	-	1.70	0.045	-	0.067
L3	-	3.30	-	-	0.130	-
V1	-	45 °	-	-	45 °	-

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Date	Revision	Changes
2026-8-27	Rev 1.0	Initial Release
2026-9-10	Rev 1.1	Update with full characterization

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