Key performance:

- $_{CE}$=650V
- $_{C}$=30A@ $_{C}$=100
- $_{CE(sat)}$=1.7 Ve

Features:

- High ruggedness performance.
- 10µs short circuit capability.
- Positive $_{CE\ (sat)}$ temperature coefficient
- High efficiency for motor

Maximum ratings

Symbol	Parameter	Values	Unit
CES	Collector-emitter voltage	650	V
GES	Gate-emitter voltage	±20	V
C	Continuous collector current (C=25)	60	A
	Continuous collector current (C=100)	30	A
CM	Pulsed collector current, p limited by vjmax	120	A
F	Diode continuous forward current (C=100)	30	A
FM	Diode maximum current, p limited by vjmax	80	A
sc	Short circuit withstand time	10	μs
tot	Power dissipation (C=25)	214	W
	Power dissipation (C=100)	107	W
vj	Operating junction temperature range	-40 to +175	
stg	Storage temperature range	-55 to +150	

Thermal characteristics

Symbol	Parameter	Values		Unit
		Typ.	Max.	
th(j-c)	Thermal resistance, junction to case for IGBT	-	0.7	K/ W
th(j-c)	Thermal resistance, junction to case for Diode	-	1.2	K/ W
th(j-a)	Thermal resistance, junction to ambient	-	40	K/ W

Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
$V_{(BR)CES}$	Collector-emitter breakdown voltage	V_{GE}=0V, I_C=250μA	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	5.2	5.7	6.2	V
$V_{CE(sat)}$	Collector-emitter saturation voltage	V_{GE}=15V, I_C=30A	-	1.7	-	V
		V_{GE}=15V, I_C=30A, T_{vj}=175	-	2.2	-	V

Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
C_{ies}	Input capacitance	V_{CE}=30V V_{GE}=0V =1MHz	-	1978	-	pF
C_{oes}	Output capacitance		-	100	-	pF
C_{res}	Reverse transfer capacitance		-	23	-	pF
Q_g	Total gate charge	V_{CC}=520V V_{GE}=15V I_C=30A	-			

Typical performance characteristics

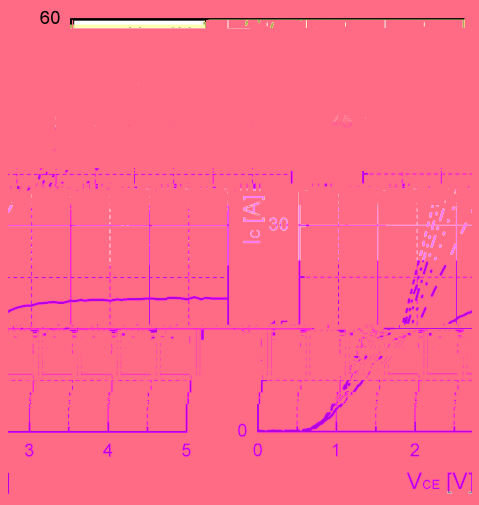

Fig 1. Typical output characteristic (vj=25)

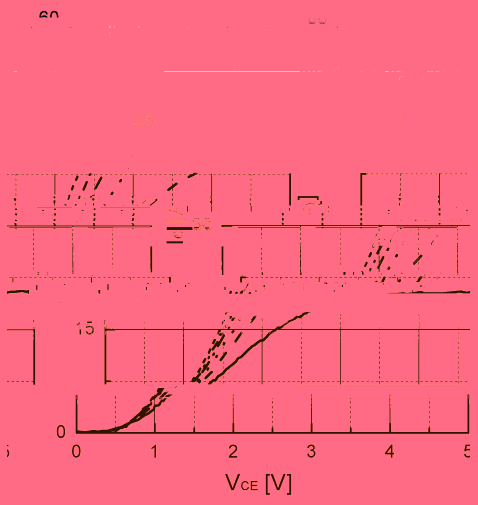

Fig 2. Typical output characteristic(vj=175)

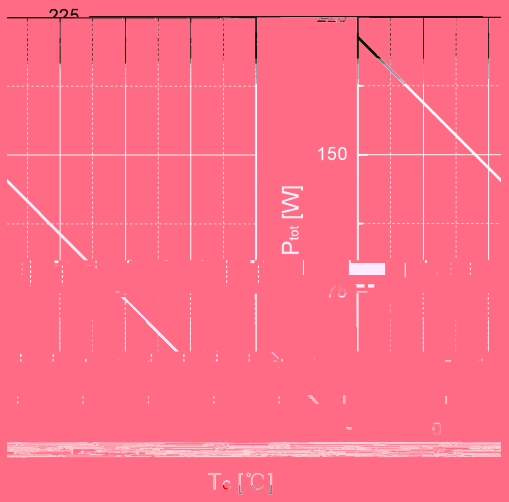

Fig 3. Power dissipation as a function of

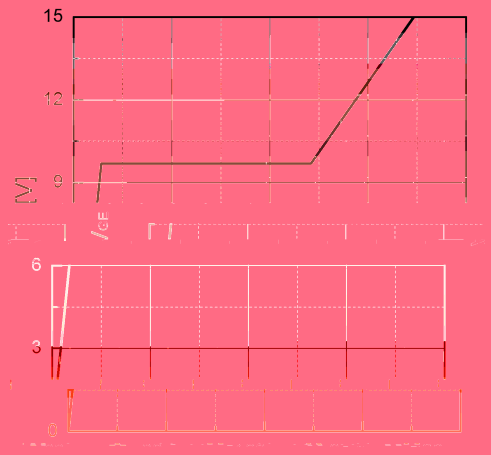

Fig 4. Typical Gate charge

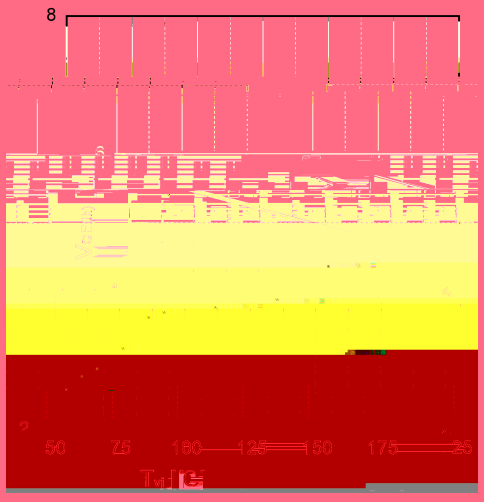

Fig 5. Typical GE(th) as a function of vj (C=1mA)

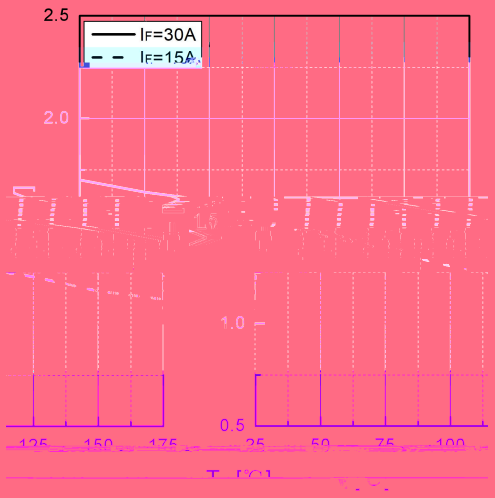

Fig 6. Typical F as a function of vj

Typical performance characteristics

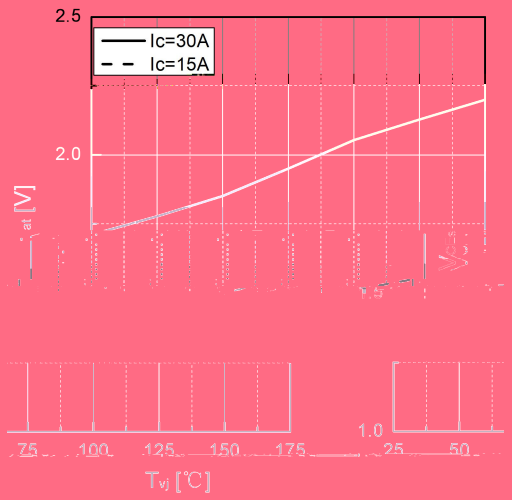

Fig 7. Typical $_{CEsat}$ as a function of $_{vj}$

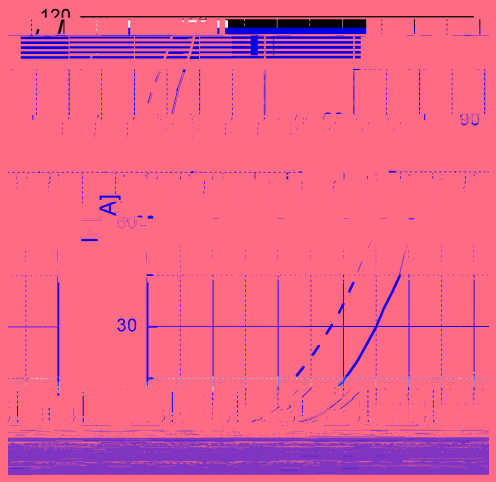

Fig 8. Typical $_{F}$ as a function of $_{F}$

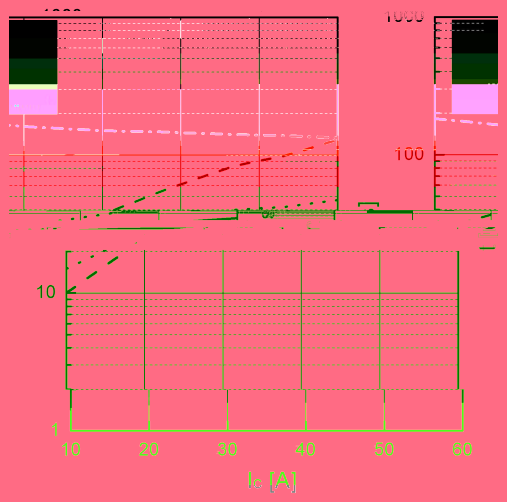

Fig 9. Typical switching time as a function of $_{C}$

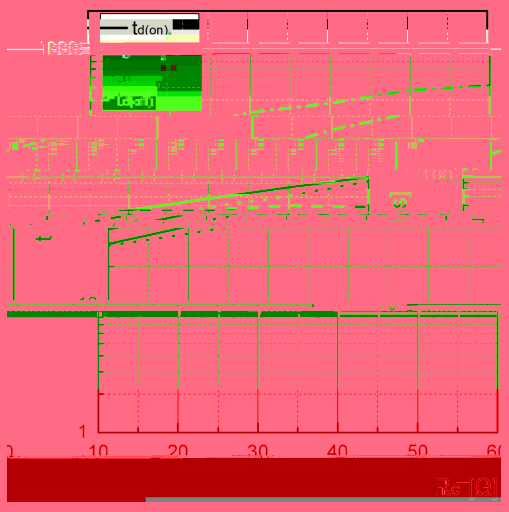

Fig 10. Typical switching times as a function of $_{G}$

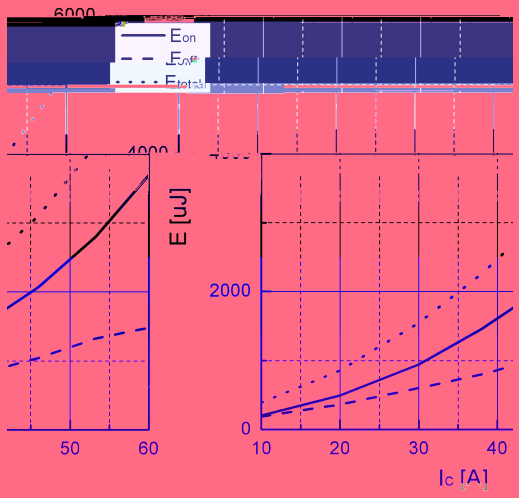

Fig 11. Typical switching energy losses as a function of $_{C}$

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

Typical performance characteristics

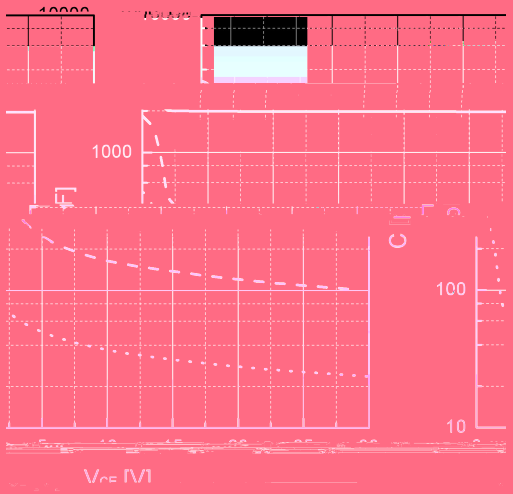

Fig 13. Typical capacitance as a function of $_{CE}$ ($_{GE}$=0V) (f=1Mhz,)

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90	-	10.20	0.390	-	0.402
B	14.70	-	15.80	0.579	-	0.622
C	9.4	-	9.6			

Date	Revision	Changes
2024-06-03	Rev 1.0	Release of the datasheet
2025-03-09	Rev 1.1	Character update

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