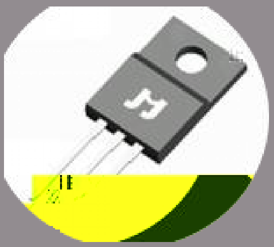
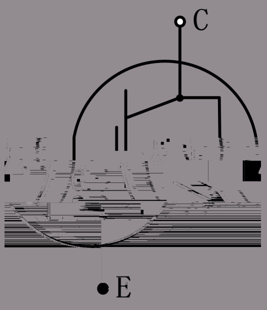
- $_{CE}$=650V
- $_{C}$=20A@ $_{C}$=100
- $_{CE(sat)}$=1.6 V

TO-220F



- High ruggedness performance.
- 10μs short circuit capability.
- Positive $_{CE\ (sat)}$ temperature coefficient.
- High efficiency for motor control.
- Excellent current sharing in parallel operation.
- RoHS compliant.



- Home appliances
- Motor drives
- General inverter

Type	Marking	Package	Packaging method
JJT20N65SS	T2065SS	TO-220F	Tube

CES	Collector-emitter voltage	650	V
GES	Gate-emitter voltage	±20	V
C	Continuous collector current (C=25)	40	A
	Continuous collector current (C=100)	20	A
CM	Pulsed collector current, p limited by vjmax	80	A
F	Diode continuous forward current (C=100)	20	A
FM	Diode maximum current, p limited by vjmax	80	A
sc	Shm l		

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

Static characteristics

$_{CES}$	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	nA
	Gate leakage current, reverse	$_{GE}$=-20V, $_{CE}$=0V	-	-	-100	nA
$_{GE(th)}$	Gate-emitter threshold voltage	$_{GE}$= $_{CE}$, $_{C}$=1mA	5.2	5.7	6.2	V
$_{CE(sat)}$	Collector-emitter saturation voltage	$_{GE}$=15V, $_{C}$=20A	-	1.6	-	V
		$_{GE}$=15V, $_{C}$=20A, $_{vj}$=175	-	2.0	-	V

Dynamic characteristics

$_{ies}$	Input capacitance	$_{CE}$=30V $_{GE}$=0V =1MHz	-	1700	-	pF
$_{oes}$	Output capacitance		-	72	-	pF
$_{res}$	Reverse transfer capacitance		-	13	-	pF
$_{g}$	Total gate charge	$_{CC}$=520V $_{GE}$=15V $_{C}$=20A	-	71	-	nC

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

$_{F}$	Diode forward voltage	$_{F}$=20A	-	1.6	-	V
		$_{F}$=20A, $_{vj}$=175	-	1.2	-	V
$_{rr}$	Diode reverse recovery time	$_{R}$=400V $_{F}$=20A d $_{F}$/d =-500A/µs	-	62	-	ns
$_{rrm}$	Diode peak reverse recovery current		-	12	-	A
$_{rr}$	Diode reverse recovery charge		-	472	-	nC
$_{rr}$	Diode reverse recovery time	$_{R}$=400V $_{F}$=20A d $_{F}$/d =-500A/µs $_{vj}$=175	-	90	-	ns
$_{rrm}$	Diode peak reverse recovery current		-	19	-	A
$_{rr}$	Diode reverse recovery charge		-	1130	-	nC

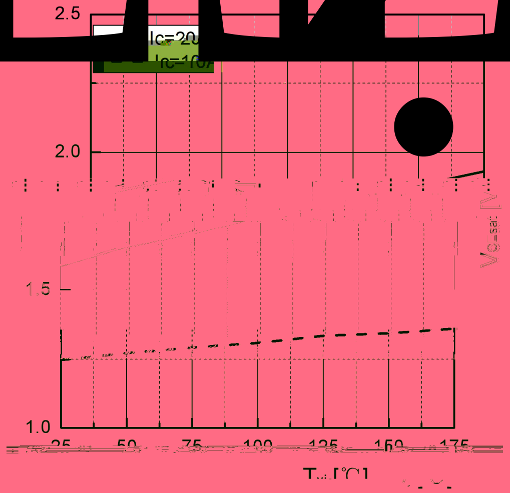
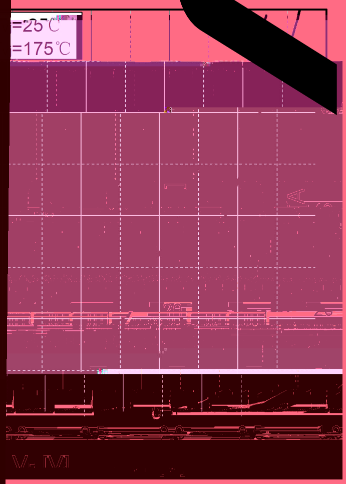


Fig 7. Typ



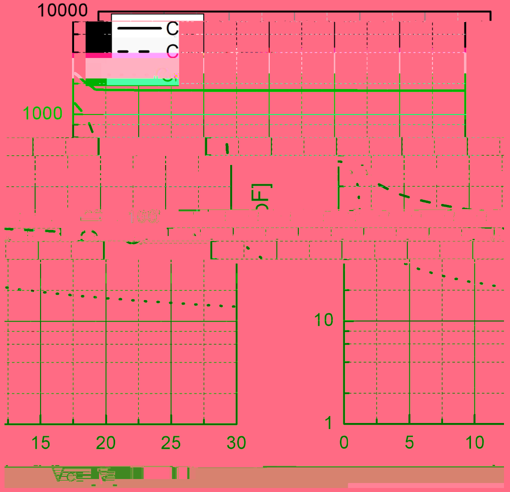
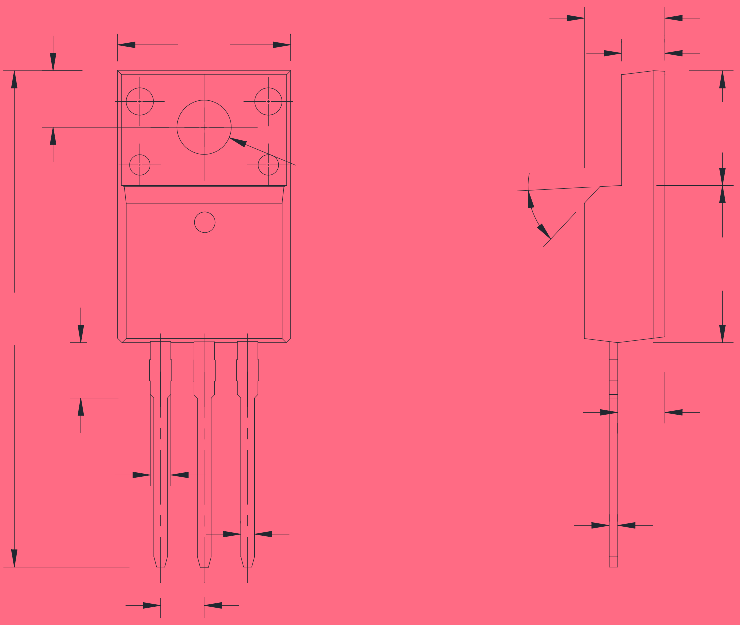
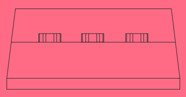


Fig 13. Typical capacitance as a function of V_{CE}

(f=1Mhz, V_{GE}=0V)

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	-

Date	Revision	Changes
2023-12-05	Rev 1.0	Release of the datasheet.
2024-05-20	Rev 1.1	Update
2025-03-06	Rev 1.2	Character update

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