- V_{CE}=650V
- I_C=20A@ T_C=100
- $V_{CE(sat)}$=1.6 V

- High ruggedness performance.
- 10εs short circuit capability.
- Positive $V_{CE\ (sat)}$ 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
JJT20N65SY	T2065SY	TO-220	Tube

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$_{CES}$	Collector-emitter voltage	650	V
$_{GES}$	Gate-emitter voltage	Ñ20	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

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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

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

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Switching characteristics

$t_{d(on)}$	Turn-on delay time	V_{CC}=400V V_{GE}=0/15V I_C=20A R_G=10 Inductive load	-	21	-	ns
t_r	Rise time		-	23	-	ns
$t_{d(off)}$	Turn-off delay time		-	120	-	ns
t_f	Fall time		-	63	-	ns
E_{on}	Turn-on energy		-	0.37	-	mJ
E_{off}	Turn-off energy		-	0.46	-	mJ
E_{ts}	Total switching energy		-	0.83	-	mJ
$t_{d(on)}$	Turn-on delay time	V_{CC}=400V V_{GE}=0/15V I_C=20A R_G=10 Inductive load T_{vj}=175	-	21	-	ns
t_r	Rise time		-	23	-	ns
$t_{d(off)}$	Turn-off delay time		-	141	-	ns
t_f	Fall time		-	108	-	ns
E_{on}	Turn-on energy		-	0.59	-	mJ
E_{off}	Turn-off energy		-	0.67	-	mJ
E_{ts}	Total switching energy		-	1.26	-	mJ

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($_{vj}$=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

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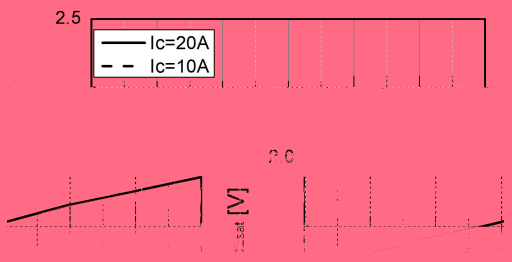


Fig 7. Typical $_{CEsat}$ as a function of $_{vj}$

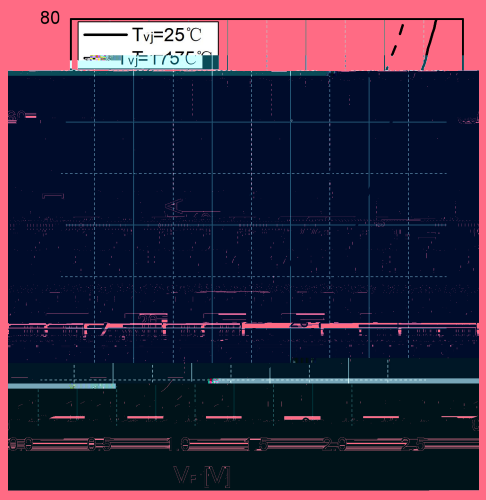


Fig 8. Typical $_{F}$ as a function of $_{F}$

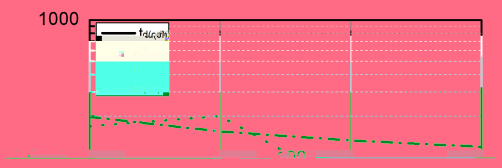


Fig 9. Typical switching time as a function of $_{C}$

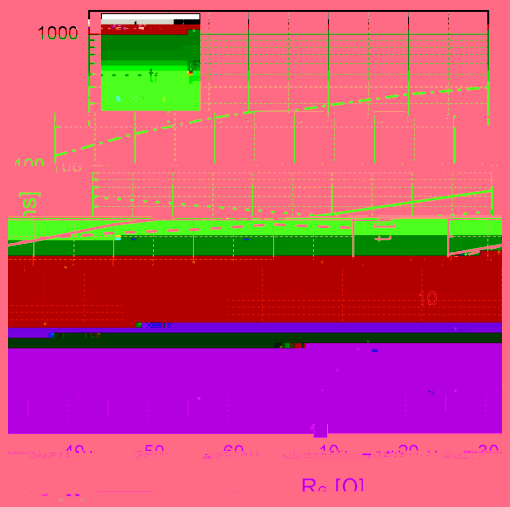


Fig 10. Typical switching times as a function of $_{G}$

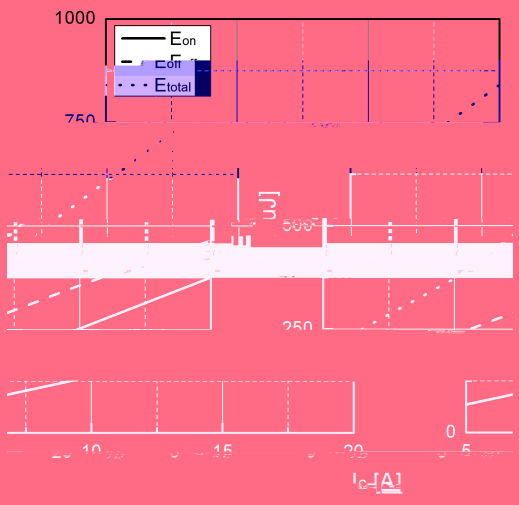


Fig 11. Typical switching energy losses as a function of $_{C}$

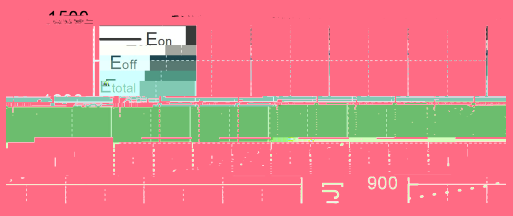


Fig 12. Typical switching energy losses as a function of $_{G}$

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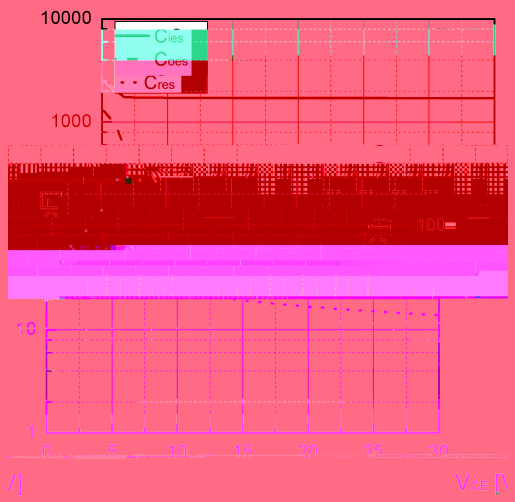


Fig 13. Typical capacitance as a function of $_{CE}$ (f=1Mhz, $_{GE}$=0V)

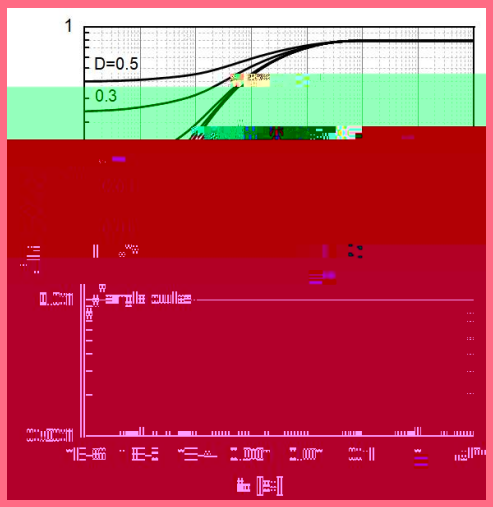


Fig 14. Transient thermal impedance, IGBT

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Dimensions

Ref.	Millimeters		Inches	
	Min.	Typ		

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