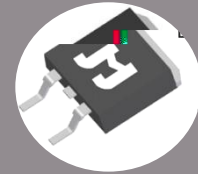
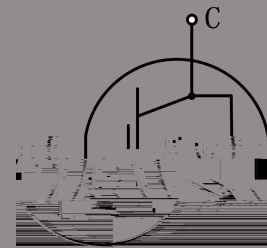


## TO-263

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



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



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- Home appliances
- Motor drives
- General inverter

Type	Marking	Package	Packaging method
JJT20N65SC	T2065SC	TO-263	Tape and reel



CES	Collector-emitter voltage	650	V
GES	Gate-emitter voltage	$\pm 20$	V
C	Continuous collector current ( $\tau_c=25 \mu s$ )	40	A
	Continuous collector current ( $\tau_c=100 \mu s$ )	20	A
CM	Pulsed collector current, $I_p$ limited by $v_{jmax}$	80	A
F	Diode continuous forward current ( $\tau_c=100 \mu s$ )	20	A
FM	Diode maximum current, $I_p$ limited by $v_{jmax}$	80	A
sc	Short circuit withstand time	10	$\mu s$
tot	Power dissipation ( $\tau_c=25 \mu s$ )		

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CES	Collector-emitter breakdown voltage	$V_{GE}=0V, I_C=250\mu A$	650	-	-	V
CES	Collector-emitter leakage current	$V_{CE}=650V, V_{GE}=0V$	-	-	50	$\mu A$
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
<del>GE(th)</del>	<del>Gate-emitter threshold voltage</del>	<del><math>V_{GE}=V_{CE}, I_C=1mA</math></del>	<del>5.2</del>	<del>5.7</del>	<del>6.2</del>	<del>V</del>
CE(sat)	Collector-emitter saturation voltage	$V_{GE}=15V, I_C=20A$	-	1.6	-	V
		$V_{GE}=15V, I_C=20A, v_j=175$	-	2.0	-	V



ies	Input capacitance	$V_{CE}=30V$	-	1700	-	pF
oes	Output capacitance	$V_{GE}=0V$ $f=1MHz$	-	70	-	pF
res	Reverse transfer capacitance		-	13	-	pF

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(  $v_j=25$  unless otherwise specified)

F	Diode forward voltage	$I_F=20A$	-	1.6	-	V
		$I_F=20A, v_j=175$	-	1.2	-	V
$t_{rr}$	Diode reverse recovery time	$V_R=400V$ $I_F=20A$ $d I_F/d t =-500A/\mu s$	-	62	-	ns
$I_{rrm}$	Diode peak reverse recovery current		-	12	-	A
$Q_{rr}$	Diode reverse recovery charge		-	472	-	nC
$t_{rr}$	Diode reverse recovery time	$V_R=400V$ $I_F=20A$ $d I_F/d t =-500A/\mu s$ $v_j=175$	-	90	-	ns
$I_{rrm}$	Diode peak reverse recovery current		-	19	-	A
$Q_{rr}$	Diode reverse recovery charge		-	1130	-	nC

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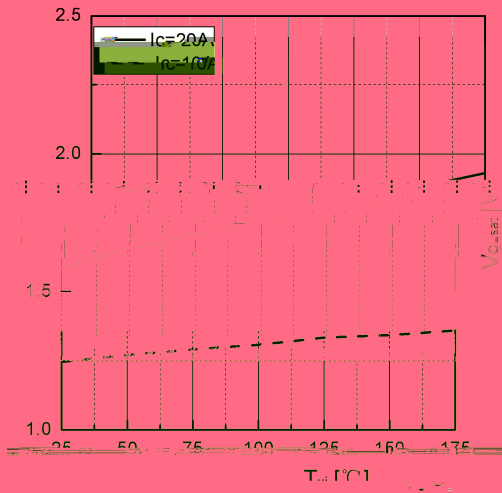


Fig 7. Typical  $V_{CEsat}$  as a function of  $v_j$

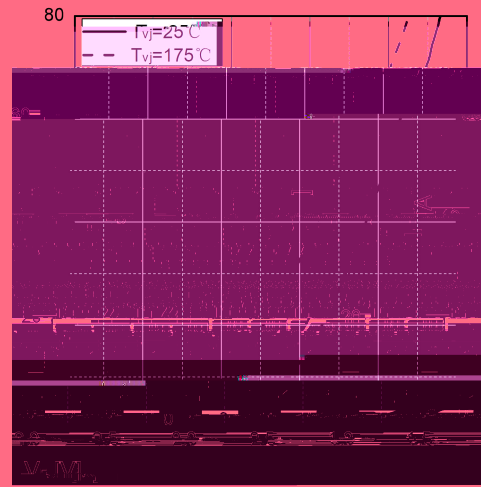


Fig 8. Typical  $F$  as a function of  $F$

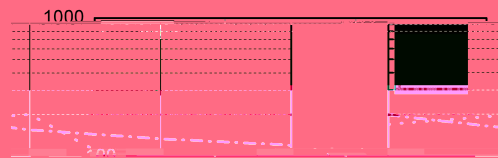


Fig 9. Typical switching time as a function of  $c$

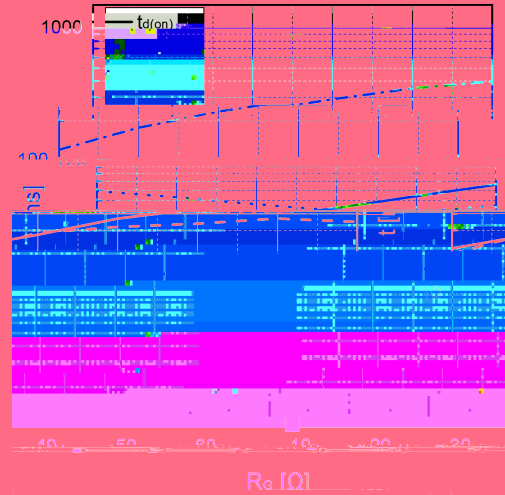


Fig 10. Typical switching times as a function of  $G$

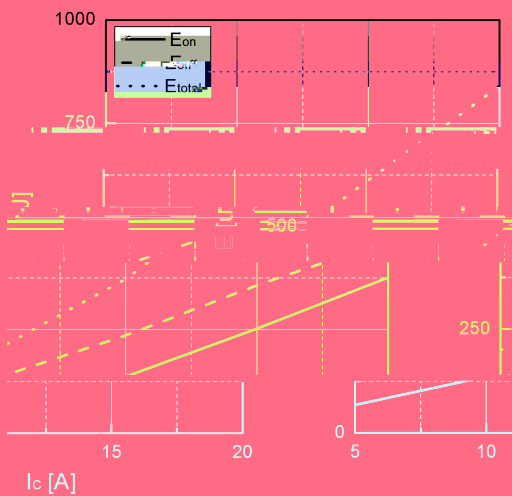


Fig 11. Typical switching energy losses as a function of  $c$

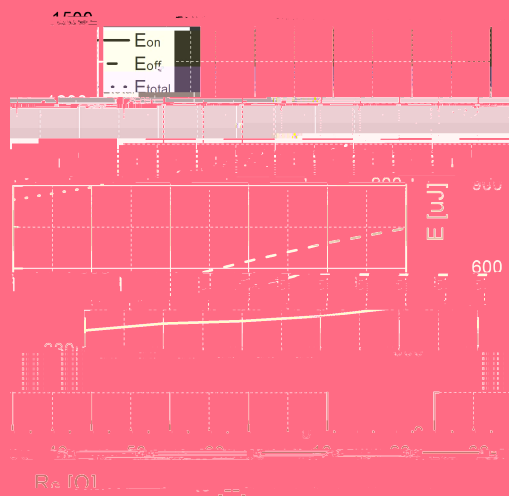


Fig 12. Typical switching energy losses as a function of  $G$

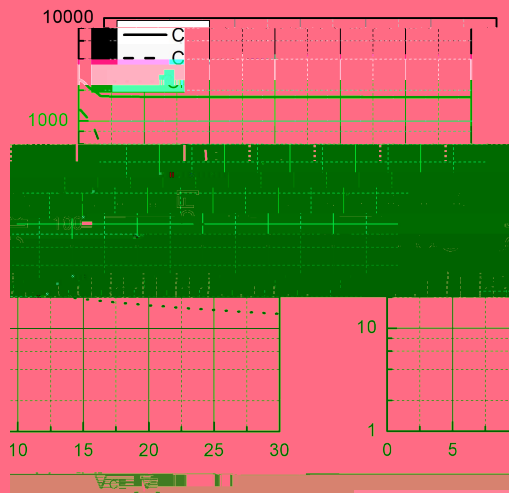


Fig 13. Typical capacitance as a function of  $C_E$   
 ( $f=1\text{Mhz}$ ,  $V_{GE}=0\text{V}$ )



Dimensions

Ref.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90	-	10.20	0		



Date	Revision	Changes
2024-05-20	Rev 1.1	Update
2024-06-21	Rev 1.2	Update
2025-03-06	Rev 1.3	Character update

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