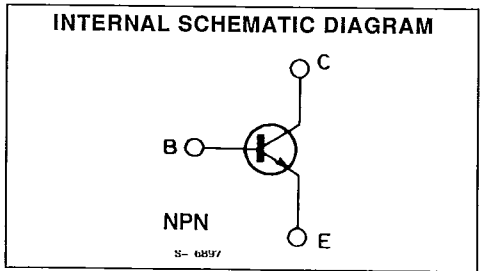
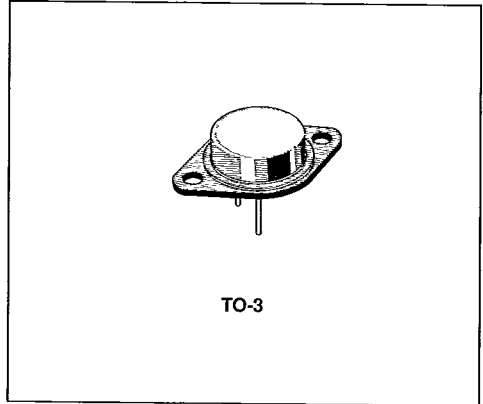


DESCRIPTION

High speed, high current, high power NPN transistor intended for use in switching and amplifier applications.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	450	V
V_{CER}	Collector-emitter Voltage	440	V
V_{CEX}	Collector-emitter Voltage	450	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	400	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	20	A
I_{CM}	Collector Peak Current ($t_p < 10ms$)	30	A
I_B	Base Current	4	A
P_{tot}	Total Dissipation at $T_c < 25^\circ C$	350	W
T_{stg}	Storage Temperature	- 65 to 200	$^\circ C$
T_j	Max. Operating Junction Temperature	200	$^\circ C$

THERMAL DATA

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$R_{thj-case}$	Thermal Resistance Junction-case	Max	0.5	°C/W
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

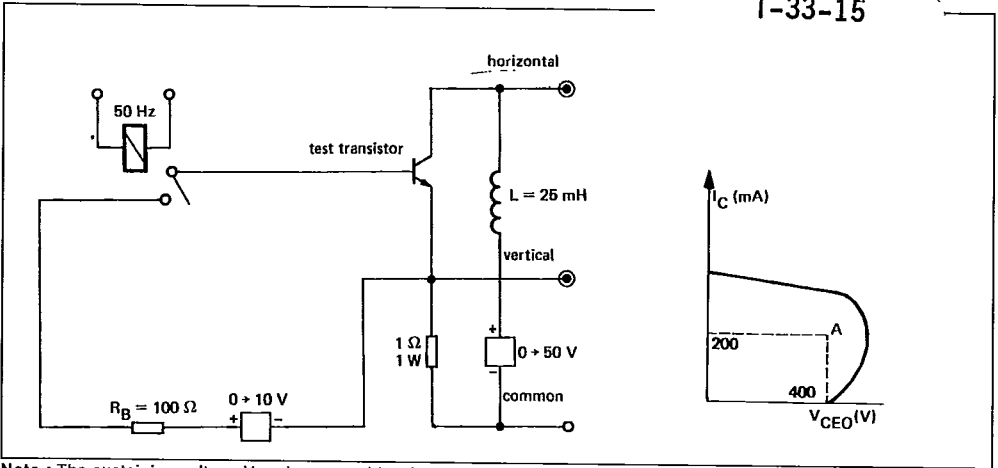
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Collector Cutoff Current	$V_{CE} = 450V$ $V_{BE} = -1.5V$ $V_{CE} = 450V$ $V_{BE} = -1.5V$ $T_c = 125^{\circ}C$			3 12	mA mA
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	$V_{CE} = 320V$			3	mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 5V$			1	mA
$V_{CE0(sus)}^*$	Collector Emitter Sustaining Voltage	$I_C = 200mA$ $L = 25mH$	400			V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	$I_E = 50mA$	7			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 6A$ $I_B = 1.2A$ $I_C = 12A$ $I_B = 2.4A$		0.15 0.3	0.6 1	V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 12A$ $I_B = 2.4A$		1	1.5	V
h_{FE}^*	DC Current Gain	$I_C = 6A$ $V_{CE} = 4V$ $I_C = 12A$ $V_{CE} = 4V$	15 8		60	
$I_{S/B}$	Second Breakdown Collector Current	$V_{CE} = 140V$ $t = 1s$ $V_{CE} = 19V$ $t = 1s$	0.15 18			A A
f_T	Transition Frequency	$I_C = 2A$ $V_{CE} = 15V$ $f = 10MHz$	8			MHz
t_{on}	Turn-on Time	$I_C = 12A$ $I_B = 3.2A$		0.6	1.6	μs
t_s t_f	Storage Time Fall Time	$I_C = 12A$ $I_{B1} = -I_{B2} = 3.2A$		1.5 0.6	3 1.4	μs μs

* Pulsed : Pulse duration = 300 μs , duty cycle = 1.5%.

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TEST CIRCUIT (V_{CE0} (sus))

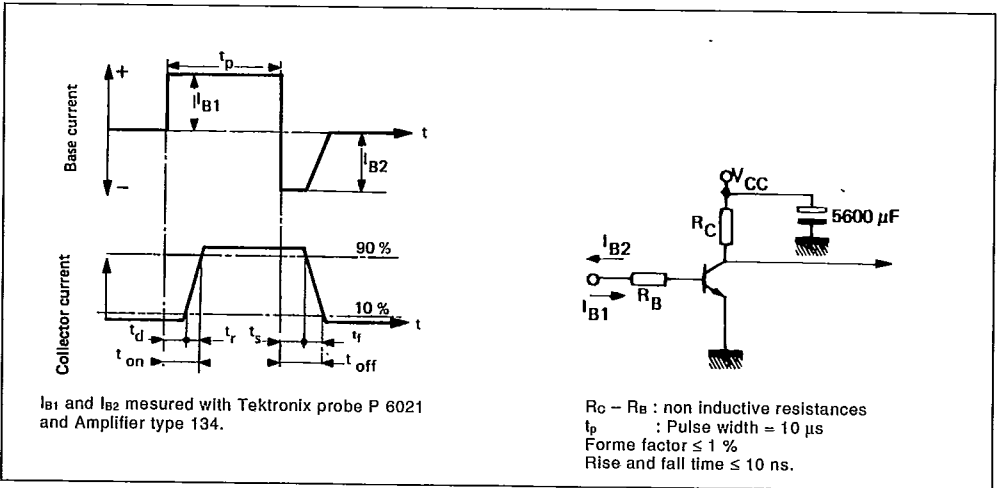
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Figure 1.

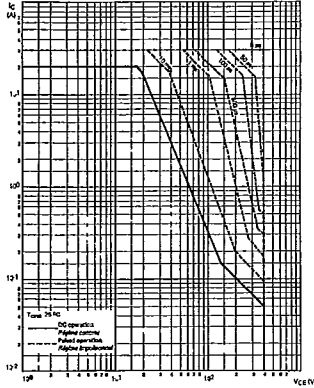


Note : The sustaining voltage V_{CE0} is acceptable when the trace falls to the right and above point "A".

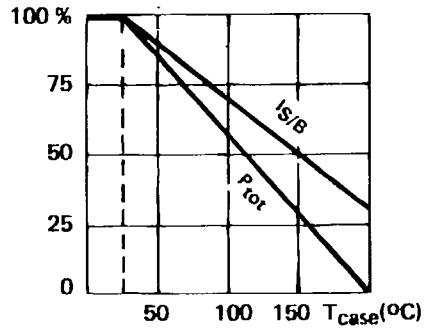
SWITCHING TIMES TEST CIRCUITS (and oscillograms)



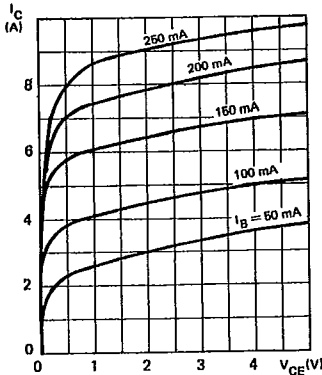
Safe Operating Area.



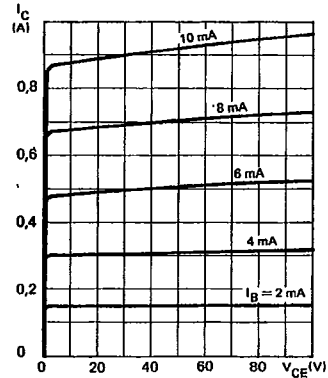
Dissipation and $I_{S/B}$ Derating.



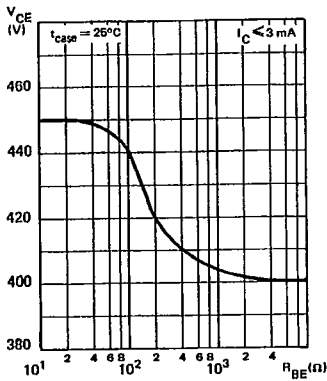
Collector Current versus Collector-emitter Voltage.



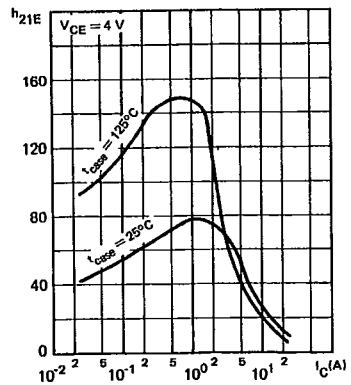
Collector Current versus Collector-emitter Voltage.



Collector Emitter Voltage versus Base-emitter Resistance (minimum value).



Static forward Current Transfer Ratio versus Collector Current



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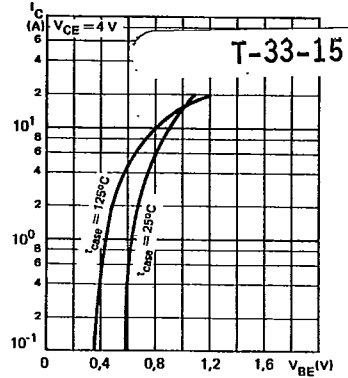
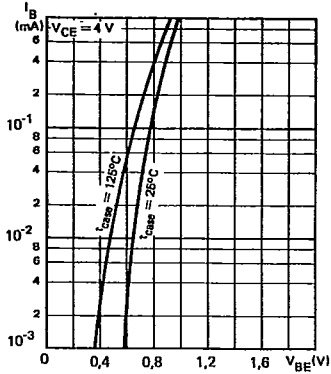
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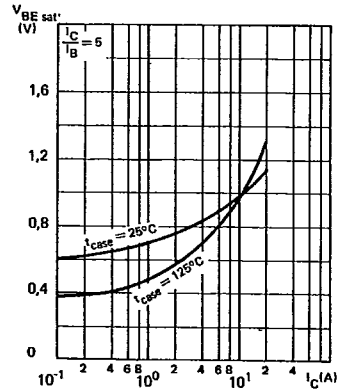
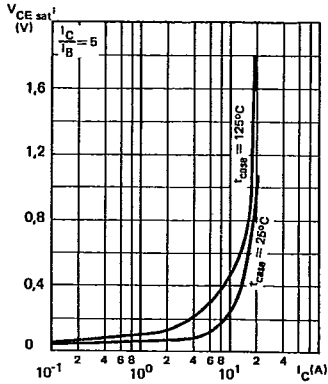
Base Current versus Base-emitter Voltage.

Collector Current versus Base-emitter Voltage.



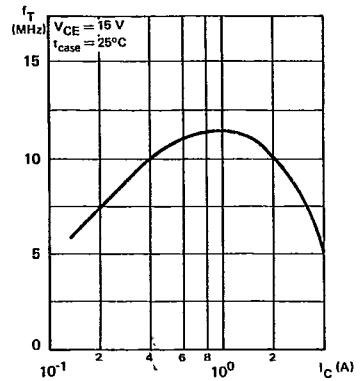
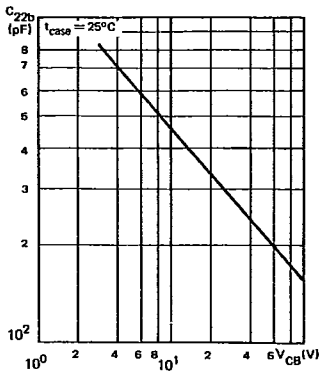
Collector-emitter Saturation Voltage versus Collector Current.

Base-emitter Saturation Voltage versus Collector Current.



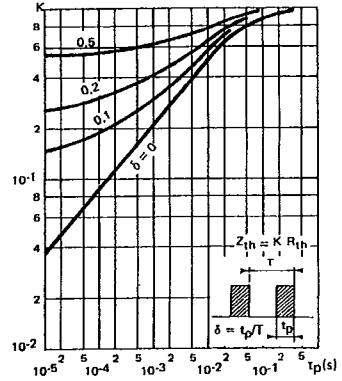
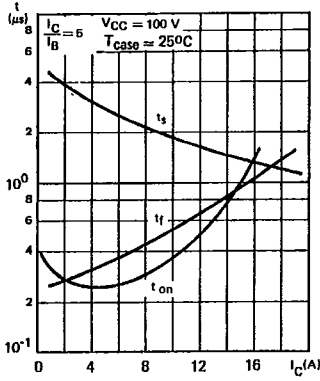
Output Capacitance versus Collector-base Voltage.

Transition Frequency versus Collector Current.



Switching Times versus Collector Current.

Transient Thermal Resistance Derating Factor under Pulses Conditions.



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