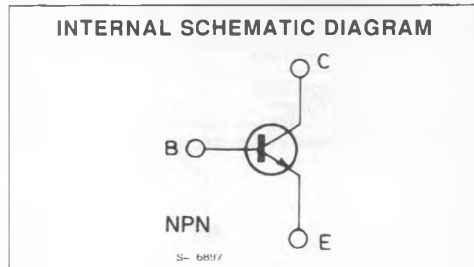
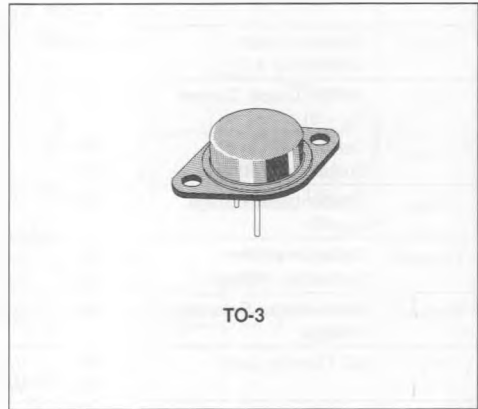


**NPN SILICON TRANSISTOR**
**DESCRIPTION**

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 ( $I_E = 0$ )	400	V
$V_{CER}$	Collector-emitter Voltage	390	V
$V_{CEX}$	Collector-emitter Voltage	400	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	325	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	7	V
$I_C$	Collector Current	30	A
$I_{CM}$	Collector Peak Current ( $t_p < 10ms$ )	40	A
$I_B$	Base Current	6	A
$P_{Tot}$	Total Dissipation at $T_c < 25^\circ C$	350	W
$T_{sig}$	Storage Temperature	- 65 to 200	$^\circ C$
$T_j$	Max. Operating Junction Temperature	200	$^\circ C$

**THERMAL DATA**

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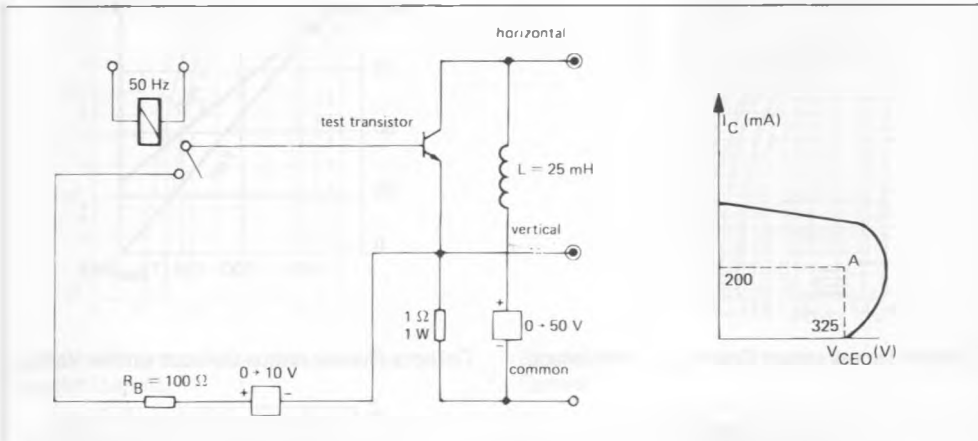
**ELECTRICAL CHARACTERISTICS**( $T_{case} = 25^{\circ}C$  unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEX}$	Collector Cutoff Current	$V_{OE} = 400V$ $V_{BE} = -1.5V$ $V_{CE} = 400V$ $V_{BE} = -1.5V$ $T_c = 125^{\circ}C$			3 12	mA mA
$I_{CEO}$	Collector Cutoff Current ( $I_B = 0$ )	$V_{CE} = 260V$			3	mA
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EB} = 5V$			1	mA
$V_{CE0(sus)}^*$	Collector Emitter Sustaining Voltage	$I_C = 200mA$ $L = 25mH$	325			V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	$I_E = 50mA$	7			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 8A$ $I_B = 1.6A$ $I_C = 16A$ $I_B = 3.2A$		0.2 0.35	0.8 1	V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 16A$ $I_B = 3.2A$		1.15	1.5	V
$h_{FE}^*$	DC Current Gain	$I_C = 8A$ $V_{CE} = 4V$ $I_C = 16A$ $V_{CE} = 4V$	15 8		60	
$I_{S/B}$	Second Breakdown Collector Current	$V_{CE} = 140V$ $t = 1s$ $V_{CE} = 16V$ $t = 1s$	0.15 22			A A
$f_T$	Transition Frequency	$I_C = 2A$ $V_{CE} = 15V$ $f = 10MHz$	8			MHz
$t_{on}$	Turn-on Time	$I_C = 16A$ $I_B = 3.2A$		0.55	1.3	$\mu s$
$t_s$ $t_f$	Storage Time Fall Time	$I_C = 16A$ $I_{B1} = -I_{B2} = 3.2A$		1.7 0.26	2.5 1.2	$\mu s$ $\mu s$

\* Pulsed Pulse duration = 300 $\mu s$ , duty cycle = 1.5%.

TEST CIRCUIT

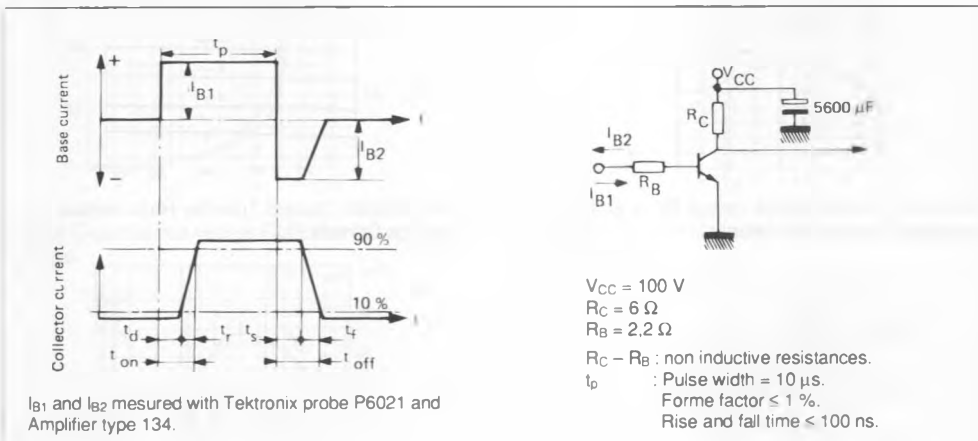
Figure 1:  $V_{CE0}$  (sus).



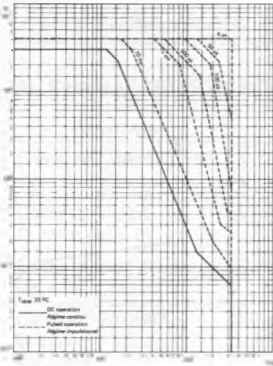
Note : The sustaining voltage  $V_{CE0}$  is acceptable when the trace falls to the right and above point "A".

SWITCHING TIMES TEST CIRCUITS (and oscillograms)

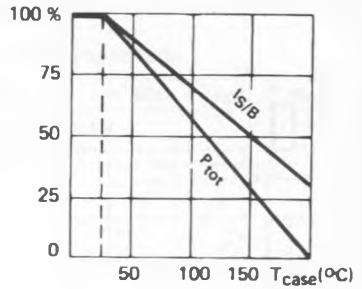
Figure 2.



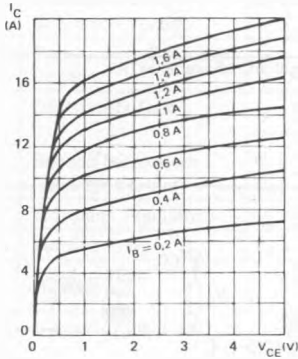
Safe Operating Area.



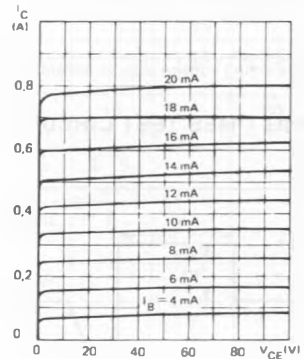
Derating and  $I_{S/B}$  Derating.



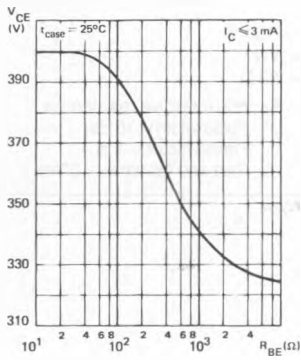
Collector Current versus Collector-emitter Voltage.



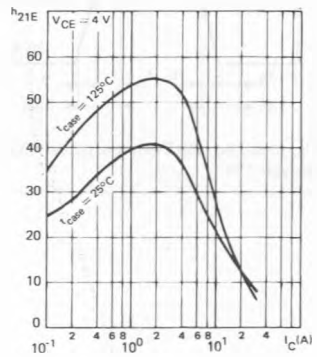
Collector Current versus Collector-emitter Voltage.



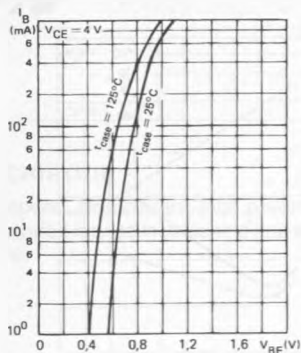
Collector Emitter Voltage versus Base-emitter Resistance (minimum value).



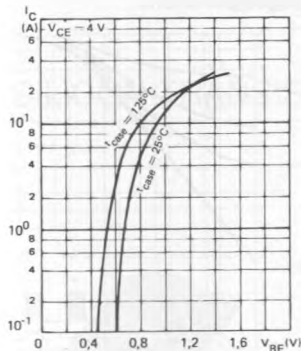
Static forward Current Transfer Ratio versus Collector Current.



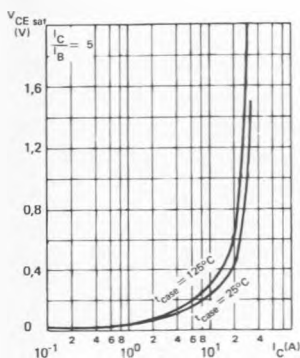
Base Current versus Base-emitter Voltage.



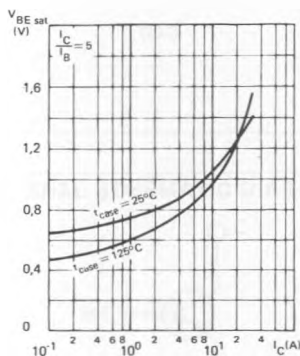
Collector Current versus Base-emitter Voltage.



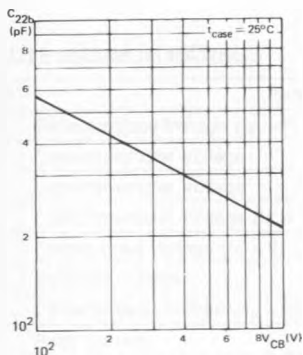
Collector-emitter Saturation Voltage versus Collector Current.



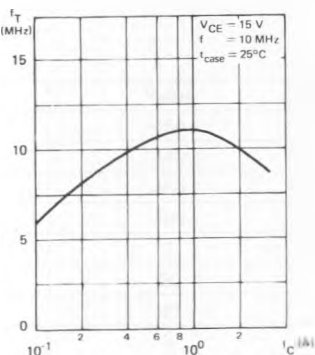
Base-emitter Saturation Voltage versus Collector Current.



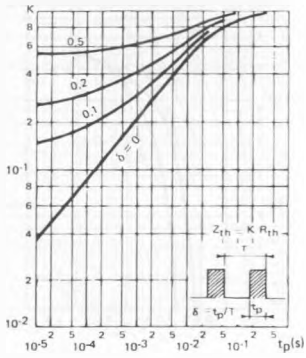
Output Capacitance versus Collector-base Voltage.



Transition Frequency versus Collector Current.



ransient Thermal Resistance Derating Factor under Pulses Conditions.



Switching Times versus Collector Current.

