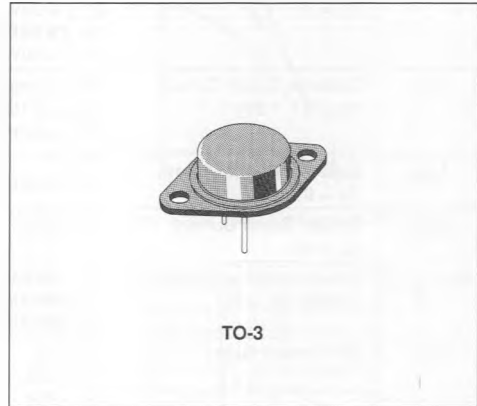


## COMPLEMENTARY HIGH-POWER TRANSISTORS

### DESCRIPTION

The 2N5885 and 2N5886 are silicon epitaxial-base NPN power transistors in Jedec TO-3 metal case, intended for power linear amplifiers and switching applications. The complementary PNP types are the 2N5883 and 2N5884.



### INTERNAL SCHEMATIC DIAGRAMS



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	PNP	2N5883	2N5884	Unit
		NPN	2N5885	2N5886	
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )		60	80	V
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )		60	80	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )		5		V
$I_C$	Collector Current		25		A
$I_{CM}$	Collector Peak Current		50		A
$I_B$	Base Current		7.5		A
$P_{Tot}$	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$		200		W
$T_{stg}$	Storage Temperature		- 65 to 200		$^\circ\text{C}$
$T_j$	Junction Temperature		200		$^\circ\text{C}$

For PNP type voltage and current values are negative.

**THERMAL DATA**

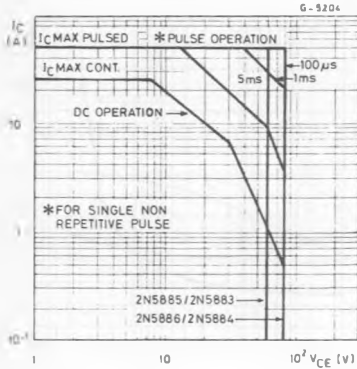
$R_{th(j-case)}$	Thermal Resistance Junction-case	Max	0.875	°C/W
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**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise specified)

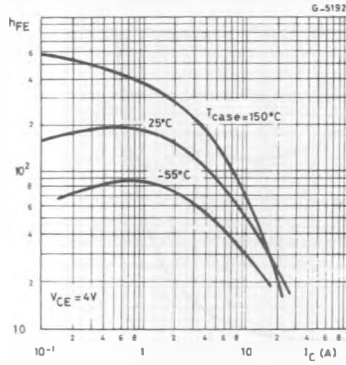
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEO}$	Collector Cutoff Current ( $I_B = 0$ )	for <b>2N5883/5885</b> $V_{CE} = 30V$ for <b>2N5884/5886</b> $V_{CE} = 40V$			2	mA
$I_{CEV}$	Collector Cutoff Current ( $V_{BE} = -1.5V$ )	$V_{CE} = \text{rated } V_{CEO}$ $T_{case} = 150^{\circ}C$ $V_{CE} = \text{rated } V_{CEO}$			1	mA
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = \text{rated } V_{CBO}$			1	mA
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EB} = 5V$			1	mA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 200mA$ for <b>2N5883/5885</b> for <b>2N5884/5886</b>	60 80			V V
$h_{FE}^*$	DC Current Gain	$I_C = 3A$ $V_{CE} = 4V$ $I_C = 10A$ $V_{CE} = 4V$ $I_C = 25A$ $V_{CE} = 4V$	35 20 4		100	
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 15A$ $I_B = 1.5A$ $I_C = 25A$ $I_B = 6.25A$			1 4	V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 25A$ $I_B = 6.25A$			2.5	V
$V_{BE}^*$	Base-emitter Voltage	$I_C = 10A$ $V_{CE} = 4V$			1.5	V
$f_T$	Transistion Frequency	$I_C = 1A$ $V_{CE} = 10V$ $f = 1MHz$	4			MHz
$C_{CBO}$	Collector Base Capacitance	$V_{CB} = 10V$ $I_E = 0$ $f = 1MHz$ for PNP types			500 1000	pF pF
$h_{fe}$	Small-signal Current	$I_C = 3A$ $V_{CE} = 4V$ $f = 1KHz$	20			
$t_r$	Rise Time	$V_{CC} = 30V$ $I_C = 10A$ $I_{B1} = -I_{B2} = 1A$			0.7	$\mu s$
$t_s$	Storage Time				1	$\mu s$
$t_f$	Fall Time				0.8	$\mu s$

\* Pulsed : pulse duration = 300 $\mu s$ , duty cycle < 2 %.  
For PNP type voltage and current values are negative.

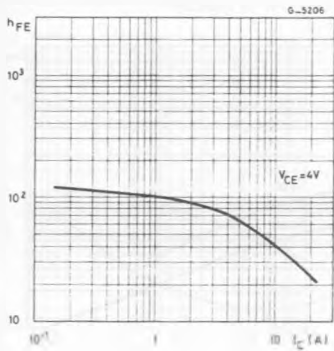
Safe Operating Areas.



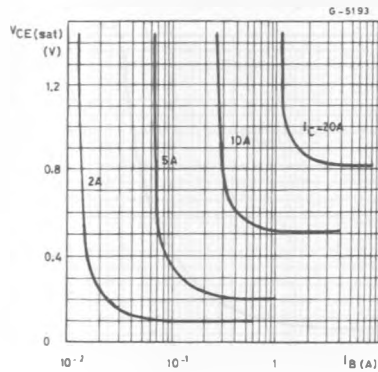
DC Current Gain (NPN types).



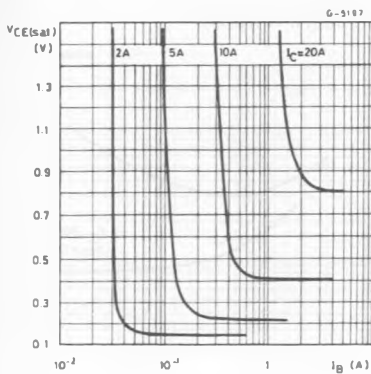
DC Current Gain (PNP type).



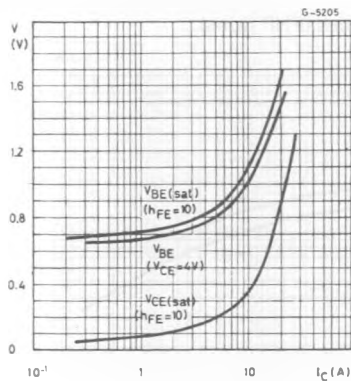
Collector-emitter Saturation Voltage (NPN type).



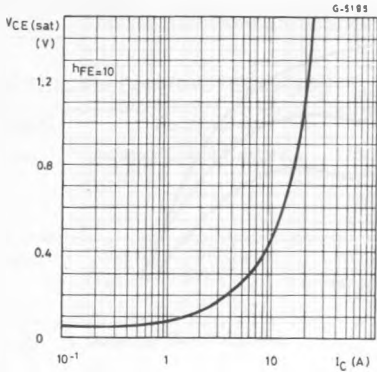
Collector-emitter Saturation Voltage (PNP type).



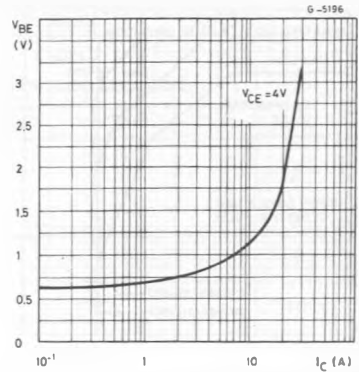
Saturation Voltage (NPN types).



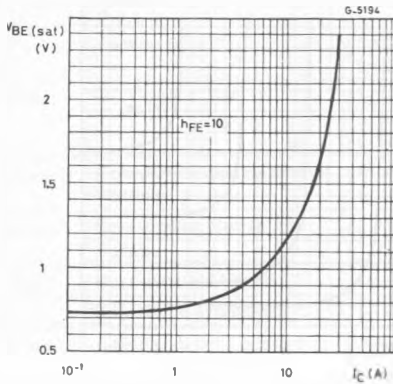
Collector-emitter Saturation Voltage (PNP types).



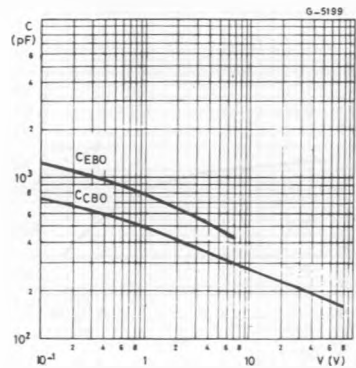
Base-emitter Voltage (PNP types).



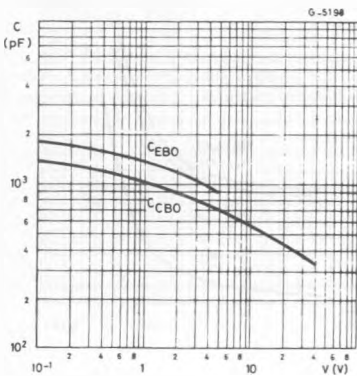
Base-emitter Saturation Voltage (PNP types).



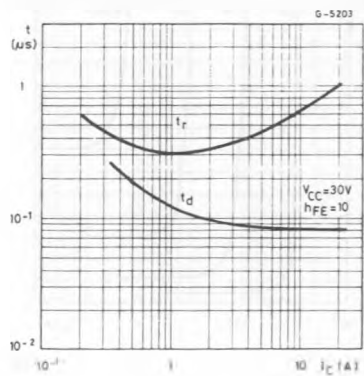
Capacitances (NPN types).



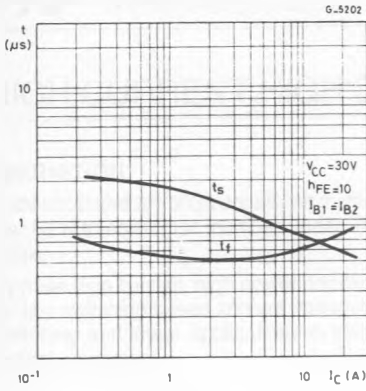
Capacitances (PNP types).



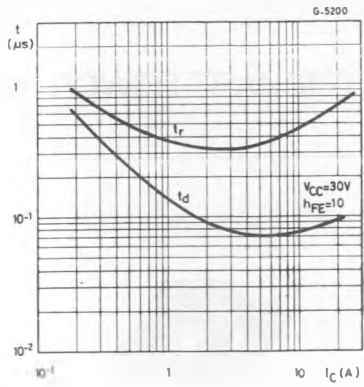
Turn-on Time (NPN types).



Turn-off Time (NPN types).



Turn-on Time (PNP types).



Turn-off Time (PNP types).

