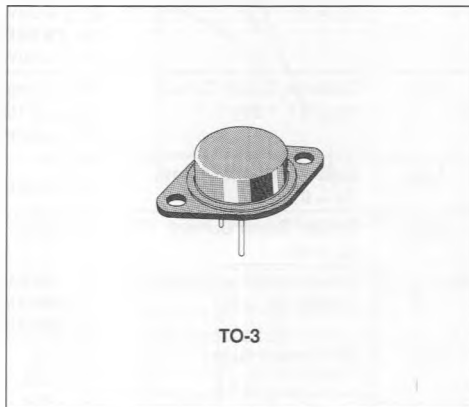


COMPLEMENTARY HIGH-POWER TRANSISTORS

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

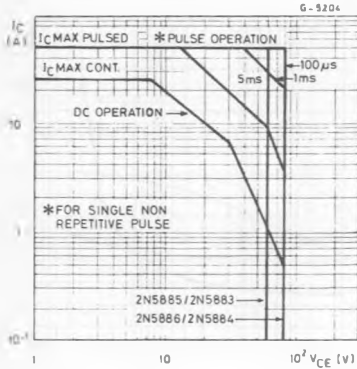
$R_{th(j-case)}$	Thermal Resistance Junction-case	Max	0.875	°C/W
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

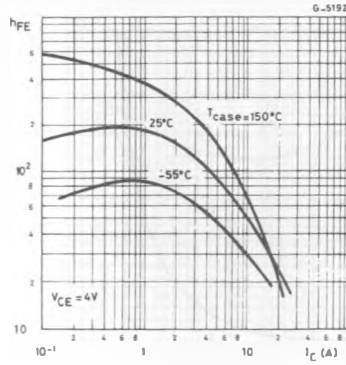
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	for 2N5883/5885 $V_{CE} = 30V$ for 2N5884/5886 $V_{CE} = 40V$			2	mA
I_{CEV}	Collector Cutoff Current ($V_{BE} = -1.5V$)	$V_{CE} = \text{rated } V_{CEO}$ $T_{case} = 150^{\circ}C$ $V_{CE} = \text{rated } V_{CEO}$			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 2N5883/5885 for 2N5884/5886	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	μs
t_s	Storage Time				1	μs
t_f	Fall Time				0.8	μs

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

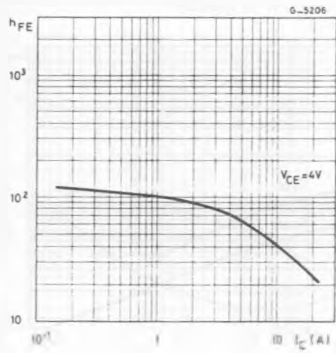
Safe Operating Areas.



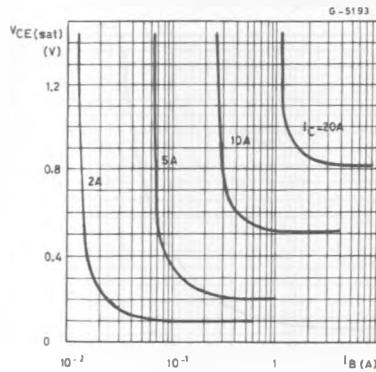
DC Current Gain (NPN types).



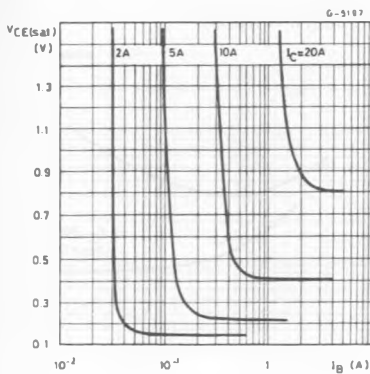
DC Current Gain (PNP type).



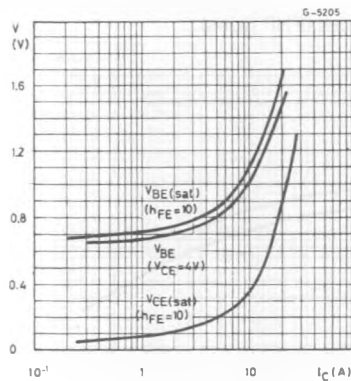
Collector-emitter Saturation Voltage (NPN type).



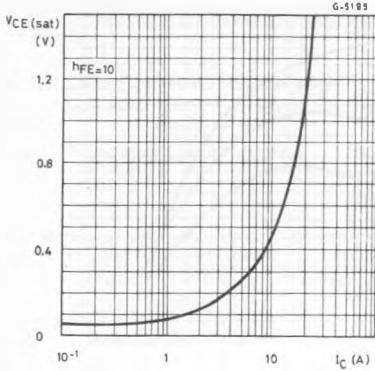
Collector-emitter Saturation Voltage (PNP type).



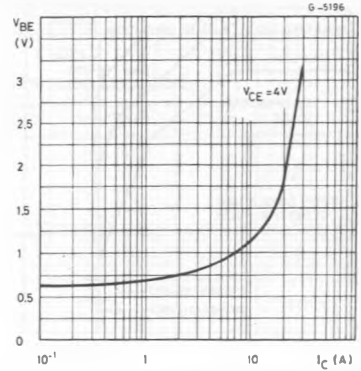
Saturation Voltage (NPN types).



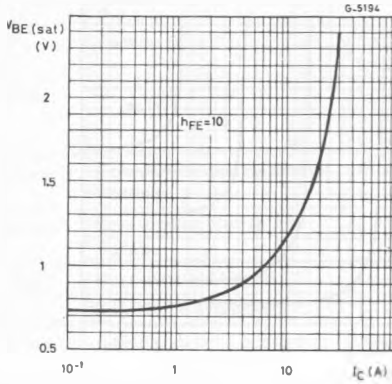
Collector-emitter Saturation Voltage (PNP types).



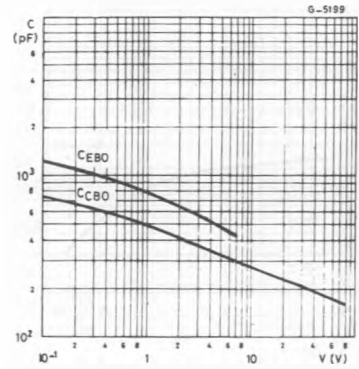
Base-emitter Voltage (PNP types).



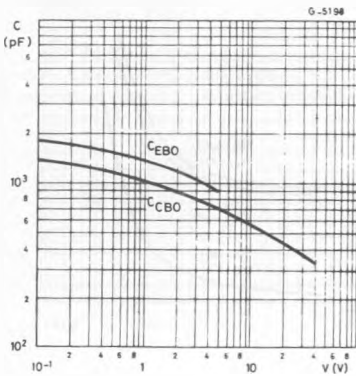
Base-emitter Saturation Voltage (PNP types).



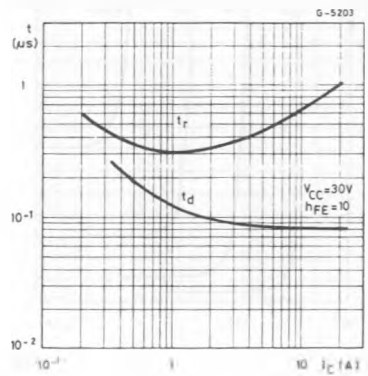
Capacitances (NPN types).



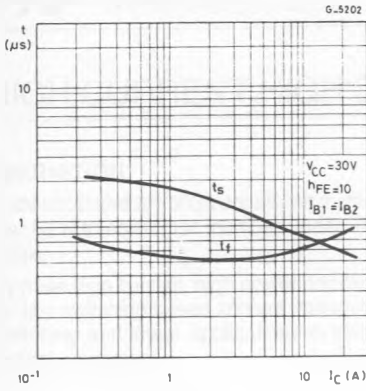
Capacitances (PNP types).



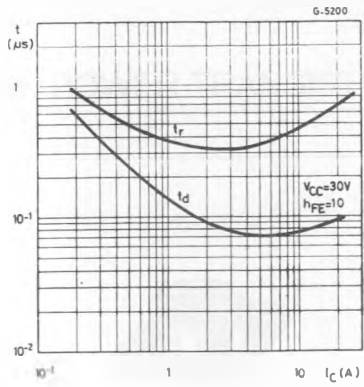
Turn-on Time (NPN types).



Turn-off Time (NPN types).



Turn-on Time (PNP types).



Turn-off Time (PNP types).

