File Number **1041**

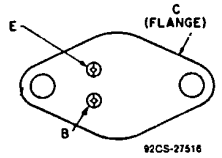
2N5885, 2N5886

High-Current, High Power, High-Speed N-P-N Power Transistors

Features:

- *Specification for h_{FE} and V_{CE} [sat] up to 25 A*
- *Current gain bandwidth product $f_T = 4$ MHz [min.] at 1 A*
- *Low saturation voltage with high beta*
- *High dissipation capability*

TERMINAL DESIGNATIONS



JEDEC TO-204AA

The RCA-2N5885 and 2N5886 are epitaxial-base, silicon n-p-n transistors intended for a wide variety of high-power, high-current applications, such as power-switching circuits, driver and output stages for series and shunt regulators, dc-to-dc converters, inverters, and solenoid (hammer)/relay drivers.

These devices differ in maximum voltage ratings. They are supplied in the JEDEC TO-204AA hermetic steel packages.

MAXIMUM RATINGS, *Absolute-Maximum Values:*

	2N5885	2N5886	
*V_{CBO}	60	80	V
*$V_{CEO(SUS)}$	60	80	V
*V_{EBO}	5		V
*I_C	25		A
*I_{CM}	50		A
*I_B	7.5		A
I_{BM}	15		A
*P_T:			
At $T_C \leq 25°C$	200		W
At $T_C > 25°C$ ... Derate linearly	1.15		W/°C
	See Figs. 1 and 2		
*T_{stg}, T_J	-65 to 200		°C
T_L			
At distance ≥1/32 in. (0.8 mm) from seating plane for 10 s max.	230		°C

* In accordance with JEDEC registration data format JS-6 RDF-1.

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ELECTRICAL CHARACTERISTICS, *At Case Temperature (T_C) = 25°C*
Unless Otherwise Specified

	CHARACTERISTIC	TEST CONDITIONS				LIMITS				UNITS
		VOLTAGE V dc		CURRENT A dc		2N5885		2N5886		
		V_{CE}	V_{BE}	I_C	I_B	Min.	Max.	Min.	Max.	
*	I_{CBO}	60[a] 80[a]				– –	1 –	– –	– 1	mA
*	I_{CEX}	60 80	–1.5 –1.5			– –	1 –	– –	– 1	
*	I_{CEX} T_C = 150°C	60 80	–1.5 –1.5			– –	10 –	– –	– 10	
*	I_{CEO}	30 40				– –	2 –	– –	– 2	
*	I_{EBO}		–5			–	1	–	1	
*	h_{FE}	4 4 4		3[b] 10[b] 25[b]		35 20 4	– 100 –	35 20 4	– 100 –	
*	V_{CEO}(sus)			0.2		60	–	80	–	V
*	V_{BE}	4		10		–	1.5	–	1.5	
*	V_{BE}(sat)			25[b]	6.25	–	2.5	–	2.5	
*	V_{CE}(sat)			15[b] 25[b]	1.5 6.25	– –	1 4	– –	1 4	
	$I_{S/b}$ t_p = 1 s nonrep.	20				10	–	10	–	A
*	$\|h_{fe}\|$ f = 1 MHz	10		1		4	–	4	–	
*	h_{fe} f = 1 kHz	4		3		20	–	20	–	
*	C_{obo} f = 1 MHz	10[a]				–	500	–	500	pF
*	t_r (See Fig. 8)	V_{CC} = 30		10	1	–	0.7	–	0.7	μs
*	t_s			10	1[c]	–	1	–	1	
*	t_f			10	1[c]	–	0.8	–	0.8	
	$R_{\theta JC}$	20		5		–	0.875	–	0.875	°C/W

*In accordance with JEDEC registration data format JS-6 RDF-1.

[a] V_{CB}.

[b] Pulsed; pulse duration = 300 μs, duty factor = 1.8%.

[c] $I_{B_1} = -I_{B_2}$.

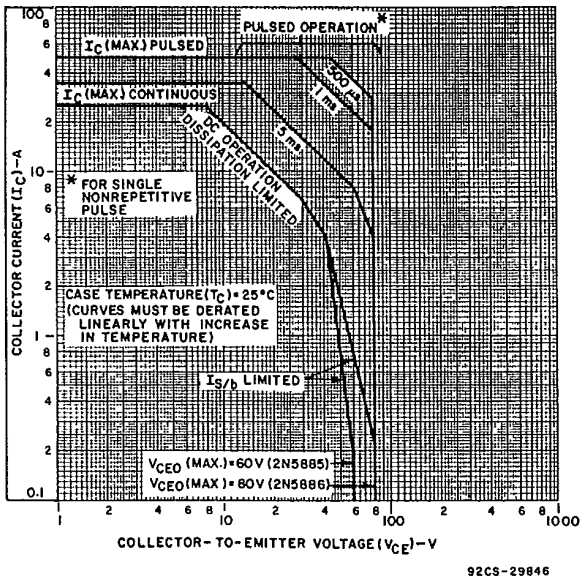

Fig. 1 — Maximum operating areas for 2N5885 and 2N5886.

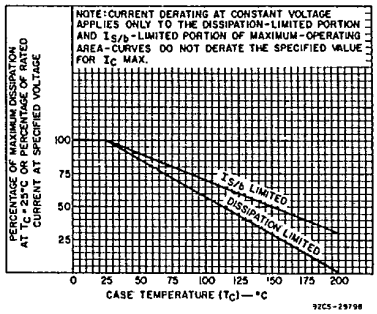

Fig. 2 — Derating curves for 2N5885 and 2N5886.

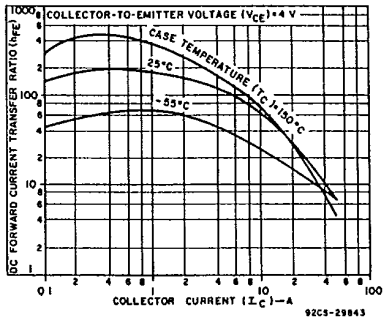

Fig. 3 — Typical dc beta characteristics as a function of collector current for 2N5885 and 2N5886.

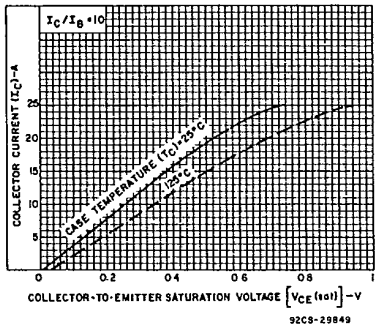

Fig. 4 — Typical saturation voltage characteristics for 2N5885 and 2N5886.

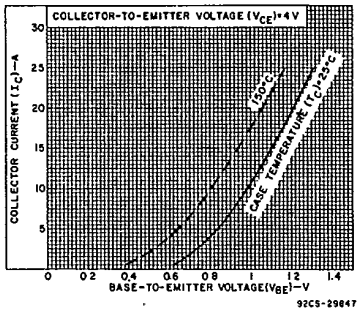

Fig. 5 — Typical transfer characteristics for 2N5885 and 2N5886.

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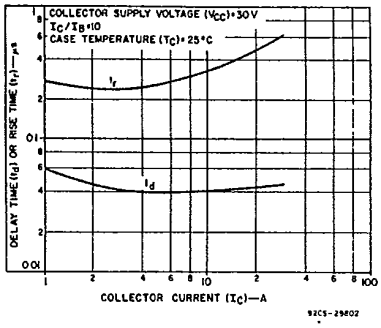

Fig. 6 — Typical delay-time and rise-time characteristics as a function of collector current for 2N5885 and 2N5886.

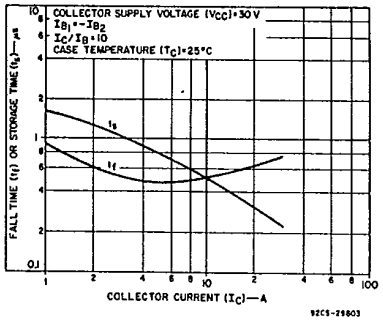

Fig. 7 — Typical storage-time and fall-time characteristics as a function of collector current for 2N5885 and 2N5886.

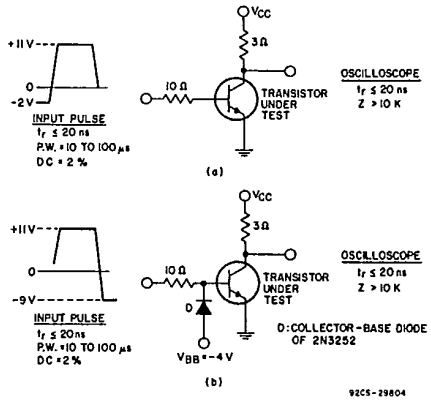

Fig. 8 — Equivalent test circuits for rise-time (a) and fall-time and storage-time (b) measurements for 2N5885 and 2N5886.