

File Number 1414

RCA9202A, RCA9202B, RCA9202C

**4-Ampere N-P-N Darlington
Power Transistors**

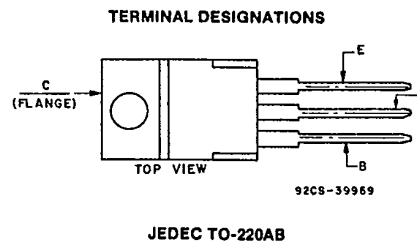
300, 350 and 400 Volts, 65 Watts, Gain of 750 at 2A

Features

- Direct IC input without predriver
- Low leakage at high temperature
- Hard glass passivation
- Wire bonded construction

Applications

- General purpose
- Small engine ignition
- Voltage regulator



The RCA9202A, RCA9202B, and RCA9202C* are monolithic n-p-n silicon Darlington transistors designed for low- and medium-frequency power applications. The construction of these devices provides good forward-bias second-breakdown capability; their high gain makes it possible for them to be driven directly from integrated circuits.

These devices are supplied in the JEDEC TO-220AB (VER-SAWATT) plastic package.

*Formerly RCA Dev. No. TA9202A, TA9202B and TA9202C, respectively.

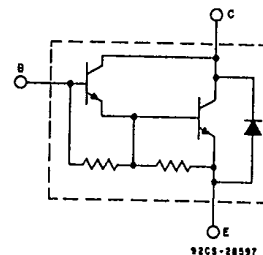


Fig. 1 - Schematic diagram for all types.

MAXIMUM RATINGS, Absolute-Maximum Values:

	RCA9202A	RCA9202B	RCA9202C	UNITS
V _{CB0}	300	350	400	V
V _{CEO(sus)}	300	350	400	V
V _{EB0}	5	5	5	V
I _C	4	4	4	A
I _{CM}	8	8	8	A
I _B	0.25	0.25	0.25	A
P _T				
T _C up to 25°C	65	65	65	W
T _C above 25°C	Derate linearly at 0.52			W/°C
T _{stg} , T _J	-65 to 150			°C
T _L				
At distance ≥ 1/8 in. (3.17 mm) from case for 10 s max.	235			°C

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ELECTRICAL CHARACTERISTICS, At Case Temperature (T_c) = 25° C

CHARACTERISTIC	TEST CONDITIONS				LIMITS						UNITS
	Voltage V dc		Current A dc		RCA9202A		RCA9202B		RCA9202C		
	V _{CE}	V _{BE}	I _C	I _S	Min.	Max.	Min.	Max.	Min.	Max.	
I _{CBO} I _E = 0	300 ^a	—	—	—	—	0.2	—	—	—	—	mA
	350 ^a	—	—	—	—	—	—	0.2	—	—	
	400 ^a	—	—	—	—	—	—	—	—	0.2	
I _{CEO}	250	—	—	0	—	0.5	—	—	—	—	mA
	300	—	—	0	—	—	—	0.5	—	—	
	350	—	—	0	—	—	—	—	—	0.5	
I _{EBO}	—	-5	0	—	—	10	—	10	—	10	mA
V _{CEO(SUS)} ^c	—	—	.03 ^b	0	300	—	350	—	400	—	V
h _{FE}	3.0	—	2 ^b	—	750	—	750	—	750	—	
	3.0	—	3 ^b	—	—	—	—	—	500	—	
	3.0	—	4 ^b	—	500	—	500	—	250	—	
V _{BE}	3.0	—	4 ^b	—	—	2.5	—	2.5	—	2.5	V
V _{CE(sat)}	—	—	2 ^b	.1	—	1.5	—	1.5	—	1.5	V
	—	—	3 ^b	.15	—	1.5	—	1.5	—	1.5	
	—	—	4 ^b	.2	—	1.5	—	1.5	—	1.5	
C _{obo} V _{CB} = 10 V f = 1 MHz	—	—	—	—	100 Typ.		100 Typ.		100 Typ.		pF
I _{S,b} t = 0.5 s non- rep. pulse	50	—	—	—	1.3	—	1.3	—	1.3	—	A
R _{θJC}	—	—	—	—	—	1.92	—	1.92	—	1.92	°C/W

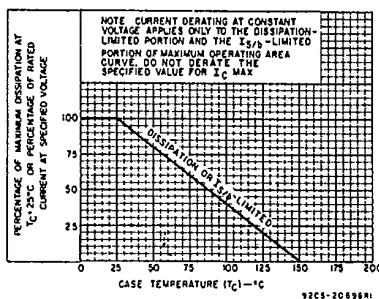
^a V_{CB} value.^bPulsed, pulse duration = 300 μ s, duty factor $\leq 2\%$.^cCaution: Sustaining voltage, $V_{CEO(sus)}$, must not be measured on a curve tracer.

Fig. 2 - Derating curve for all types.

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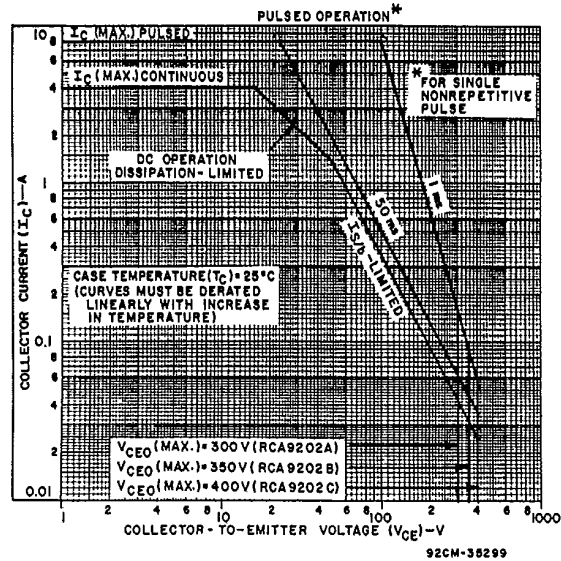


Fig. 3 - Maximum operating areas for all types.

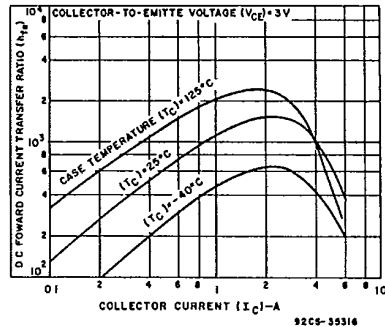


Fig. 4 - Typical dc beta characteristics for all types.

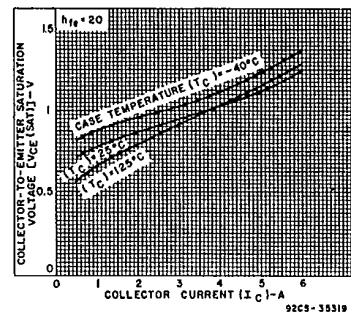


Fig. 5 - Typical saturation characteristics for all types.

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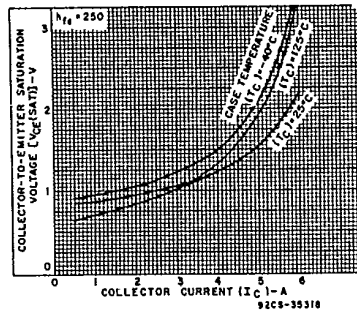


Fig. 6 - Typical saturation characteristics for all types.

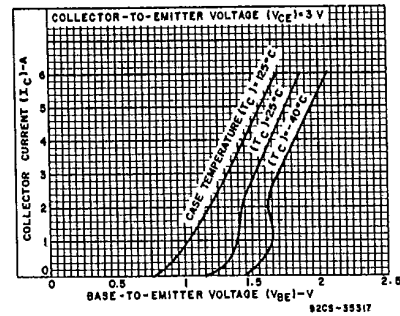


Fig. 7 - Typical transfer characteristics for all types.

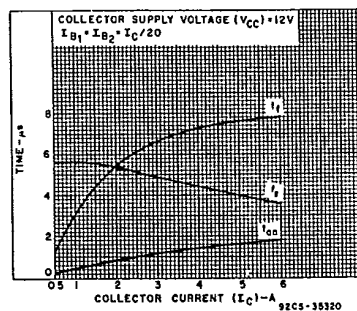


Fig. 8 - Typical saturated switching characteristics for all types.

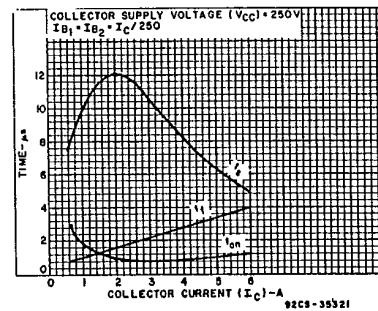


Fig. 9 - Typical saturated switching characteristics for all types.

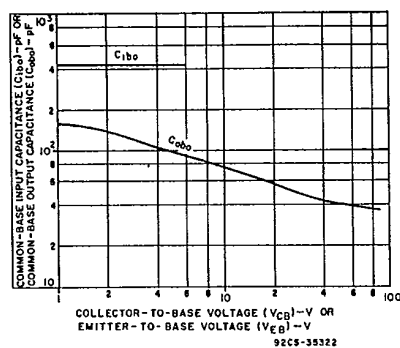


Fig. 10 - Typical common-base input (C_{ibo}) or output (C_{obo}) capacitance characteristics (all types).