

7-33-29

4-Ampere N-P-N Darlington Power Transistors

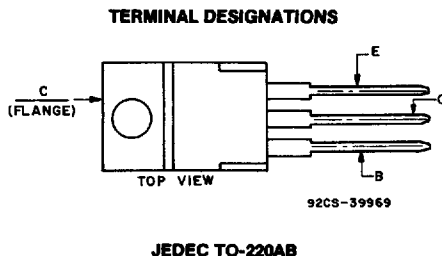
300, 350 and 400 Volts, 65 Watts, Gain of 750 at 2A

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.

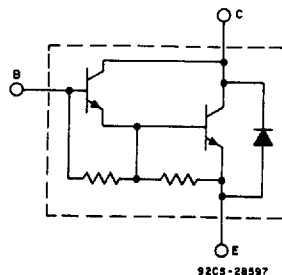


Fig. 1 - Schematic diagram for all types.

POWER TRANSISTORS

MAXIMUM RATINGS, Absolute-Maximum Values:

	RCA9202A	RCA9202B	RCA9202C	UNITS
VCBO	300	350	400	V
VCEO(sus)	300	350	400	V
VEBO	5	5	5	V
IC	4	4	4	A
ICM	8	8	8	A
IB	0.25	0.25	0.25	A
PT:				
Tc up to 25°C	65	65	65	W
Tc above 25°C	Derate linearly at 0.52			W/°C
Tstg, Tj	-65 to 150			°C
TL				
At distance ≥ 1/8 in. (3.17 mm) from case for 10 s max.	235			°C

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

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CHARACTERISTIC	TEST CONDITIONS				LIMITS						UNITS
	Voltage V dc		Current A dc		RCA9202A		RCA9202B		RCA9202C		
	V _{CE}	V _{BE}	I _C	I _B	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

^aV_{CB} value.

^bPulsed, pulse duration = 300 μs, duty factor ≤ 2%.

^cCaution: Sustaining voltage, V_{CEO(sus)}, must not be measured on a curve tracer.

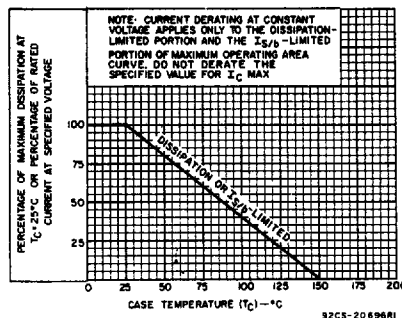


Fig. 2 - Derating curve for all types.

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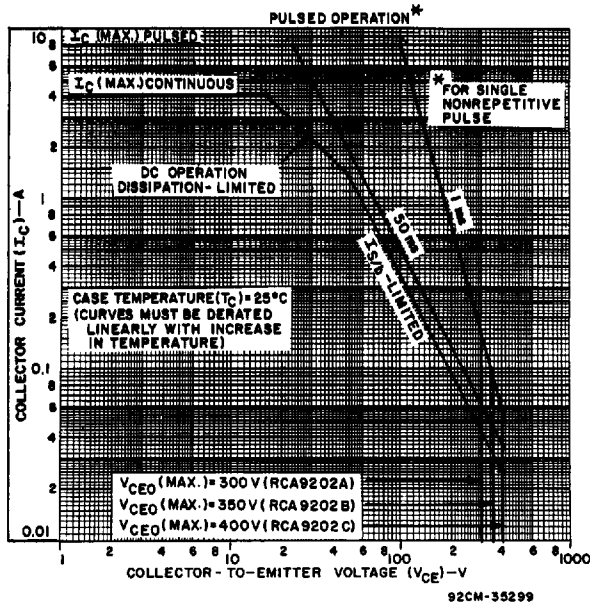


Fig. 3 - Maximum operating areas for all types.

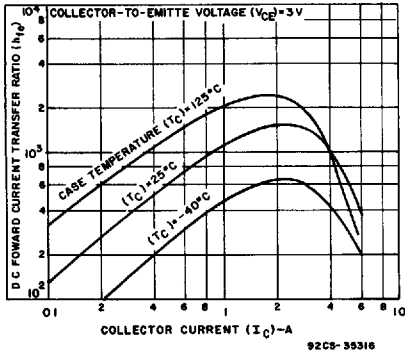


Fig. 4 - Typical dc beta characteristics for all types.

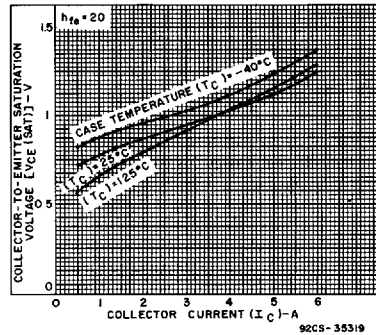


Fig. 5 - Typical saturation characteristics for all types.

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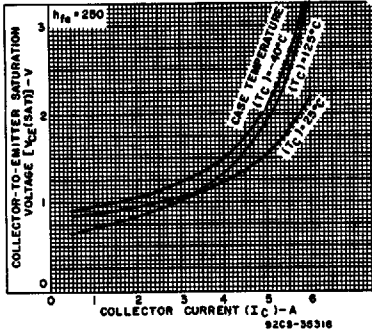


Fig. 6 - Typical saturation characteristics for all types.

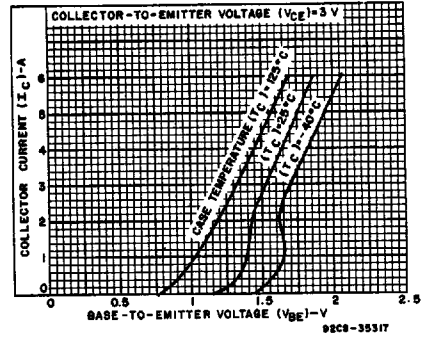


Fig. 7 - Typical transfer characteristics for all types.

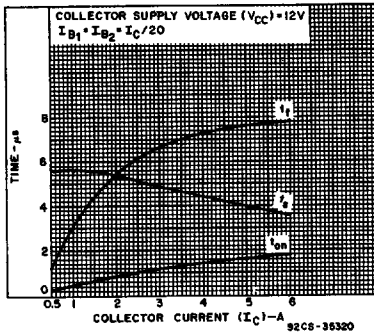


Fig. 8 - Typical saturated switching characteristics for all types.

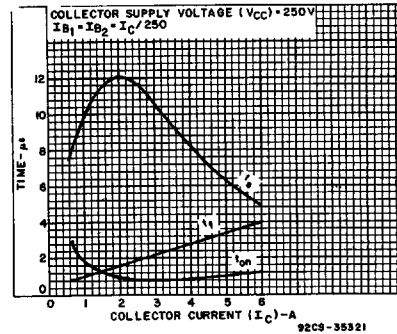


Fig. 9 - Typical saturated switching characteristics for all types.

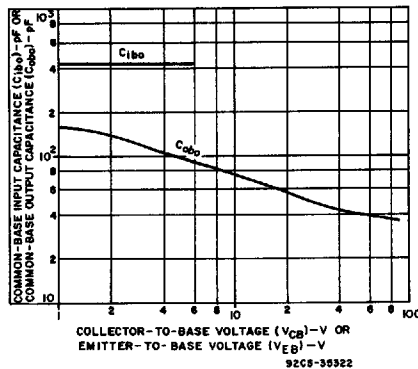


Fig. 10 - Typical common-base input (C_{ibo}) or output (C_{obo}) capacitance characteristics (all types).