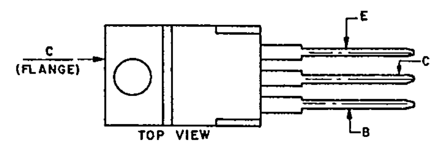
File Number **1414**

RCA9202A, RCA9202B, RCA9202C

4-Ampere N-P-N Darlington Power Transistors

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

TERMINAL DESIGNATIONS



JEDEC TO-220AB

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 (VERSAWATT) plastic package.

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

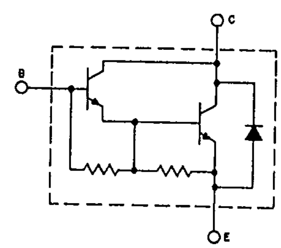


Fig. 1 - Schematic diagram for all types.

MAXIMUM RATINGS, *Absolute-Maximum Values:*

	RCA9202A	RCA9202B	RCA9202C	UNITS
V_{CBO}	300	350	400	V
$V_{CEO}(sus)$	300	350	400	V
V_{EBO}	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

0857 E-12

RCA9202A, RCA9202B, RCA9202C

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

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	—	—	—	—	
	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
$V_{CE}(sat)$	—	—	2b	.1	—	1.5	—	1.5	—	1.5	V
	—	—	3b	.15	—	1.5	—	1.5	—	1.5	
	—	—	4b	.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
$R_{\theta JC}$	—	—	—	—	—	1.92	—	1.92	—	1.92	°C/W

[a] V_{CB} value.
[b] Pulsed, pulse duration = 300 μs, duty factor ≤ 2%.
[c] Caution: Sustaining voltage, $V_{CEO}(sus)$, must not be measured on a curve tracer.

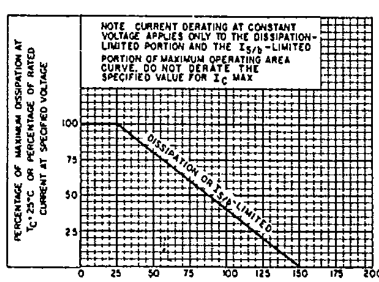


Fig. 2 - Derating curve for all types.

RCA9202A, RCA9202B, RCA9202C

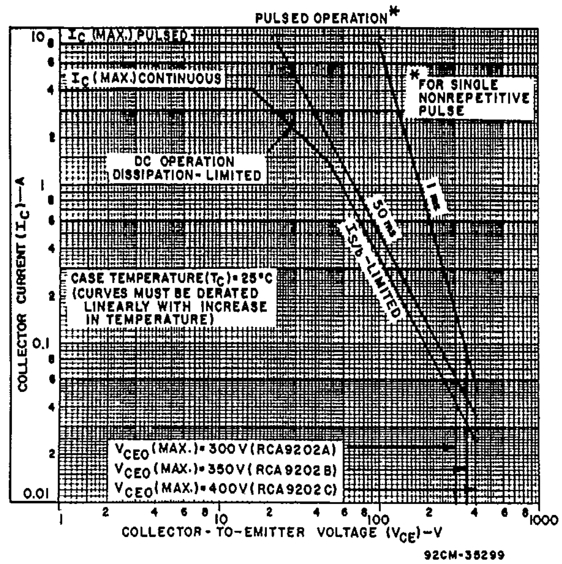


Fig. 3 - Maximum operating areas for all types.

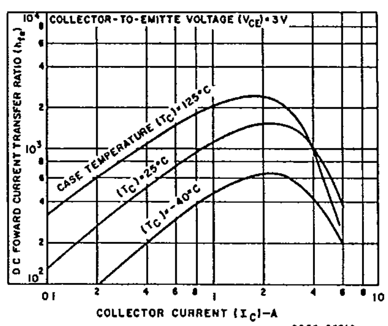


Fig. 4 - Typical dc beta characteristics for all types.

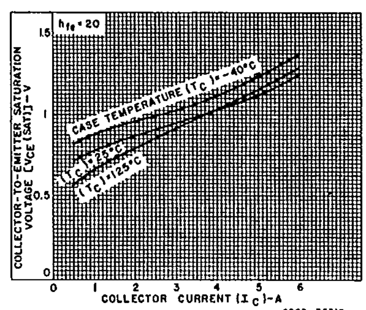


Fig. 5 - Typical saturation characteristics for all types.

RCA9202A, RCA9202B, RCA9202C

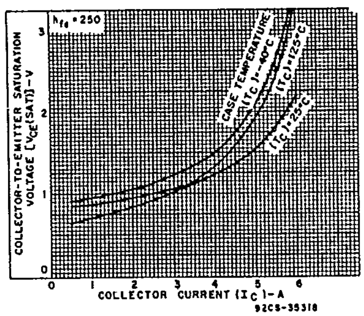


Fig. 6 - Typical saturation characteristics for all types.

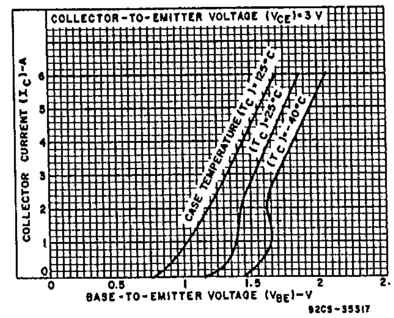


Fig. 7 - Typical transfer characteristics for all types.

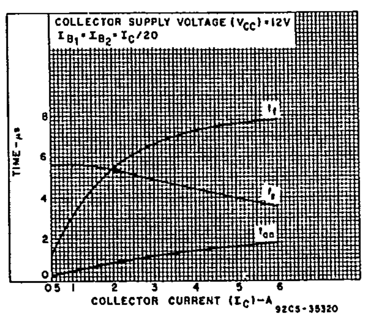


Fig. 8 - Typical saturated switching characteristics for all types.

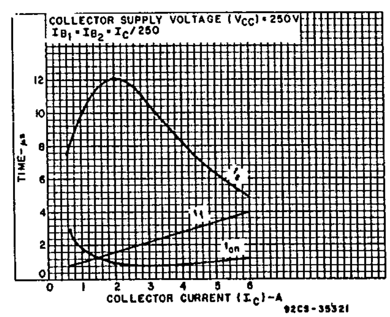


Fig. 9 - Typical saturated switching characteristics for all types.

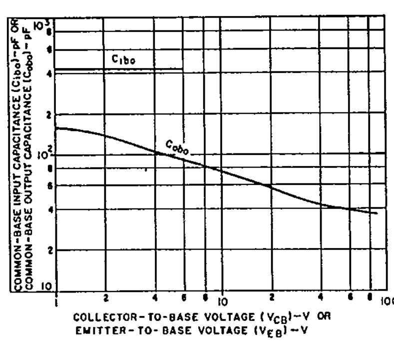


Fig. 10 - Typical common-base input (C_{ibo}) or output (C_{obo}) capacitance characteristics (all types).