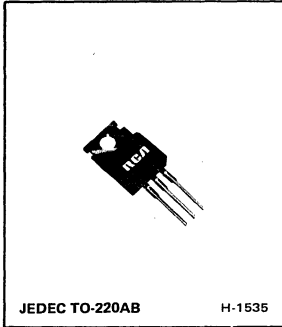


**Epitaxial-Base, Silicon P-N-P
VERSAWATT Transistors**

For Power-Amplifier and
High-Speed-Switching Applications

Features:

- 30 W at 25°C case temperature
- 3 A rated collector current
- Min. f_T of 3 MHz at 10 V, 200 mA
- Designed for complementary use with RCA29, RCA29A, RCA29B, and RCA29C n-p-n types*



RCA30, RCA30A, RCA30B, and RCA30C are epitaxial-base, silicon p-n-p transistors. They are intended for a wide variety of switching and amplifier applications, such as series and shunt regulators and driver and output stages of high-fidelity amplifiers.

These new plastic power transistors are designed for complementary use with devices in the RCA29 series. They differ from each other in voltage ratings.

* Technical data for the RCA29-series devices are given in RCA data bulletin File 583.

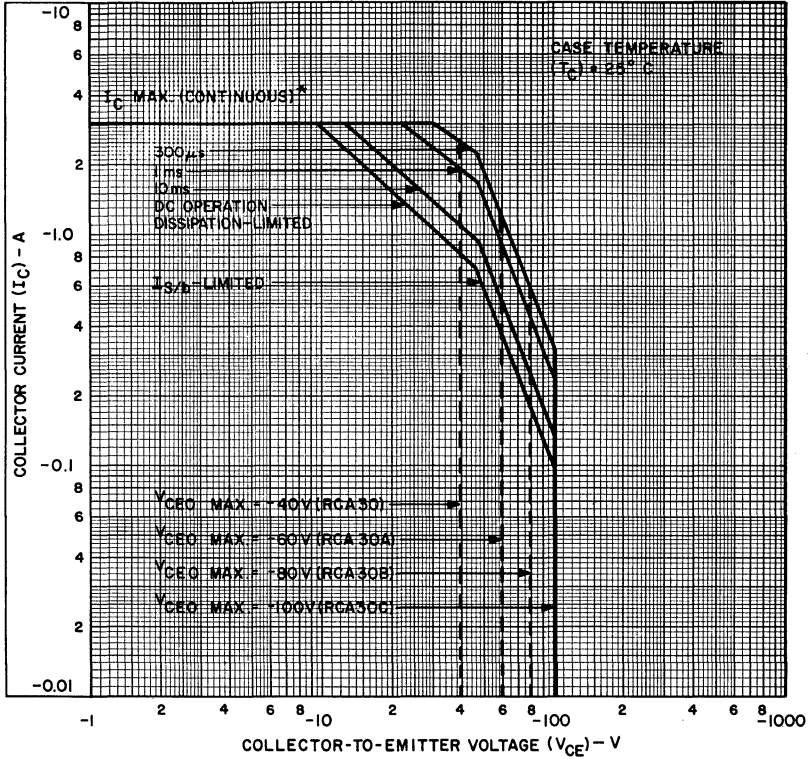
MAXIMUM RATINGS, Absolute-Maximum Values:

		RCA30	RCA30A	RCA30B	RCA30C	
COLLECTOR-TO-BASE VOLTAGE	V_{CBO}	-40	-60	-80	-100	V
COLLECTOR-TO-EMITTER VOLTAGE:						
With base open	V_{CEO}	-40	-60	-80	-100	V
EMITTER-TO-BASE VOLTAGE	V_{EBO}	-5	-5	-5	-5	V
CONTINUOUS COLLECTOR CURRENT	I_C	-3	-3	-3	-3	A
CONTINUOUS BASE CURRENT	I_B	-1	-1	-1	-1	A
TRANSISTOR DISSIPATION:	P_T					
At case temperatures up to 25°C		30	30	30	30	W
At ambient temperatures up to 25°C		2	2	2	2	W
TEMPERATURE RANGE:						
Storage and Operating (Junction)		←-----65 to 150-----→				°C
LEAD TEMPERATURE (During Soldering):						
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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS			LIMITS								UNITS	
		VOLTAGE V dc		CUR- RENT A dc	RCA30		RCA30A		RCA30B		RCA30C			
		V _{CE}	V _{BE}	I _C	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
Collector-Cutoff Current: With base open	I _{CEO}	-30 -60			-	-0.3	-	-0.3	-	-	-	-	-	mA
With base-emitter junction short-circuited	I _{CES}	-40 -60 -80 -100	0 0 0 0		-	-0.2	-	-	-	-	-	-	-	
Emitter-Cutoff Current	I _{EBO}		5	0	-	-1	-	-1	-	-1	-	-1	-	mA
Collector-to-Emitter Sustaining Voltage: With base open	V _{CEO(sus)}				-0.03 ^a	-40	-	-60	-	-80	-	-100	-	V
DC Forward-Current Transfer Ratio	h _{FE}	-4 -4		-0.2 ^a -1 ^a	40 15	- 150	40 15	- 150	40 15	- 150	40 15	- 150	-	
Base-to-Emitter Voltage	V _{BE}	-4		-1 ^a	-	-1.3	-	-1.3	-	-1.3	-	-1.3	-	V
Collector-to-Emitter Saturation Voltage: I _B = -125 mA				-1 ^a	-	-0.7	-	-0.7	-	-0.7	-	-0.7	-	V
Common-Emitter Small-Signal, Short-Circuit, Forward Current Transfer Ratio: f = 1 kHz	h _{fe}	-10		-0.2	20	-	20	-	20	-	20	-	-	
Magnitude of Common-Emitter, Small-Signal, Short-Circuit, Forward Current Transfer Ratio: f = 1 MHz	h _{fe}	-10		-0.2	3	-	3	-	3	-	3	-	-	
Saturated Switching Time (V _{CC} = -30 V, R _L = 30 Ω, I _{B1} = I _{B2} = -0.1 A): Turn-on time t _d + t _r	t _{ON}			-1	0.2 (typ.)		0.2 (typ.)		0.2 (typ.)		0.2 (typ.)		0.2 (typ.)	μs
Turn-off time t _s + t _f	t _{OFF}			-1	1 (typ.)		1 (typ.)		1 (typ.)		1 (typ.)		1 (typ.)	
Thermal Resistance: Junction-to-Case	R _{θJC}				-	4.17	-	4.17	-	4.17	-	4.17	-	°C/W
Junction-to-Ambient	R _{θJA}				-	62.5	-	62.5	-	62.5	-	62.5	-	

^a Pulsed: Pulse duration = 300 μs, duty factor = 2%.



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Fig. 1 - Maximum safe operating areas for all types.

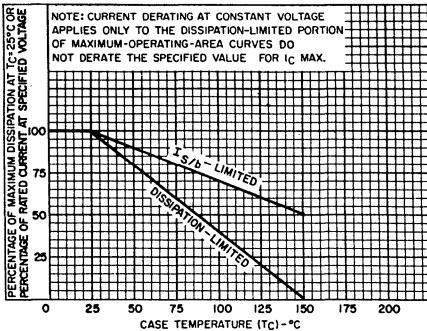


Fig. 2 - Derating curves for all types.

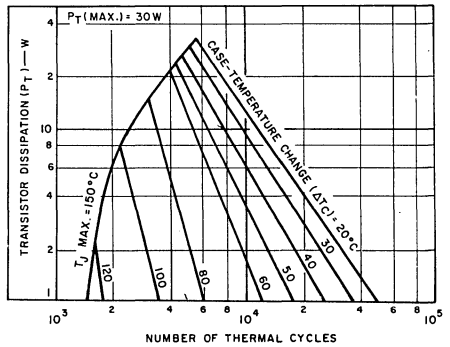


Fig. 3 - Thermal-cycling ratings for all types.

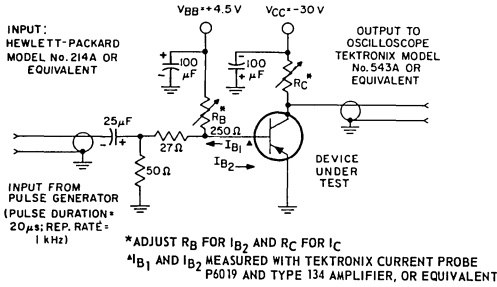


Fig. 4 - Circuit used to measure saturated switching times for all types.

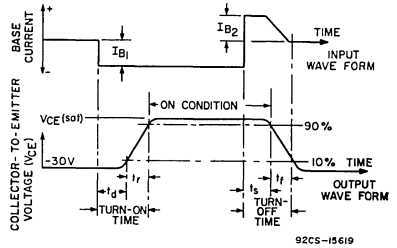


Fig. 5 - Oscilloscope display for measurement of switching times.

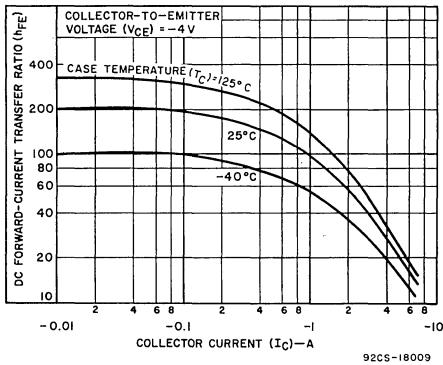


Fig. 6 - Typical dc beta characteristics for RCA30, RCA30A, and RCA30B.

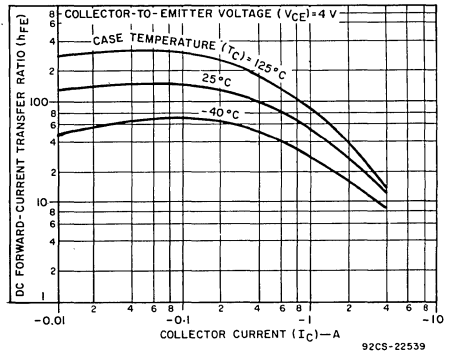


Fig. 7 - Typical dc beta characteristics for RCA30C.

TERMINAL CONNECTIONS

- Lead No. 1 - Base
- Lead No. 2 - Collector
- Lead No. 3 - Emitter
- Mounting Flange, Lead No. 4 - Collector