File Number **1150**

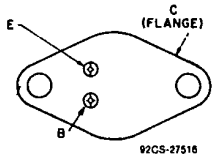
2N4898, 2N4899, 2N4900

Silicon P-N-P Medium-Power Transistors

General-Purpose Types for Switching Applications

Features:
- *Low saturation voltages*
- *Maximum safe-area-of-operation curves*

TERMINAL DESIGNATIONS



JEDEC TO-213AA

The RCA-2N4898, 2N4899 and 2N4900 are multiple-epitaxial p-n-p transistors. All are supplied in the JEDEC TO-213AA package.

All these transistors are intended for a wide variety of medium-power switching and amplifier applications, such as series regulators and output stages of high-fidelity amplifiers.

MAXIMUM RATINGS, *Absolute-Maximum Values:*

	2N4898	2N4899	2N4900	
* V_{CBO}	40	60	80	V
* $V_{CEX(SUS)}$				
V_{BE} = -1.5 V, R_{BE} = 100 Ω	40	60	80	V
$V_{CEO(SUS)}$	40	60	80	V
* V_{EBO}	5	5	5	V
* I_C	1	1	1	A
I_{CM}	4	4	4	A
* I_B	1	1	1	A
* P_T				
At T_C up to 25°C	25	25	25	W
At T_C above 25°C	———	See Figs.1 & 3	———	
* T_J, T_{stg}	———	-65 to +200	———	°C
* T_L				
At distances ≥ 1/32 in. (0.8 mm) from seating plane for 10 s max.	———	+235	———	°C

* In accordance with JEDEC registration data.

2N4898, 2N4899, 2N4900

ELECTRICAL CHARACTERISTICS, *At Case Temperature (T_C) = 25°C unless otherwise specified*

	CHARACTERISTICS	TEST CONDITIONS				LIMITS						UNITS
		VOLTAGE V dc		CURRENT A dc		2N4898		2N4899		2N4900		
		V_{CE}	V_{BE}	I_C	I_B	Min.	Max.	Min.	Max.	Min.	Max.	
*	I_{CBO}	40[a]				–	100	–	–	–	–	
		60[a]				–	–	–	100	–	–	μA
		80[a]				–	–	–	–	–	100	
*	I_{CEX} R_{BE} = 100 Ω	40	–1.5			–	100	–	–	–	–	
		60	–1.5			–	–	–	100	–	–	μA
		80	–1.5			–	–	–	–	–	100	
*	R_{BE} = 100 Ω T_C = 150°C	40	–1.5			–	1	–	–	–	–	
		60	–1.5			–	–	–	1	–	–	mA
		80	–1.5			–	–	–	–	–	1	
*	I_{CEO}	20				–	0.5	–	–	–	–	
		30				–	–	–	0.5	–	–	mA
		40				–	–	–	–	–	0.5	
*	I_{EBO}		–5			–	1	–	1	–	1	mA
*	h_{FE}	1		0.5[b]		20	100	20	100	20	100	
		1		0.05[b]		40	–	40	–	40	–	
		1		1[b]		10	–	10	–	10	–	
*	$V_{CEO(sus)}$[c]			0.1[b]		40	–	60	–	80	–	V
	$V_{BE(sat)}$			1[b]	0.1	–	1.3	–	1.3	–	1.3	V
*	V_{BE}	1		1[b]		–	1.3	–	1.3	–	1.3	V
*	$V_{CE(sat)}$			1[b]	0.1	–	0.6	–	0.6	–	0.6	V
*	h_{fe} f = 1 kHz	10		0.25		25	–	25	–	25	–	
*	f_T f = 1 MHz	10		0.25		3	–	3	–	3	–	MHz
	C_{obo}	10[a]				–	100	–	100	–	100	pF
	$R_{\theta JC}$					–	7	–	7	–	7	°C/W

* In accordance with JEDEC registration data.

[a] V_{CB} value.

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

[c] **CAUTION:** Sustaining voltage, $V_{CEO(sus)}$, *MUST NOT* be measured on a curve tracer. (See Figs. 2 and 4.)

2N4898, 2N4899, 2N4900

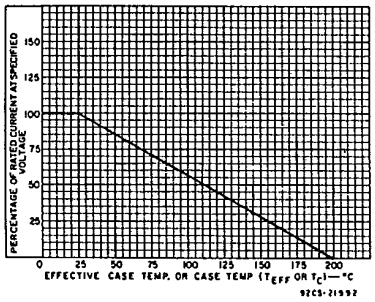


Fig. 1 – Current derating chart for all types.

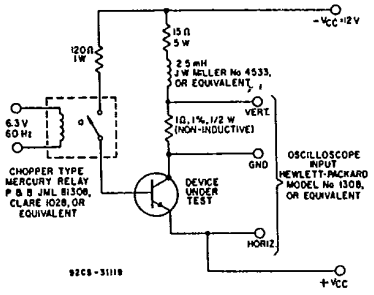


Fig. 2 – Circuit used to measure sustaining voltage, $V_{CEO}(sus)$.

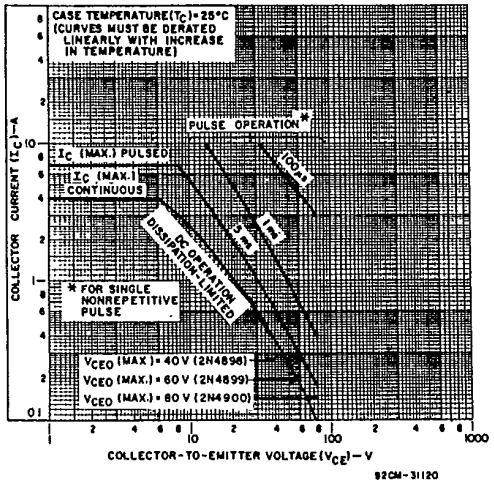
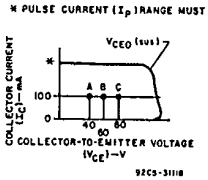


Fig. 3 – Maximum operating areas for all types. (T_C = 25°C).



The sustaining voltage, $V_{CEO}(sus)$, is acceptable when the trace falls to the right of point "A" for type 2N4898; point "B" for type 2N4899; and point "C" for type 2N4900.

Fig. 4 – Oscilloscope display for measurement of sustaining voltages.