

File Number 675

2N5954, 2N5955, 2N5956

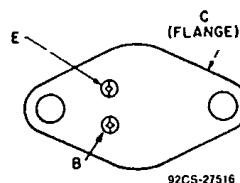
Silicon P-N-P Medium-Power Transistors

General-Purpose Types for Switching Applications

Features:

- Low saturation voltages
- Maximum-safe-area-of-operation curves
- High gain at high current

TERMINAL DESIGNATIONS



JEDEC TO-213AA

RCA-2N5954, 2N5955, and 2N5956* 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.

*Formerly RCA Dev. Nos. TA7264, TA7265, and TA7266, respectively.

MAXIMUM RATINGS, Absolute-Maximum Values:

	2N5954	2N5955	2N5956	
* V_{CE0}	-90	-70	-50	V
* $V_{CEX(SUS)}$ $V_{BE} = 1.5 V, R_{BE} = 100 \Omega$	-90	-70	-50	V
$V_{CER(SUS)}$ $R_{BE} = 100 \Omega$	-85	-65	-45	V
$V_{CE0(SUS)}$	-80	-60	-40	V
* V_{EBO}	-5	-5	-5	V
* I_C	-6	-6	-6	A
* I_B	-2	-2	-2	A
* P_T At T_C up to 25°C	40	40	40	W
At T_C above 25°C	See Figs. 1 and 2			
* T_J, T_{stg}	-65 to +200			°C
* T_L At distances $\geq 1/32$ in. (0.8 mm) from seating plane for 10 s max.	235			°C

* JEDEC types in accordance with JEDEC registration data format JS-6-RDF-2.

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General-Purpose Power Transistors

01E 17412 D T-33-19

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

CHARACTERISTIC	TEST CONDITIONS				LIMITS						UNITS
	VOLTAGE V _{dc}		CURRENT A _{dc}		2N5956		2N5955		2N5954		
	V _{CE}	V _{BE}	I _c	I _b	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
I _{CEB} R _{BE} = 100 Ω	-35	—	—	—	—	-100	—	—	—	—	μA
	-55	—	—	—	—	—	—	-100	—	—	
	-75	—	—	—	—	—	—	—	—	-100	
I _{CEX} R _{BE} = 100 Ω	-45	1.5	—	—	—	-100	—	—	—	—	μA
	-65	1.5	—	—	—	—	—	-100	—	—	
	-85	1.5	—	—	—	—	—	—	—	-100	
R _{BE} = 100 Ω, T _c = 150°C	-45	1.5	—	—	—	-2	—	—	—	—	mA
	-65	1.5	—	—	—	—	—	-2	—	—	
	-85	1.5	—	—	—	—	—	—	—	-2	
I _{CEO}	-25	—	—	—	—	-1	—	—	—	—	mA
	-45	—	—	—	—	—	—	-1	—	—	
	-65	—	—	—	—	—	—	—	—	-1	
I _{EBO}	—	5	—	—	—	-0.1	—	-0.1	—	-0.1	mA
h _{FE}	-4	—	-3 ^a	—	20	100	—	—	—	—	I
	-4	—	-2.5 ^a	—	—	—	20	100	—	—	
	-4	—	-2 ^a	—	—	—	—	—	20	100	
	-4	—	-6 ^a	—	5	—	5	—	5	—	
V _{CEO(sus)}	—	—	-0.1 ^a	—	-40 ^b	—	-60 ^b	—	-80 ^b	—	V
V _{CEB(sus)} R _{BE} = 100 Ω	—	—	-0.1 ^a	—	-45 ^b	—	-65 ^b	—	-85 ^b	—	
V _{CEX(sus)} R _{BE} = 100 Ω	—	1.5	-0.1 ^a	—	-50 ^b	—	-70 ^b	—	-90 ^b	—	
V _{BE}	-4	—	-3 ^a	—	—	-2	—	—	—	—	V
	-4	—	-2.5 ^a	—	—	—	—	-2	—	—	
	-4	—	-2 ^a	—	—	—	—	—	—	-2	
V _{CE(sat)}	—	—	-3 ^a	-0.3	—	-1	—	—	—	—	V
	—	—	-2.5 ^a	-0.25	—	—	—	-1	—	—	
	—	—	-2 ^a	-0.2	—	—	—	—	—	-1	
h _{ie} f = 1 MHz	-4	—	-1	—	5	—	5	—	5	—	
h _{ie} f = 1 kHz	-4	—	-0.5	—	25	—	25	—	25	—	
R _{θJC}	—	—	—	—	—	4.3	—	4.3	—	4.3	°C/W

* In accordance with JEDEC registration data format JS-6-RDF-2.

^aPulsed, pulse duration = 300 μs, duty factor = 1.8%.

^bCAUTION: Sustaining voltage V_{CEO(sus)}, V_{CEB(sus)}, and V_{CEX(sus)} MUST NOT be measured on a curve tracer.

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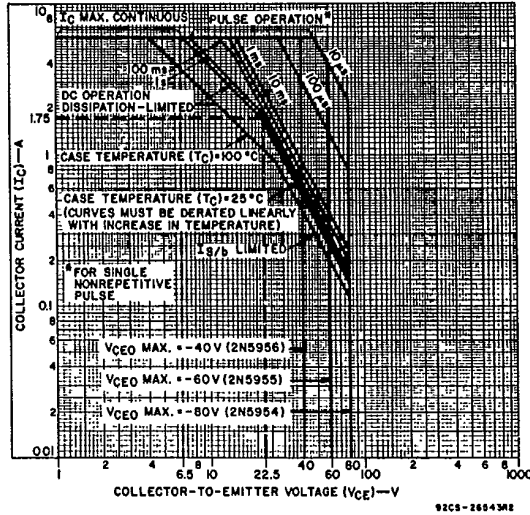


Fig. 1 - Maximum operating areas for all types.

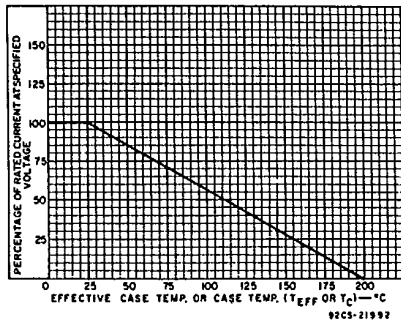


Fig. 2 - Current derating chart for all types.

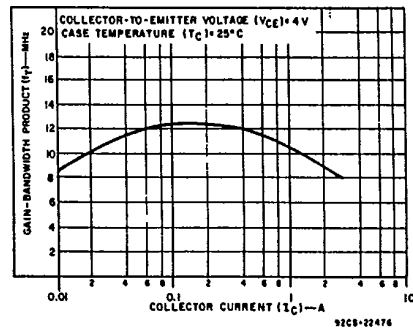


Fig. 3 - Typical gain-bandwidth product for all types.

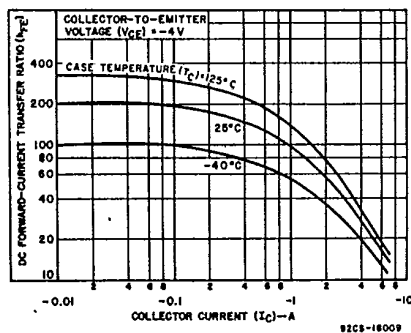


Fig. 4 - Typical dc beta characteristics for 2N5954-2N5956.

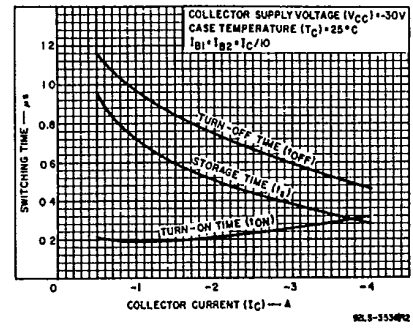


Fig. 5 - Typical saturated switching characteristics for 2N5954-2N5956.

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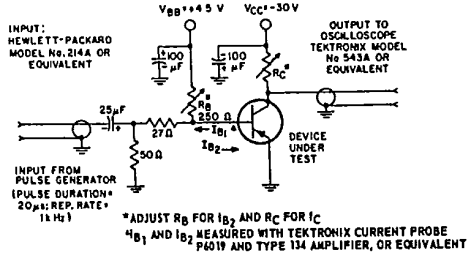


Fig. 6 - Circuit used to measure saturated switching times for 2N5954-2N5956.

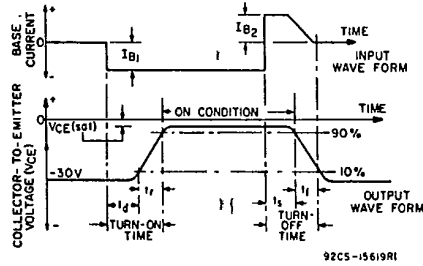


Fig. 7 - Oscilloscope display for measurement of switching times for 2N5954-2N5956.

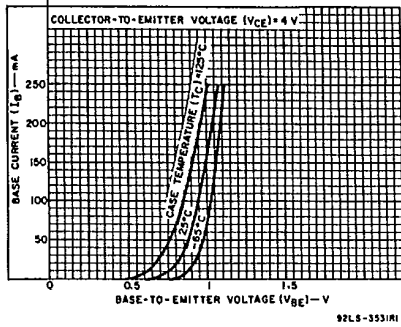


Fig. 8 - Typical input characteristics for all types.

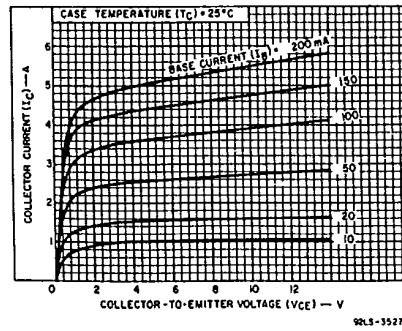


Fig. 9 - Typical output characteristics for all types.

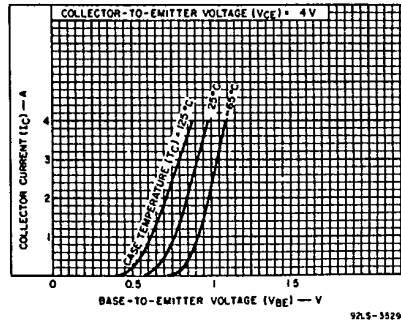


Fig. 10 - Typical transfer characteristics for all types.