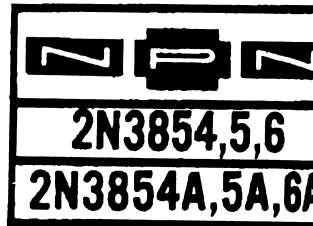
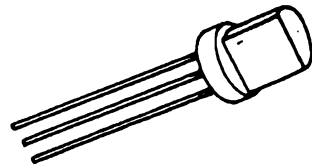


Silicon Transistors



2N3854,A, 2N3885,A, 2N3856,A, are NPN silicon planar epitaxial passivated transistors designed primarily for RF, IF and converter applications in AM and FM receivers. Selected high voltage units are available for TV video amplifiers. (See typical BV_{CEO})



absolute maximum ratings: (25°C) (unless otherwise specified)

Voltages			
Collector to Emitter	2N3854, 5, 6 2N3854A, 5A, 6A	V_{CEO}	18 volts 30 volts
Emitter to Base		V_{EB0}	4 volts
Collector to Base	2N3854, 5, 6, 2N3854A, 5A, 6A	V_{CB0}	18 volts 30 volts
Current			
Collector (Steady State) †		I_C	100 mA
Dissipation			
Total Power (Free air at 25°C) ‡		P_T	200 mW
Total Power (Free air at 55°C) ‡		P_T	120 mW
Temperature			
Storage		T_s	-30 to 150°C
Operating		T_j	100°C
Lead soldering, $\frac{1}{16} \pm \frac{1}{32}$ " from case for 10 sec. max.		T_L	260°C

- FM-IF STAGE GAIN OF 25
- 30 dB GAIN AT 4.5 MHz
- FM-RF GAIN OF 15 dB
- TV VIDEO IF GAIN OF 20

NOTE 1: Lead diameter is controlled in the zone between .070 and .250 from the seating plane. Between .250 and end of lead a max. of .021 is held.

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3 LEADS
.017 ±.002
-.001
(NOTE 1)



†Determined from power limitations due to saturation voltage at this point.
‡Derate 2.67 mW/°C increase in ambient temperature above 25°C.

electrical characteristics: (25°C) (unless otherwise specified)

Static Characteristics

		Min.	Typ.	Max.	Units
Collector Cutoff Current ($V_{CB} = 18V$) ($V_{EB} = 18V, T_A = 100^\circ C$)	I_{CBO}			0.5	μA
	I_{EBO}			15	μA
Forward Current Transfer Ratio ($V_{CB} = 4.5V, I_C = 2mA$)	2N3854, 2N3854A	h_{FE}	35		70
	2N3855, 2N3855A	h_{FE}	60		120
	2N3856, 2N3856A	h_{FE}	100		200
		BV_{EBO}	4		
Collector—Emitter Breakdown Voltage ($I_C = 1mA$)	2N3854, 2N3855, 2N3856	BV_{CEO}	18	70	volts
	2N3854A, 2N3855A, 2N3856A	BV_{CEO}	30	70	volts
Collector—Base Breakdown Voltage ($I_C = 0.1mA$)	2N3854, 2N3855, 2N3856	BV_{CBO}	18		volts
	2N3854A, 2N3855A, 2N3856A	BV_{CBO}	30		volts
Collector Saturation Voltage ($I_C = 10mA, I_B = 1mA$)		$V_{CE(sat)}$		0.200	volts

Dynamic Characteristics

Gain Bandwidth Product ($V_{CB} = 10V, I_C = 5mA$)	2N3854, 2N3854A	f_T	100	350	MHz
	2N3855, 2N3855A	f_T	130	450	MHz
	2N3856, 2N3856A	f_T	140	500	MHz
Collector—Base Time Constant ($V_{CB} = 10V, I_C = 5mA$)	2N3854, 2N3854A	$r_b' C_c$	25	90	psec
	2N3855, 2N3855A	$r_b' C_c$	35	90	psec
	2N3856, 2N3856A	$r_b' C_c$	40	90	psec
Output Capacitance ($V_{CB} = 10V, I_B = 0, f = 1MHz$)		C_{ob}		3.5	pF
Input Capacitance ($V_{CB} = 0.5V, I_B = 0, f = 1MHz$)		C_{ib}	10		pF
Case Capacitance			0.66		pF