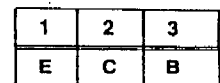
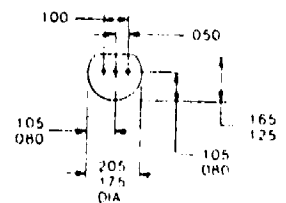
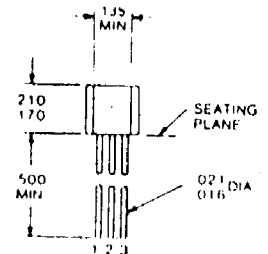


Silicon Transistors



TO-92

NPN SILICON

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

Voltages			
Collector to Emitter	V_{CE0}	60	volts
Emitter to Base	V_{EB0}	6	volts
Collector to Base	V_{CB0}	60	volts
Current			
Collector (Steady State)*	I_C	100	mA
Dissipation			
Total Power (Free air at 25°C)**	P_T	360	mW
Temperature			
Storage	T_{STG}	-55 to 150	°C
Operating	T_J	125	°C
Lead Soldering, 1/16" ± 1/32" from case for 10 seconds max.	T_L	260	°C

*Determined from power limitations due to saturation voltage at this current.

**Derate 3.6 mW/°C increase in ambient temperature above 25°C.

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

STATIC CHARACTERISTICS

	Sym.	Min.	Typ.	Max.	Units
Collector Cutoff Current ($V_{CB} = 60V$) ($T_A = 100^\circ C$)	I_{CBO}			50	NA
	I_{EBO}			10	μA
Emitter Cutoff Current ($V_{EB} = 6V$)	I_{EBO}			0.1	μA
Forward Current Transfer Ratio					
2N3858A ($V_{CE} = 1V, I_C = 10 mA$)	h_{FE}	60			
2N3859A ($V_{CE} = 1V, I_C = 10 mA$)	h_{FE}	100			
2N3858A ($V_{CE} = 4.5V, I_C = 2mA$)	h_{FE}	60		120	
2N3859A ($V_{CE} = 4.5V, I_C = 2mA$)	h_{FE}	100		200	
Collector—Base Breakdown Voltage ($I_C = 0.1 mA$)	BV_{CBO}	60			volts
Emitter—Base Breakdown Voltage ($I_E = 0.1 mA$)	BV_{EBO}	6			volts
Collector—Emitter Breakdown Voltage ($I_C = 1 mA$)	BV_{CEO}	60			volts
Collector Saturation Voltage ($I_C = 10 mA, I_B = 1 mA$)	$V_{CE(SAT)}$			0.125	volts
Base—Emitter Voltage ($I_C = 10 mA, V_{CE} = 1 volt$)	$V_{BE(ON)}$.68		volts
Base—Emitter Voltage ($I_C = 10 mA, I_B = 1 mA$)	$V_{BE(SAT)}$.70	.78	volts

DYNAMIC CHARACTERISTICS

Gain Bandwidth Product ($V_{CE} = 10V, I_C = 2 mA$)					
2N3858A	f_T	90	125	250	MHz
2N3859A	f_T	90	140	250	MHz
Collector—Base Time Constant ($V_{CE} = 10V, I_C = 2 mA$)	τ_C		65	150	psec.
Output Capacitance, Common Base ($V_{CB} = 10V, I_C = 0, f = 1 MHz$)	C_{cb0}	2.0	2.7	4.0	pF
Input Capacitance, Common Base ($V_{EB} = 0.5V, I_C = 0, f = 1 MHz$)	C_{ib0}		10		pF
Case Capacitance			0.00		pF



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