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Silicon Transistors

These silicon, planar, passivated, epitaxial transistors are intended to satisfy a wide range of general purpose applications at audio low and intermediate frequencies.

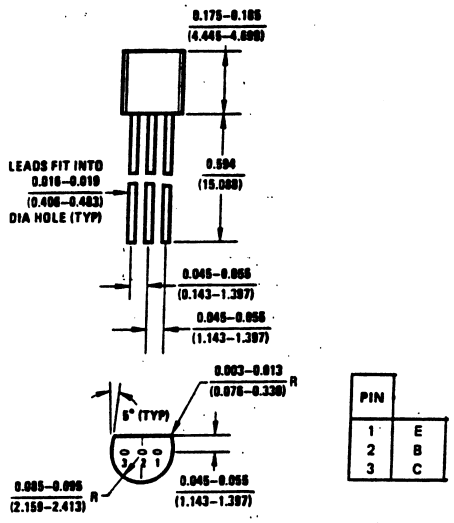
Features:

- Excellent Gain Linearity over Wide Range of Collector Currents to 500mA and Beyond
- High Collector Current Ratings: 1000 mA.
- Integral Heat Sinks Available.
- Epoxy Encapsulation with Proved Reliability—excellent characteristic stability under environmental stresses, 85°C—85% RH.

Voltage and current values for PNP devices are negative; observe proper bias polarity

NPN	PNP
2N5820	2N5821
2N5822	2N5823

TO-92



PIN	
1	E
2	B
3	C

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

Voltages			
*Collector to Emitter	V_{CEO}	60	Volts
*Emitter to Base	V_{EBO}	5	Volts
*Collector to Base	V_{CBO}	70	Volts
Collector to Emitter	V_{CES}	70	Volts
Current			
*Collector (Continuous)	I_C	750	mA
Collector (Pulsed, 300 μsec. pulse width, ≤ 2% duty cycle)	I_{CM}	1000	mA
Dissipation			
*Total Power (Free Air, T_A = 25°C)[1]	P_T	500	mW
Total Power with Heatsink (Free Air, T_A = 25°C)[2]	P_T	700	mW
Total Power with Heatsink (Case Temp., T_C = 25°C)[3]	P_T	1000	mW
Temperature			
*Storage	T_{STG}	−65 to +150	°C
*Operating	T_J	−65 to +135	°C
*Lead soldering ($\frac{1}{16}$" ± $\frac{1}{32}$" from case for 10 sec. max.)	T_L	+260	°C

*indicates JEDEC Registered values.
[1]Derate 4.55 mW/°C increase in ambient temperature above 25°C. [2]Derate 6.36 mW/°C increase in ambient temperature above 25°C. [3]Derate 9.09 mW/°C increase in case temperature above 25°C.

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

NOTE: Characteristics apply to both heatsinked and non-heatsinked devices.

STATIC CHARACTERISTICS		Min.	Max.	
Collector Cutoff Current (V_{CB}=25V)	I_{CBO}	—	100	nA
(V_{CB}=25V, T_A=100°C)	I_{CBO}	—	15	μA
Emitter Cutoff Current				
*(V_{EB} = 5V)	I_{EBO}	—	10	μA
Forward Current Transfer Ratio				
*(I_C = 2 mA, V_{CE} = 2V)				
2N5820, 2N5821	h_{FE}	60	120	
2N5822, 2N5823	h_{FE}	100	200	
*(I_C = 500 mA, V_{CE} = 2V)				
2N5820, 2N5821	h_{FE}	20	—	
2N5822, 2N5823	h_{FE}	25	—	
Collector-Emitter Breakdown Voltage				
*(I_C = 10 mA)	$V_{(BR)CEO}$	60	—	Volts
(I_C = 10 μA)	$V_{(BR)CES}$	70	—	Volts
Emitter-Base Breakdown Voltage				
*(I_E = 10 μA)	$V_{(BR)EBO}$	5	—	Volts
Collector Saturation Voltage				
*(I_C = 500 mA, I_B = 50 mA)	$V_{CE(SAT)}$	—	0.75	Volts
Base Saturation Voltage				
*(I_C = 500 mA, I_B = 50 mA)	$V_{BE(SAT)}$	—	1.2	Volts
Base-Emitter Voltage				
*(I_C = 500 mA, V_{CE} = 2V)	V_{BE}	.60	1.1	Volts

DYNAMIC CHARACTERISTICS		Min.	Max.	
Collector-Base Capacitance				
*(V_{CB} = 10V, f = 1 MHz)	C_{cb}	—	15	pF
Input Capacitance, Common Base				
(V_{EB} = 0.5V, f = 1 MHz)	C_{eb}	—	55	pF
Gain Bandwidth Product				
(I_C = 50 mA, V_{CE} = 2V, f = 20 MHz)				
2N5820, 2N5821	f_T	100	—	MHz
2N5822, 2N5823	f_T	120	—	MHz

*indicates JEDEC registered values