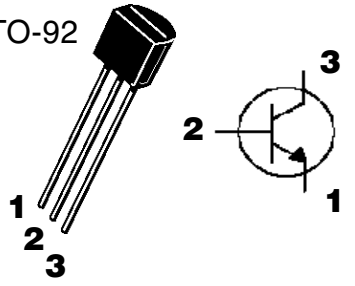
Semiconductor *Data Sheet*

NPN General Purpose Transistor

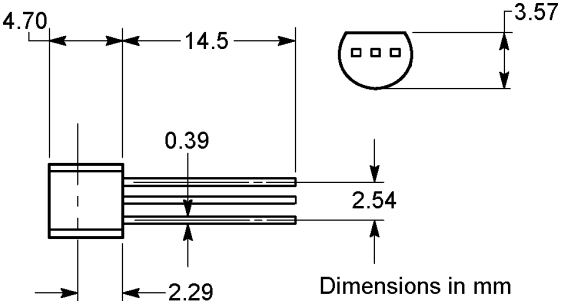
2N4400

Description

TO-92



Mechanical Dimensions



Maximum Ratings

Ratings	Symbol	Value	Units
Collector - Emitter Voltage	V_{CEO}	40	V
Collector - Base Voltage	V_{CBO}	60	V
Emitter - Base Voltage	V_{EBO}	5.0	V
Collector Current (Continuous)	I_C	600	mA
Total Device Dissipation FR-5 Board (Note1) T_A = 25°C	P_D	625	mW
Junction and Storage Temperature	T_J, T_{STG}	-55 to 150	°C

Electrical Characteristics @ 25°C

Characteristic	Symbol	Min	Max	Unit
Collector - Emitter Breakdown Voltage (I_C = 1.0mA)	$V_{BR(CEO)}$	40	---	V
Collector - Base Breakdown Voltage (I_C = 0.1mA)	$V_{BR(CBO)}$	60	---	V
Emitter - Base Breakdown Voltage (I_E = 0.01mA)	$V_{BR(EBO)}$	5.0	---	V
Collector Cutoff Current (V_{CE} = 35V, V_{EB} = 0.4V)	I_{CEX}	---	0.1	µA
DC Current Gain	H_{FE}			---
(I_C = 1.0 mA, V_{CE} = 1.0 V)		20	---	
(I_C = 10 mA, V_{CE} = 1.0 V)		40	---	
(I_C = 150 mA, V_{CE} = 1.0 V)		50	150	
(I_C = 500 mA, V_{CE} = 2.0 V)		20	---	
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$			V
(I_C = 150 mA, I_B = 15 mA)		---	0.4	
(I_C = 500 mA, I_B = 50 mA)		---	0.75	
Base - Emitter Saturation Voltage	$V_{BE(sat)}$			V
(I_C = 150 mA, I_B = 15 mA)		---	0.95	
(I_C = 500 mA, I_B = 50 mA)		---	1.2	
Current - Gain - Bandwidth Product (I_C = 20 mA, V_{CE} = 10 V, f = 100 MHz)	f_T	200	---	MHz
Output Capacitance (V_{CB} = 5 V, I_E = 0, f = 1.0 MHz)	C_{ob}	---	6.5	pF