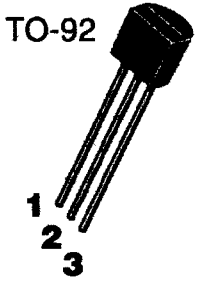
Semiconductor *Data Sheet*

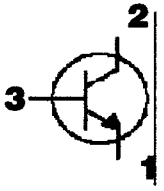
NPN Epitaxial Planar Transistor

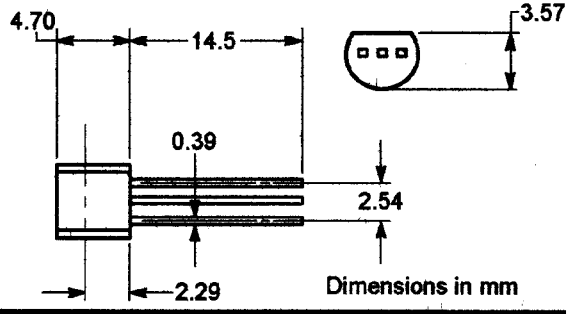
Description

Mechanical Dimensions

2SC1815







Maximum Ratings

Ratings	Symbol	Value	Units
Collector - Emitter Voltage	V_{CEO}	50	V
Collector - Base Voltage	V_{CBO}	50	V
Emitter - Base Voltage	V_{EBO}	5.0	V
Collector Current (Continuous)	I_C	150	mA
Total Device Dissipation FR-5 Board (Note1) $T_A = 25°C$	P_D	400	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)	$V_{BR(CEO)}$	50	---	V
Collector - Base Breakdown Voltage (I_C = 0.1mA)	$V_{BR(CBO)}$	50	---	V
Emitter - Base Breakdown Voltage (I_E = 0.01mA)	$V_{BR(EBO)}$	5.0	---	V
Collector Cutoff Current (V_{CB} = 60V)	I_{CBO}	---	0.1	µA
Emitter Cutoff Current (V_{EB} = 5.0V)	I_{EBO}	---	0.1	µA
DC Current Gain (I_C = 2.0 mA, V_{CE} = 6.0 V)* (I_C = 150 mA, V_{CE} = 6.0 V)	H_{FE}	120 25	700 ---	---
Collector - Emitter Saturation Voltage (I_C = 100 mA, I_B = 10 mA)	$V_{CE(sat)}$	---	0.25	Vdc
Base - Emitter Saturation Voltage (I_C = 100 mA, I_B = 10 mA)	$V_{BE(sat)}$	---	1.0	Vdc
Current - Gain - Bandwidth Product (I_C = 1.0 mA, V_{CE} = 10 V, f = 100 MHz)	f_T	80	---	MHz
Output Capacitance (V_{CB} = 10 V, f = 1.0 MHz)	C_{ob}	---	3.5	pF

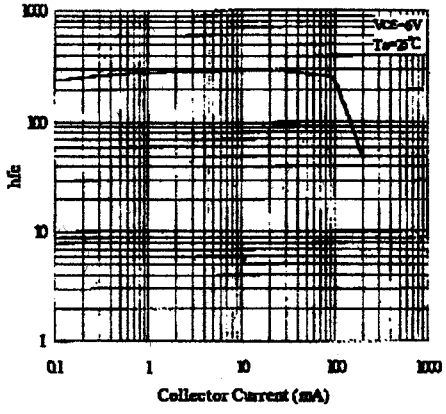
*** Classification of h_{FE}**

Rank	Y	GR	BL
Range	120-240	200-400	350-700

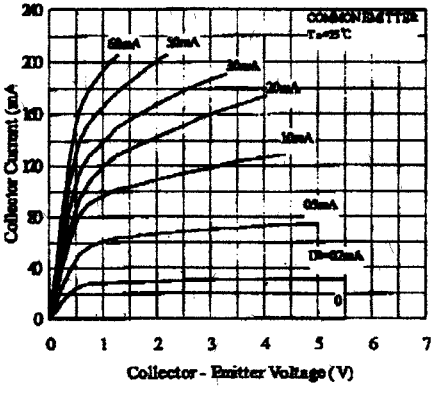
Semiconductor *Data Sheet*

2SC1815 NPN Epitaxial Planar Transistor

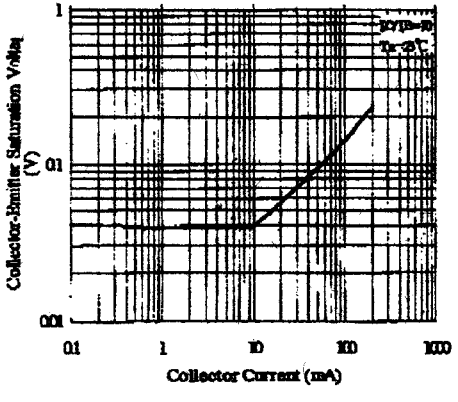
DC CURRENT GAIN



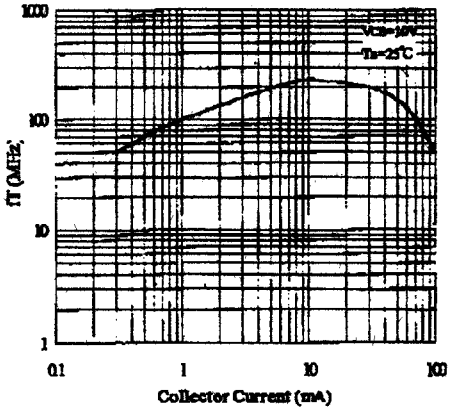
COLLECTOR - EMITTER VOLTAGE VS COLLECTOR CURRENT



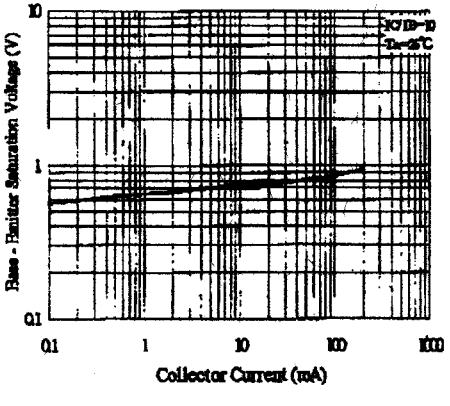
COLLECTOR - EMITTER SATURATION VOLTAGE VS COLLECTOR CURRENT



CURRENT GAIN-BANDWIDTH PRODUCT



BASE - EMITTER SATURATION VOLTAGE VS COLLECTOR CURRENT



COLLECTOR POWER DISSIPATION VS AMBIENT TEMPERATURE