

# Transistors

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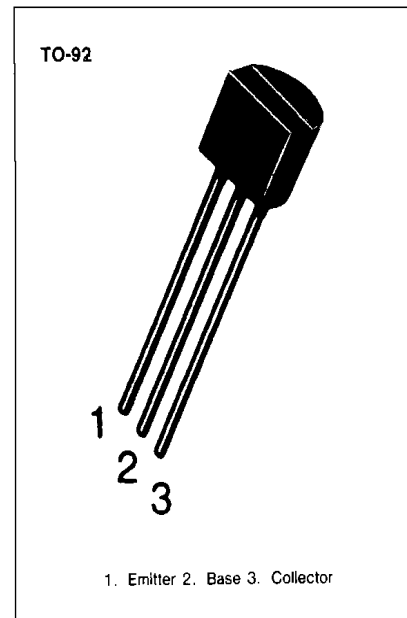
## 2SA542

### LOW FREQUENCY AMPLIFIER

- Collector-Base Voltage  $V_{CBO} = -30V$
- Low Collector-Emitter Saturation Voltage  $V_{CE(sat)} = -0.15V$  (TYP)

### ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	- 30	V
Collector-Emitter Voltage	$V_{CEO}$	- 25	V
Emitter-Base Voltage	$V_{EBO}$	- 5	V
Collector Current	$I_C$	- 50	mA
Collector Dissipation	$P_C$	250	mW
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 ~ 150	$^\circ C$



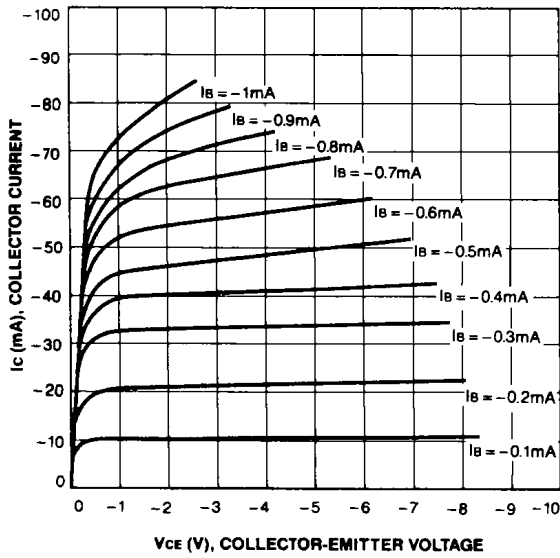
### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C = -100\mu A, I_E = 0$	- 30			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C = -10mA, I_B = 0$	- 25			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E = -10\mu A, I_C = 0$	- 5			V
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = -25V, I_E = 0$			- 100	nA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = -3V, I_C = 0$			- 100	nA
DC Current Gain	$h_{FE}$	$V_{CE} = -6V, I_C = -1mA$	40		400	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -20mA, I_B = -2mA$		- 0.15	- 0.3	V
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = -6V, I_C = -1mA$		- 0.65	- 1.0	V
Current Gain-Bandwidth Product	$f_T$	$V_{CE} = -6V, I_C = -1mA$		100		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = -6V, I_E = 0$ $f = 1MHz$		2.5		pF

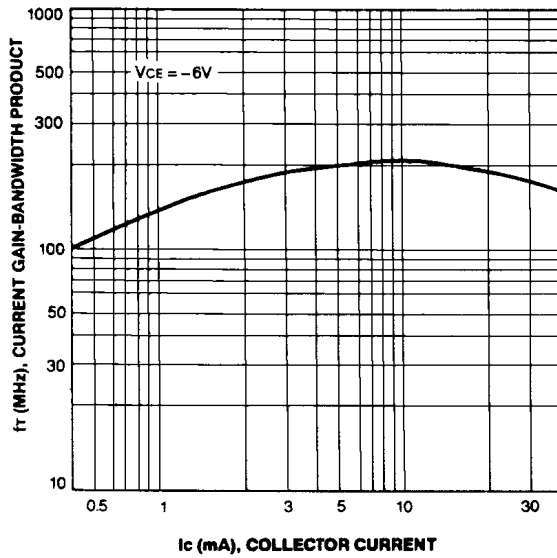
### $h_{FE}$ CLASSIFICATION

Classification	R	O	Y	G
$h_{FE}$	40-80	70-140	120-240	200-400

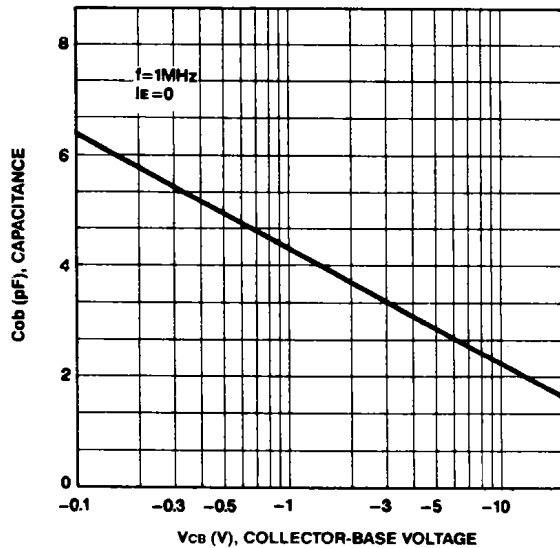




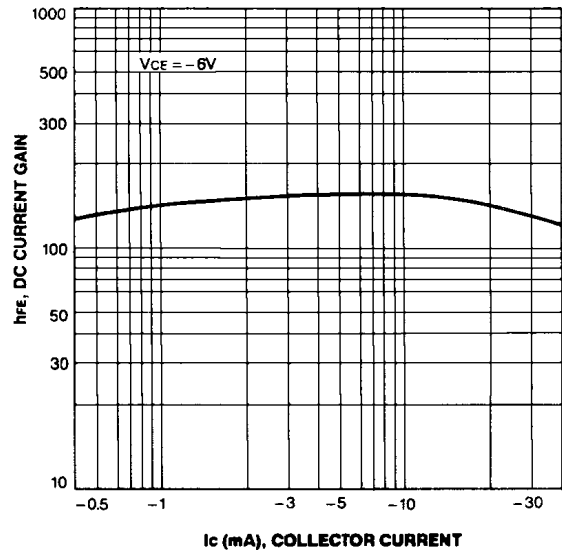
CURRENT GAIN-BANDWIDTH PRODUCT



COLLECTOR OUTPUT CAPACITANCE



DC CURRENT GAIN



BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE

