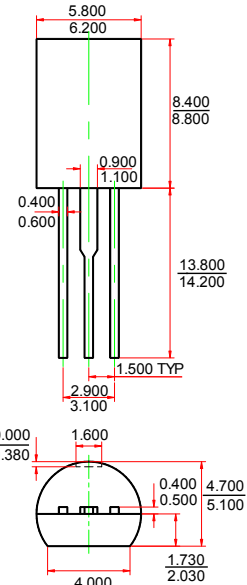




1.EMITTER  
2.COLLECTOR  
3.BASE

### TO-92MOD



Dimensions in inches and (millimeters)

## Features

- ✧ Low Frequency Amplifier
- ✧ Medium Speed Switching

### MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
$V_{CB0}$	Collector-Base Voltage	-80	V
$V_{CE0}$	Collector-Emitter Voltage	-60	V
$V_{EB0}$	Emitter-Base Voltage	-8	V
$I_C$	Collector Current -Continuous	-0.7	A
$P_C$	Collector Power Dissipation	1	W
$T_J$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55 to +150	$^{\circ}\text{C}$

### ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYPE	MAX	UNIT
Collector-base breakdown voltage	$V(BR)_{CB0}$	$I_C = -100\mu\text{A}, I_E = 0$	-80			V
Collector-emitter breakdown voltage	$V(BR)_{CE0}$	$I_C = -10\text{mA}, I_B = 0$	-60			V
Emitter-base breakdown voltage	$V(BR)_{EB0}$	$I_E = -100\mu\text{A}, I_C = 0$	-8			V
Collector cut-off current	$I_{CB0}$	$V_{CB} = -60\text{V}, I_E = 0$			-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EB0}$	$V_{EB} = -5\text{V}, I_C = 0$			-0.1	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE} = -2\text{V}, I_C = -50\text{mA}$	40		240	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$			-0.7	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$			-1.2	V
Transition frequency	$f_T$	$V_{CE} = -10\text{V}, I_C = -50\text{mA}$		100		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$		13		pF

### CLASSIFICATION OF $h_{FE}$

Rank	R	O	Y
Range	40-80	70-140	120-240

## Typical Characteristics

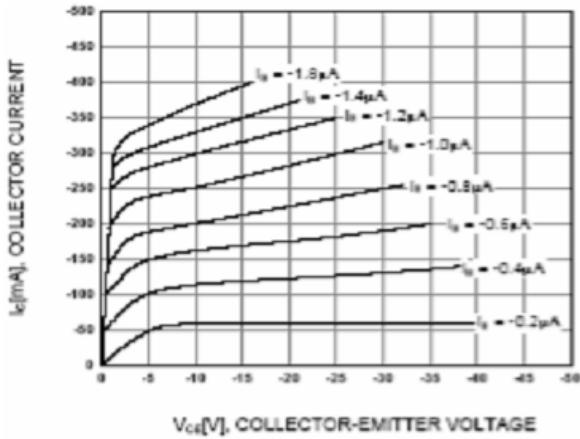


Figure 1. Static Characteristic

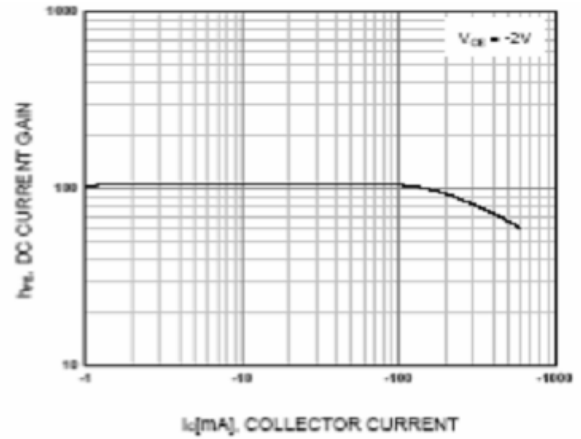


Figure 2. DC current Gain

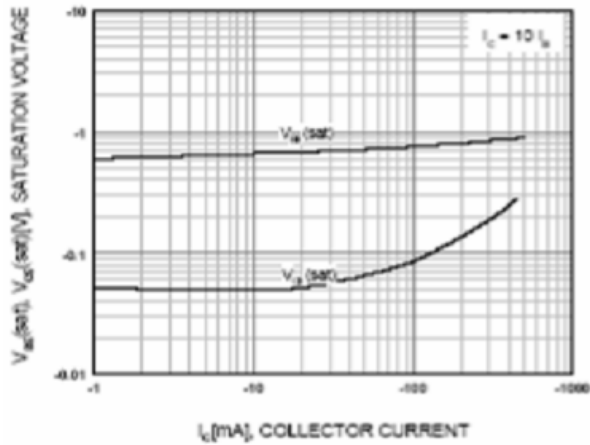


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

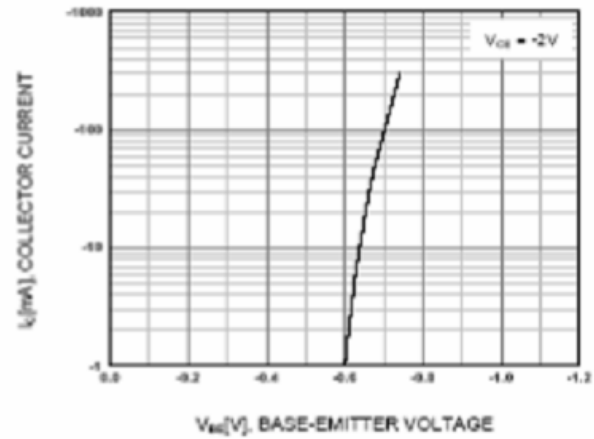


Figure 4. Base-Emitter On Voltage

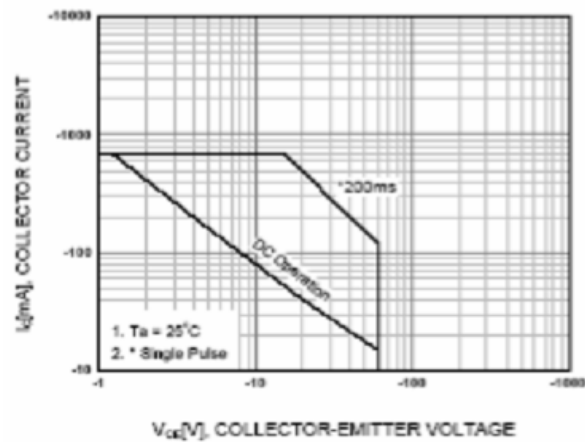


Figure 5. Safe Operating Area

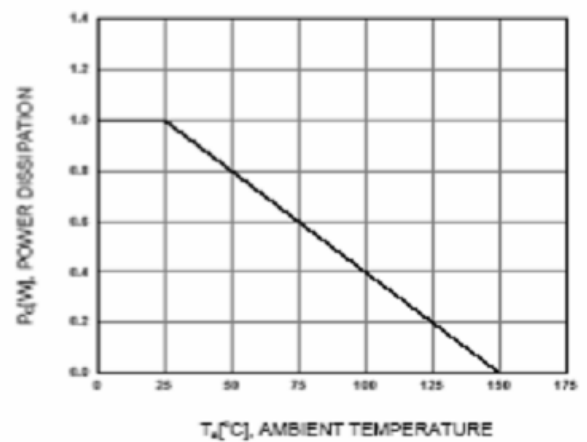


Figure 6. Power Derating

Package	Packing	Quantity	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92MOD	Bulk	500pcs/BP	5000pcs	245×170×100	50,000pcs	525×375×270
TO-92MOD	Tape	2000pcs/TP	2000pcs	333×245×43	20,000pcs	502×403×300