

## Features

- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

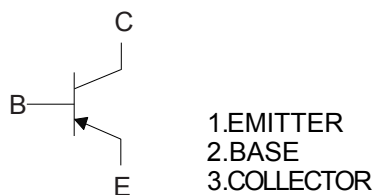
## Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 200°C/W Junction to Ambient
- Thermal Resistance: 83.3°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	-160	V
Collector-Emitter Voltage	$V_{CEO}$	-150	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Continuous Collector Current	$I_C$	-600	mA
Power Dissipation	$P_D$	625	mW
		5	mW/°C
		1.5	W
		12	mW/°C
	$T_A=25^\circ\text{C}$ , Derate above 25°C		
	$T_C=25^\circ\text{C}$ , Derate above 25°C		

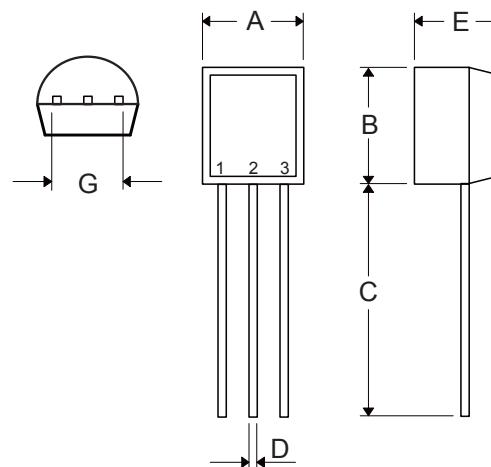
Marking: 2N5401

## Internal Structure



# PNP Silicon Amplifier Transistor

TO-92



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.169	0.185	4.30	4.70	
B	0.169	0.185	4.30	4.70	
C	0.500	-----	12.70	-----	
D	0.015	0.022	0.38	0.55	
E	0.130	0.146	3.30	3.70	
G	0.095	0.105	2.42	2.67	Straight Lead
	0.173	0.220	4.40	5.60	Bent

**Electrical Characteristics @  $T_A=25^\circ\text{C}$  Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-160			V	$I_C=-100\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage*	$V_{(BR)CEO}$	-150			V	$I_C=-1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E=-10\mu\text{A}, I_C=0$
Collector Cut-off Current	$I_{CBO}$			-0.05	$\mu\text{A}$	$V_{CB}=-120\text{V}, I_E=0$
				-50	$\mu\text{A}$	$V_{CB}=-120\text{V}, I_E=0, T_A=100^\circ\text{C}$
Emitter Cut-off Current	$I_{EBO}$			-0.05	$\mu\text{A}$	$V_{EB}=-3\text{V}, I_C=0$
DC Current Gain*	$h_{FE(1)}$	50				$V_{CE}=-5\text{V}, I_C=-1\text{mA}$
	$h_{FE(2)}$	60		300		$V_{CE}=-5\text{V}, I_C=-10\text{mA}$
	$h_{FE(3)}$	50				$V_{CE}=-5\text{V}, I_C=-50\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.2	V	$I_C=-10\text{mA}, I_B=-1\text{mA}$
				-0.5	V	$I_C=-50\text{mA}, I_B=-5\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-1	V	$I_C=-10\text{mA}, I_B=-1\text{mA}$
				-1	V	$I_C=-50\text{mA}, I_B=-5\text{mA}$
Transition Frequency	$f_T$	100		300	MHz	$V_{CE}=-10\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$
Output Capacitance	$C_{obo}$			6	pF	$V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$
Small-Signal Current Gain	$h_{FE}$	40		200		$V_{CE}=-10\text{V}, I_C=-1\text{mA}, f=1\text{KHz}$
Noise Figure	$N_F$			8	dB	$V_{CE}=-5\text{V}, I_C=-0.25\text{mA}, f=1\text{KHz}, R_S=1\text{K}\Omega$

\*.Pulse test: Pulse Width $\leq 300\mu\text{s}$ ,Duty Cycle $\leq 2.0\%$ .

## Curve Characteristics

Fig. 1 - Static Characteristics

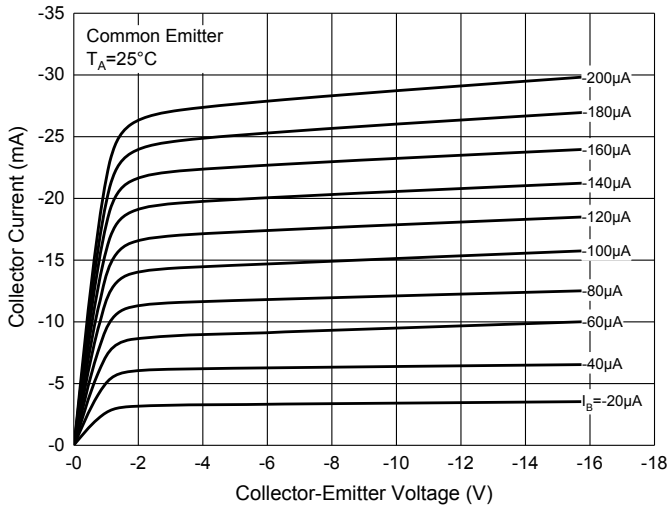


Fig. 2 - DC Current Gain Characteristics

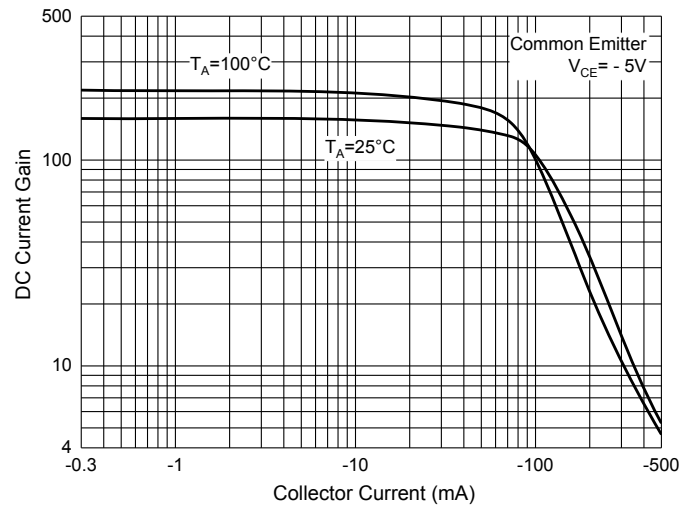


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

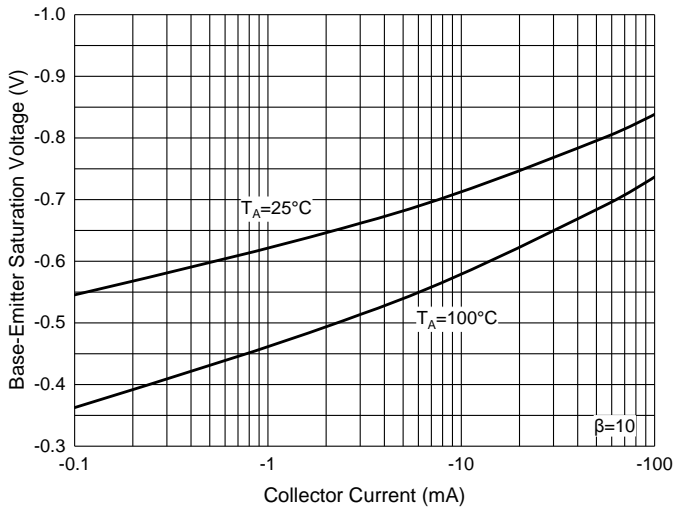


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

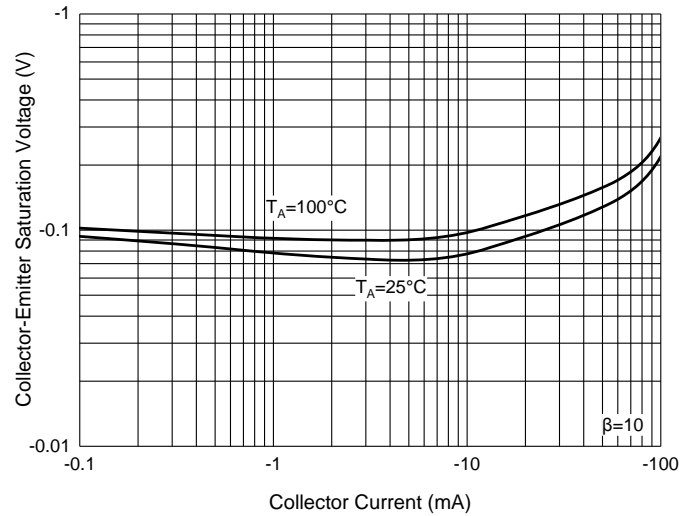


Fig. 5 - Transition frequency Characteristics

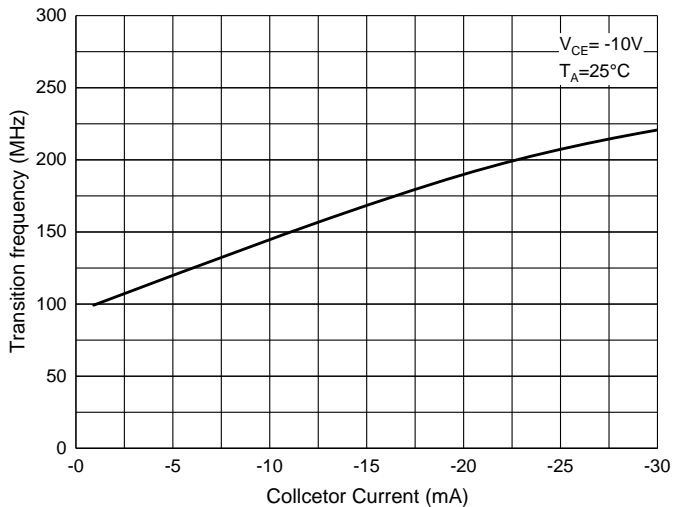
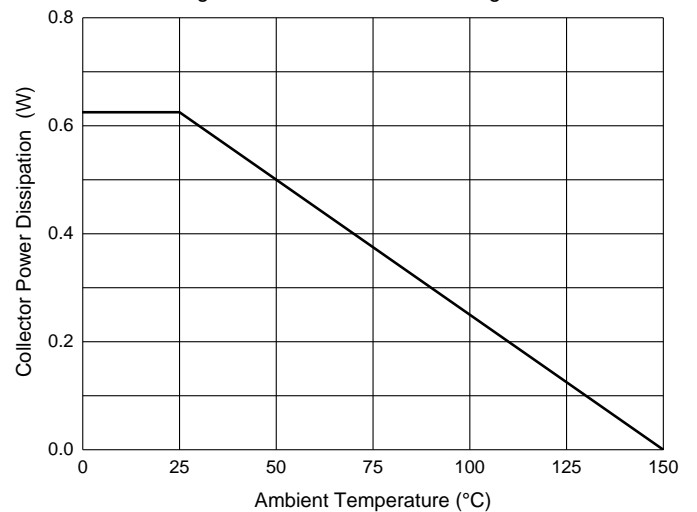


Fig. 6 - Collector Power Derating Curve



## Ordering Information

Device	Packing
Part Number-AP	Ammo Packing: 20Kpcs/Carton
Part Number-BP	Bulk: 100Kpcs/Carton

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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