

**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)

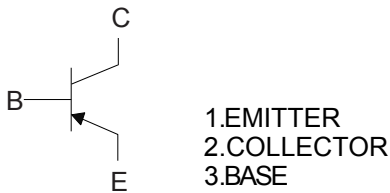
**Maximum Ratings @ 25°C Unless Otherwise Specified**

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 625°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	-60	V
Collector-Emitter Voltage	$V_{CEO}$	-50	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Continuous Collector Current	$I_C$	-150	mA
Power Dissipation	$P_D$	200	mW

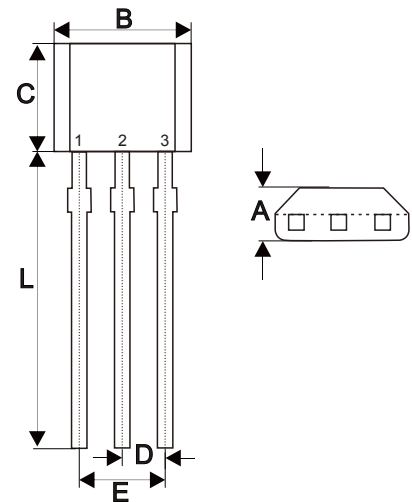
**Marking:** Type Number

**Internal Structure**



**PNP  
Plastic-Encapsulate  
Transistors**

**TO-92S**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.056	0.064	1.42	1.62	
B	0.154	0.161	3.90	4.10	
C	0.120	0.128	3.05	3.25	
D	0.050		1.27		Straight Lead
	0.086	0.110	2.20	2.80	Bent Lead
E	0.096	0.104	2.44	2.64	Straight Lead
	0.173	0.220	4.40	5.60	Bent Lead
L	0.594	0.610	15.10	15.50	

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

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-60			V	$I_C=-50\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-50			V	$I_C=-1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6			V	$I_E=-50\mu\text{A}, I_C=0$
Collector-Base Cutoff Current	$I_{CBO}$			-0.1	$\mu\text{A}$	$V_{CB}=-60\text{V}, I_E=0$
Emitter-Base Cutoff Current	$I_{EBO}$			-0.1	$\mu\text{A}$	$V_{EB}=-6\text{V}, I_C=0$
DC Current Gain	$h_{FE}$	120		560		$V_{CE}=-6\text{V}, I_C=-1\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.5	V	$I_C=-50\text{mA}, I_B=-5\text{mA}$
Transition Frequency	$f_T$	120			MHz	$V_{CE}=-10\text{V}, I_C=-20\text{mA}, f=100\text{MHz}$
Collector-Base Capacitance	$C_{cb}$			8.5	pF	$V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$

**Classification of  $h_{FE}$** 

Rank	Q	R	S
Range	120-270	180-390	270-560

**Curve Characteristics**

Fig. 1 - Static Characteristics

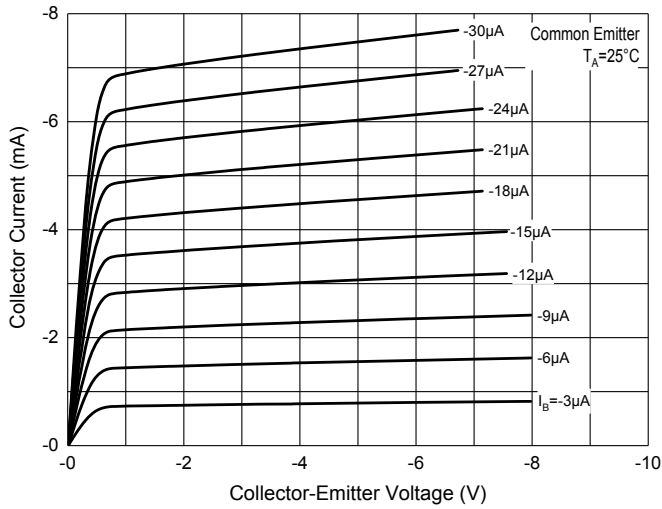


Fig. 2 - DC Current Gain Characteristics

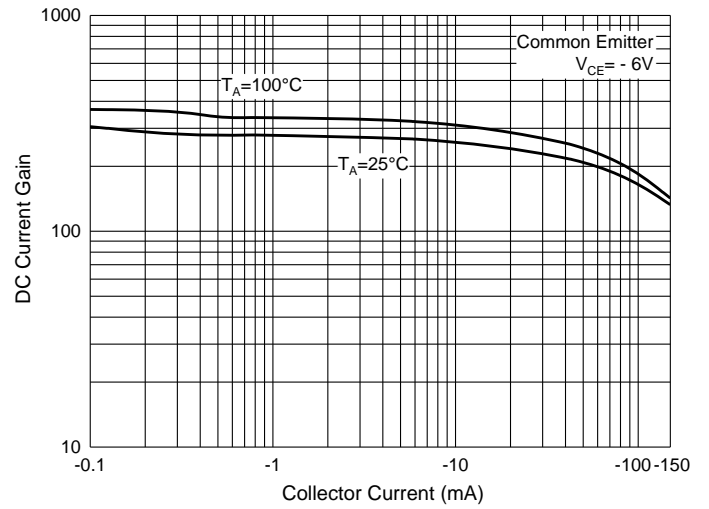


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

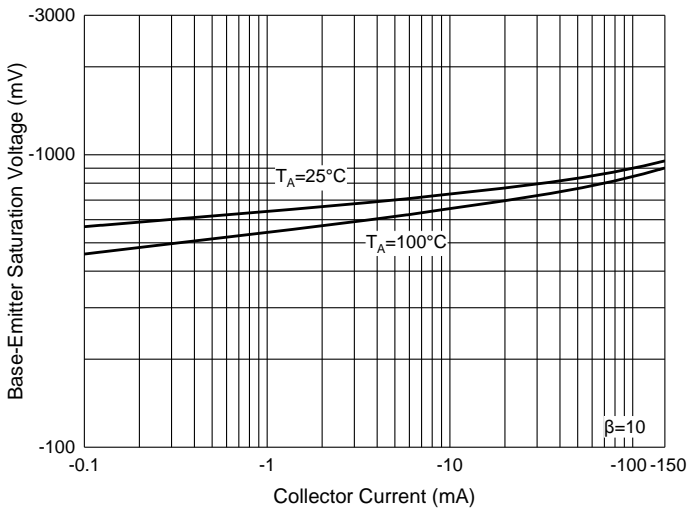


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

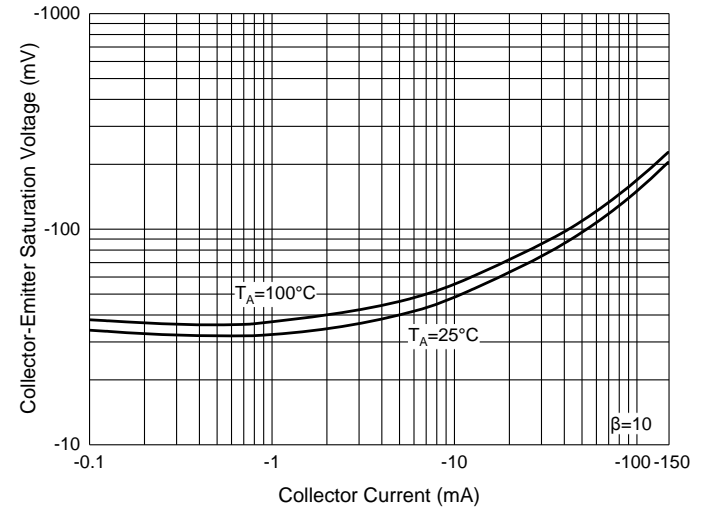


Fig. 5 - Base-Emitter Voltage Characteristics

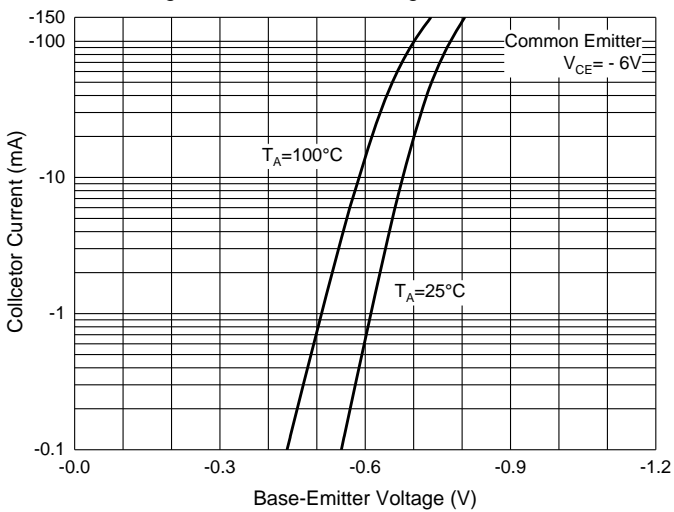
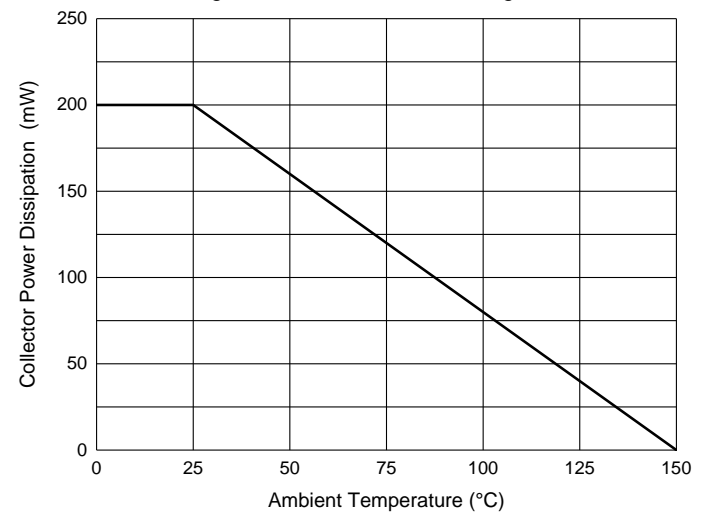


Fig. 6 - Collector Power Derating Curve



## Ordering Information

Device	Packing
Part Number-AP	Ammo Packing: 30Kpcs/Carton
Part Number-BP	Bulk: 100Kpcs/Carton

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

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