

**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)

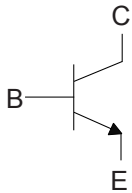
**Maximum Ratings @ 25°C Unless Otherwise Specified**

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 403°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	25	V
Collector-Emitter Voltage	$V_{CEO}$	18	V
Emitter-Base Voltage	$V_{EBO}$	4	V
Continuous Collector Current	$I_C$	50	mA
Power Dissipation	$P_D$	310	mW

**Marking :** S9018

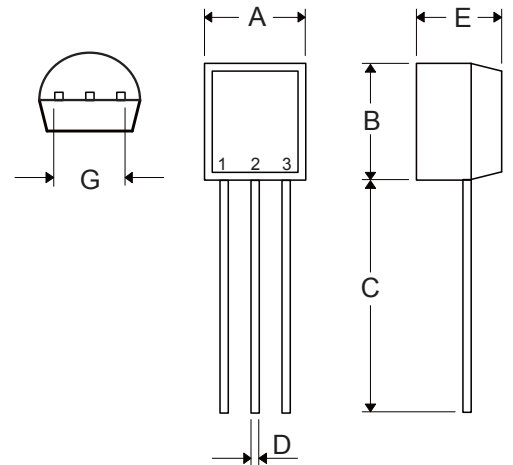
**Internal Structure**



1.EMITTER  
2.BASE  
3.COLLECTOR

**NPN Silicon Transistors**

**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	$V_{(BR)CBO}$	25			V	$I_C=100\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	18			V	$I_C=0.1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	4			V	$I_E=100\mu\text{A}, I_C=0$
Collector Cut-off Current	$I_{CBO}$			0.1	$\mu\text{A}$	$V_{CB}=20\text{V}, I_E=0$
Collector Cut-off Current	$I_{CEO}$			0.1	$\mu\text{A}$	$V_{CE}=15\text{V}, I_B=0$
Emitter Cut-off Current	$I_{EBO}$			0.1	$\mu\text{A}$	$V_{EB}=3\text{V}, I_C=0$
DC Current Gain	$h_{FE}$	70		198		$V_{CE}=5\text{V}, I_C=1\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.5	V	$I_C=10\text{mA}, I_B=1\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1.4	V	$I_C=10\text{mA}, I_B=1\text{mA}$
Transition Frequency	$f_T$	600			MHz	$V_{CE}=5\text{V}, I_C=5\text{mA}, f=400\text{MHz}$

**Classification of  $h_{FE(1)}$** 

Rank	G	H	I
Range	70-108	97-146	130-198

## Curve Characteristics

Fig. 1 - Static Characteristics

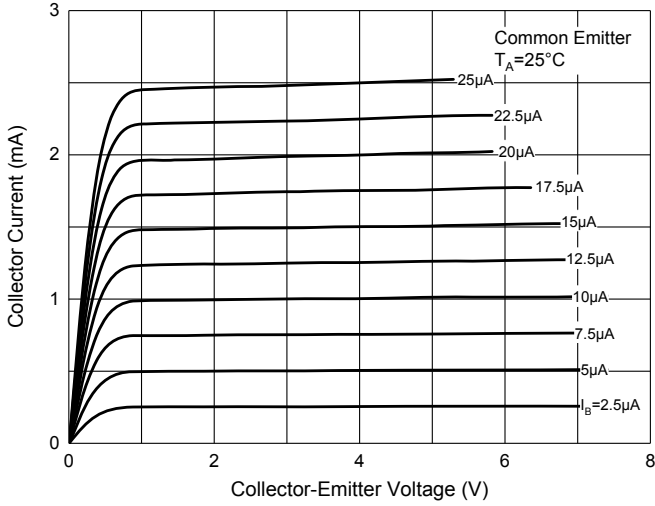


Fig. 2 - DC Current Gain Characteristics

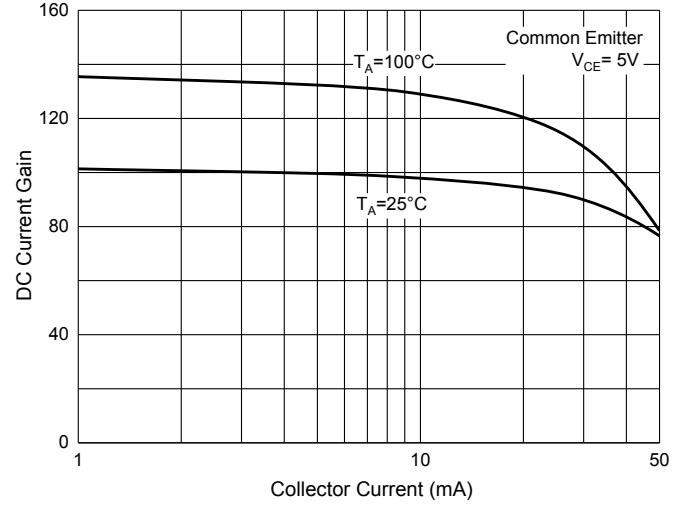


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

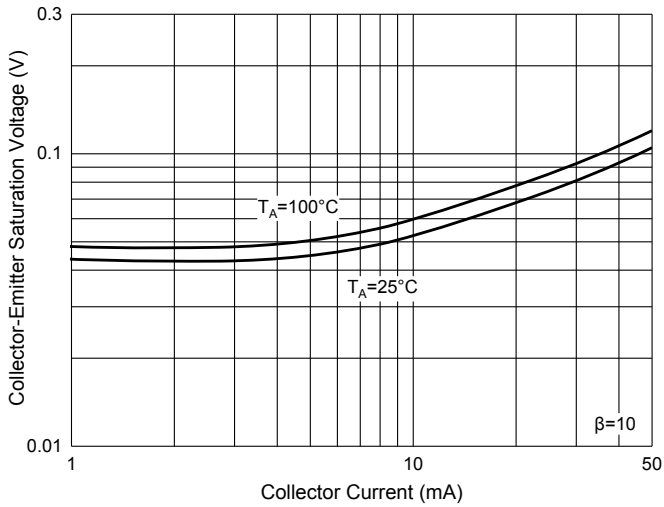


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

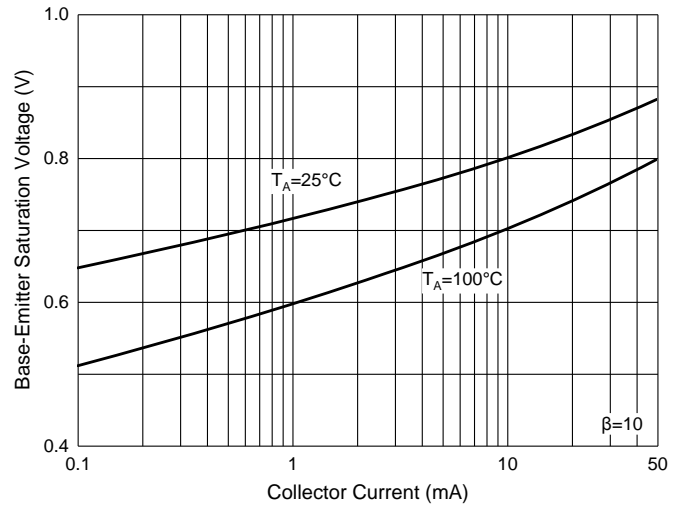
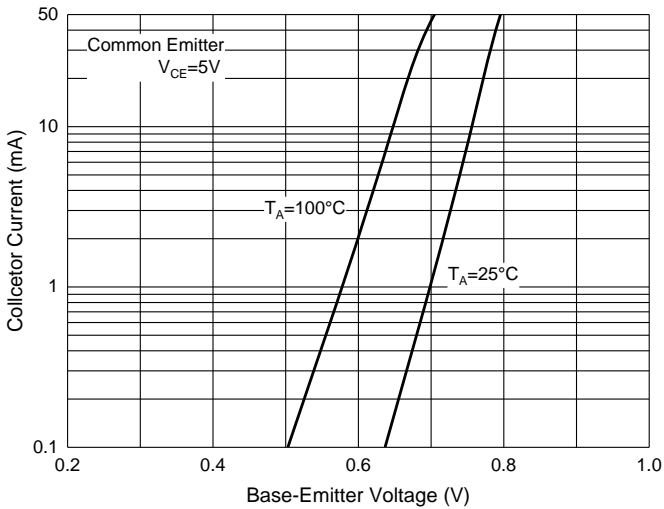


Fig. 5 - Base-Emitter Voltage Characteristics



## 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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