

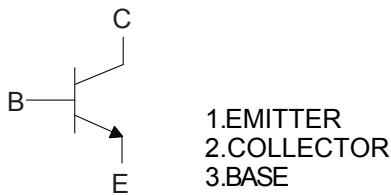
Features

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

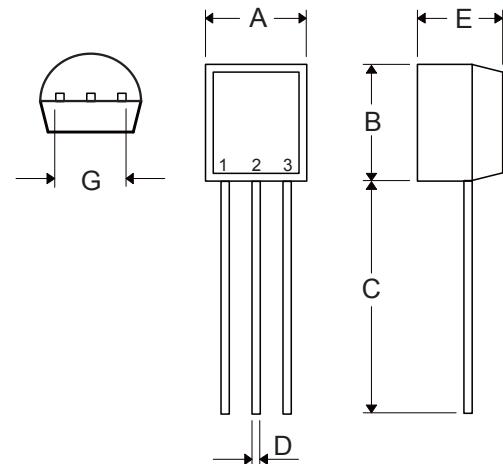
Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 312.5°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}	5	V
Continuous Collector Current	I_C	150	mA
Power Dissipation	P_D	400	mW

Marking : C1815**Internal Structure**

NPN Silicon Epitaxial Transistor

TO-92

DIM	INCHES		MM		NOTE
	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	$V_{(\text{BR})\text{CBO}}$	60			V	$I_C=100\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(\text{BR})\text{CEO}}$	50			V	$I_C=0.1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(\text{BR})\text{EBO}}$	5			V	$I_E=100\mu\text{A}, I_C=0$
Collector Cut-off Current	I_{CBO}			0.1	μA	$V_{\text{CB}}=60\text{V}, I_E=0$
Collector Cut-off Current	I_{CEO}			0.1	μA	$V_{\text{CE}}=50\text{V}, I_B=0$
Emitter Cut-off Current	I_{EBO}			0.1	μA	$V_{\text{EB}}=5\text{V}, I_C=0$
DC Current Gain	h_{FE}	70		700		$V_{\text{CE}}=6\text{V}, I_C=2\text{mA}$
Collector-Emitter Saturation Voltage	$V_{\text{CE}(\text{sat})}$			0.25	V	$I_C=100\text{mA}, I_B=10\text{mA}$
Base-Emitter Saturation Voltage	$V_{\text{BE}(\text{sat})}$			1	V	$I_C=100\text{mA}, I_B=10\text{mA}$
Transition Frequency	f_T	80			MHz	$V_{\text{CE}}=10\text{V}, I_C=1\text{mA}, f=30\text{MHz}$
Collector Output Capacitance	C_{ob}			3.5	pF	$V_{\text{CB}}=10\text{V}, I_E=0, f=1\text{MHz}$
Noise Figure	N_F			10	dB	$V_{\text{CE}}=6\text{V}, I_C=0.1\text{mA}, f=1\text{KHz}, R_G=10\text{K}\Omega$

Classification of h_{FE}

Rank	O	Y	GR	BL
Range	70-140	120-240	200-400	350-700

Curve Characteristics

Fig. 1 - Static Characteristics

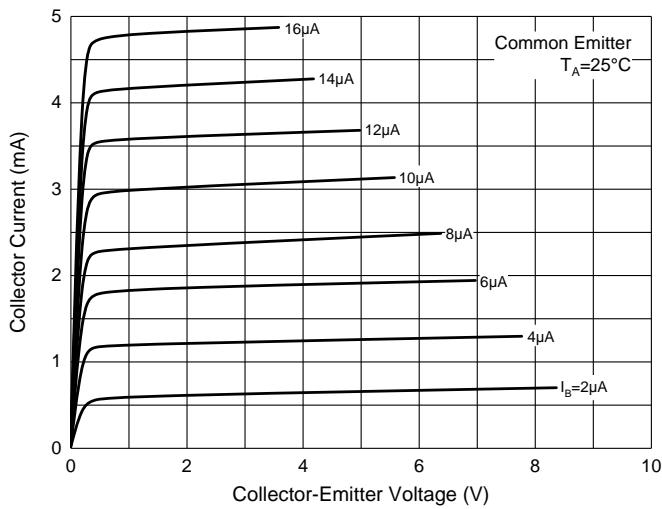


Fig. 2 - DC Current Gain Characteristics

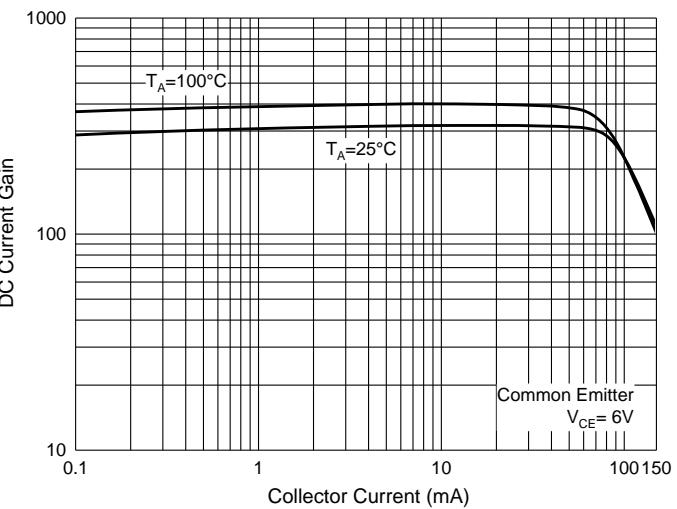


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

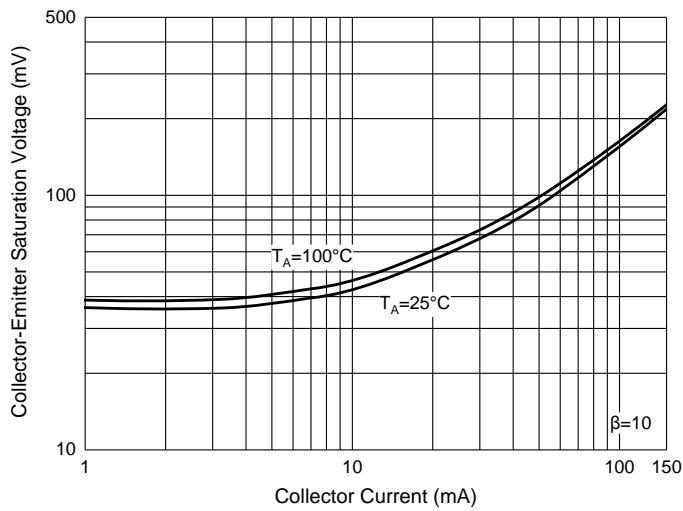


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

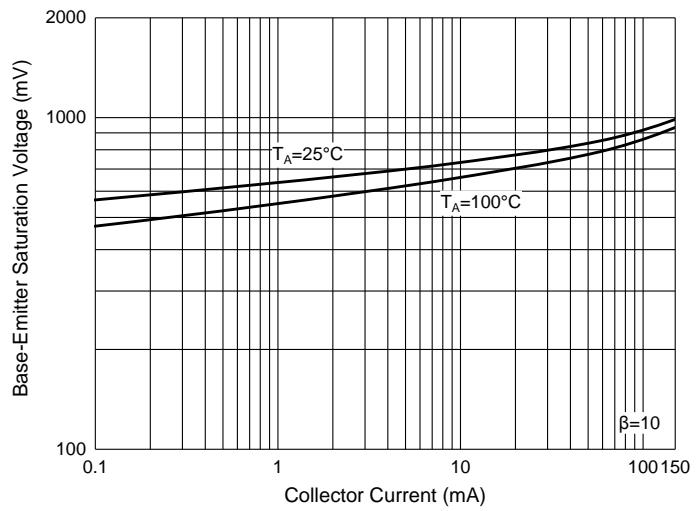


Fig. 5 - Base-Emitter Voltage Characteristics

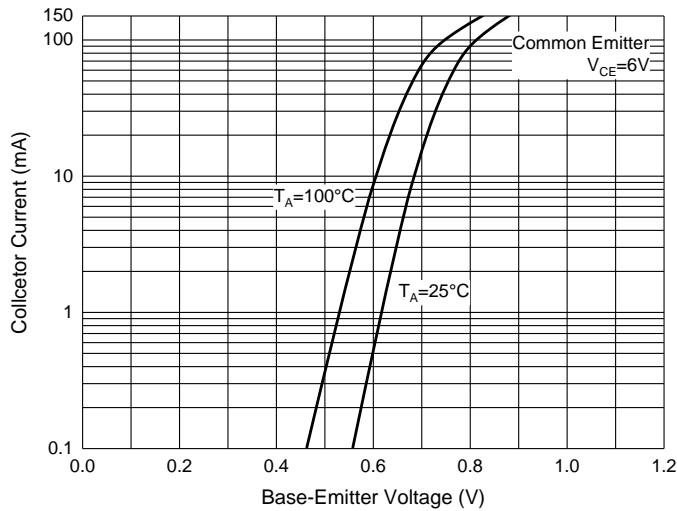
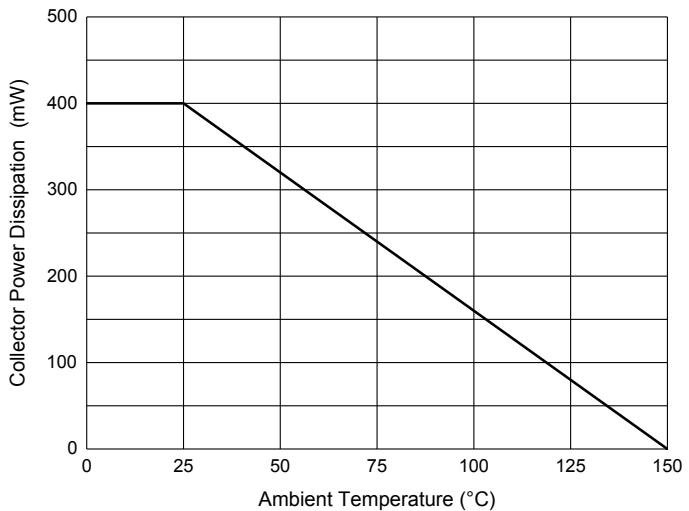


Fig. 6 - Collector Power Derating Curve



Ordering Information

Device	Packing
Part Number-AP	Ammo Packing: 20Kpcs/Carton
Part Number-BP	Bulk:1k/Bag,100K/Ctn;

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

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