Features

- Halogen Free. “Green” Device (Note 1)
- AEC-Q101 Qualified
- 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)

NPN/PNP Small Signal Transistors

Maximum Ratings @ 25°C Unless Otherwise Specified

NPN Pin1,2,6

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	65	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	100	mA
Power Dissipation	P_D	200	mW

PNP Pin3,4,5

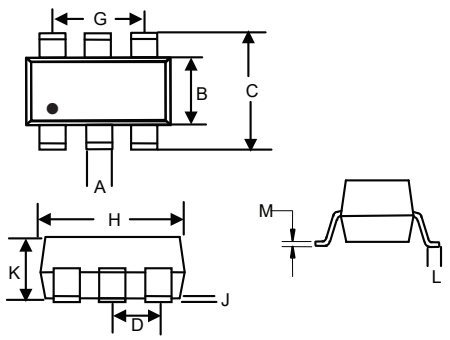
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	-80	V
Collector-Emitter Voltage	V_{CEO}	-65	V
Emitter-Base Voltage	V_{EBO}	-6	V
Collector Current	I_C	-100	mA
Power Dissipation	P_D	200	mW

Thermal characteristics

Parameter	Symbol	Rating	Unit
Operating Junction Temperature Range	T_{OPR}	-55~+150	°C
Storage Temperature Range	T_{STR}	-55~+150	°C
Thermal Resistance from Junction to Ambient	$Rth_{(j-a)}$	625	°C/W

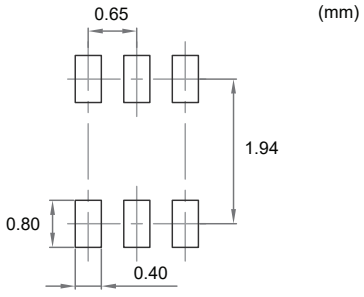
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

SOT-363

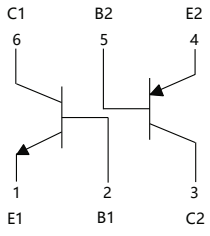


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.006	0.014	0.15	0.35	
B	0.045	0.053	1.15	1.35	
C	0.079	0.096	2.00	2.45	
D	0.026		0.65		TYP.
G	0.047	0.055	1.20	1.40	
H	0.071	0.087	1.80	2.20	
J	-----	0.004	-----	0.10	
K	0.031	0.043	0.80	1.10	
L	0.010	0.018	0.26	0.46	
M	0.003	0.006	0.08	0.15	

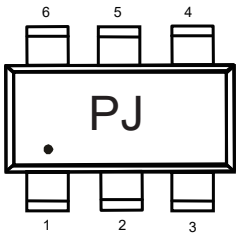
Suggested Solder Pad Layout



Internal Structure



Marking Code



NPN Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80			V	I_C=10μA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	65			V	I_C=10mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	I_E=10μA, I_C=0
Collector-Base Cutoff Current	I_{CBO}			15	nA	V_{CB}=30V, I_E=0
Emitter-Base Cutoff Current	I_{EBO}			100	nA	V_{EB} =5V, I_C=0
DC Current Gain	h_{FE}	200		450		V_{CE}=5V, I_C=2mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.25	V	I_C=10mA, I_B=0.5mA
				0.6	V	I_C=100mA, I_B=5mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.85	V	I_C=10mA, I_B=0.5mA
				1.1	V	I_C=100mA, I_B=5mA
Base-Emitter Voltage	V_{BE}			0.7	V	V_{CE}=5V, I_C=2mA
				0.77	V	V_{CE}=5V, I_C=10mA
Transition Frequency	f_T	100			MHz	V_{CE}=5V, I_C=10mA, f=100MHz

PNP Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-80			V	I_C=-10μA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-65			V	I_C=-10mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6			V	I_E=-10μA, I_C=0
Collector-Base Cutoff Current	I_{CBO}			-15	nA	V_{CB}=-30V, I_E=0
Emitter-Base Cutoff Current	I_{EBO}			-100	nA	V_{EB} =-6V, I_C=0
DC Current Gain	h_{FE}	200		450		V_{CE}=-5V, I_C=-2mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.3	V	I_C=-10mA, I_B=-0.5mA
				-0.65	V	I_C=-100mA, I_B=-5mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-0.85	V	I_C=-10mA, I_B=-0.5mA
				-1.1	V	I_C=-100mA, I_B=-5mA
Base-Emitter Voltage	V_{BE}			-0.75	V	V_{CE}=-5V, I_C=-2mA
				-0.82	V	V_{CE}=-5V, I_C=-10mA
Transition Frequency	f_T	100			MHz	V_{CE}=-5V, I_C=-10mA, f=100MHz

Curve Characteristics (NPN Transistor)

Fig. 1 - Static Characteristics

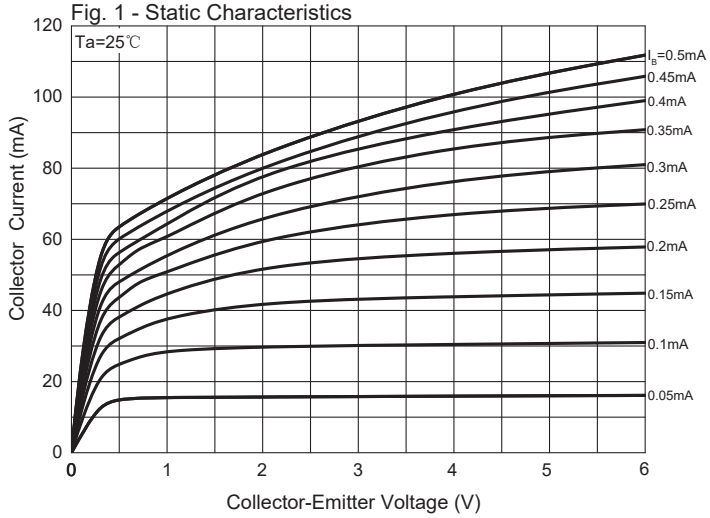


Fig. 2 - DC Current Gain Characteristics

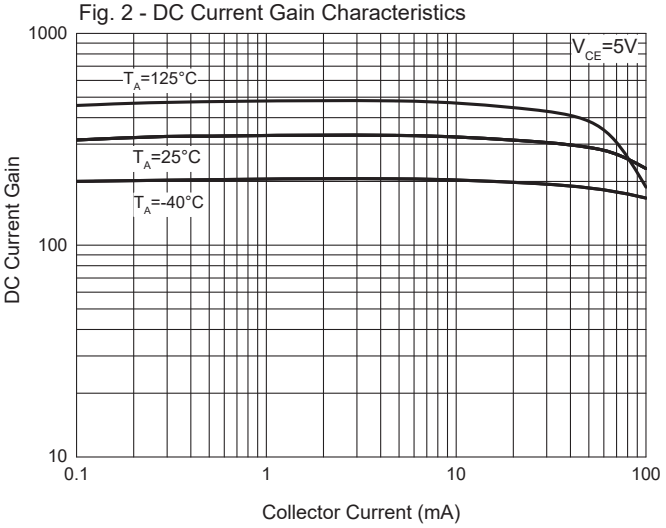


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

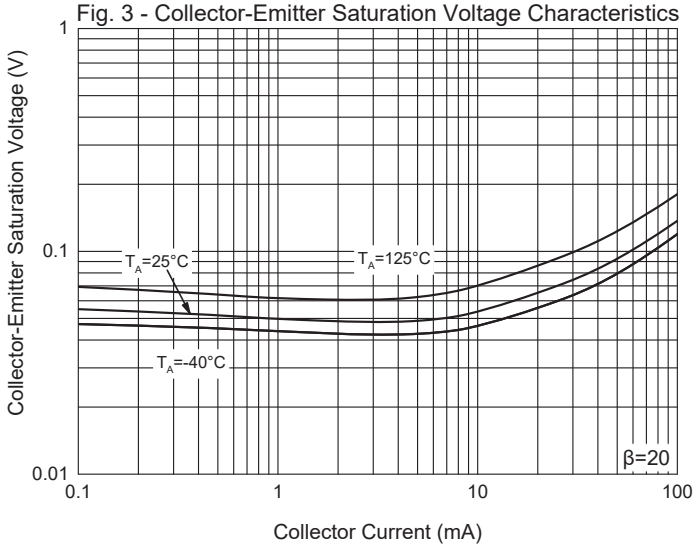


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

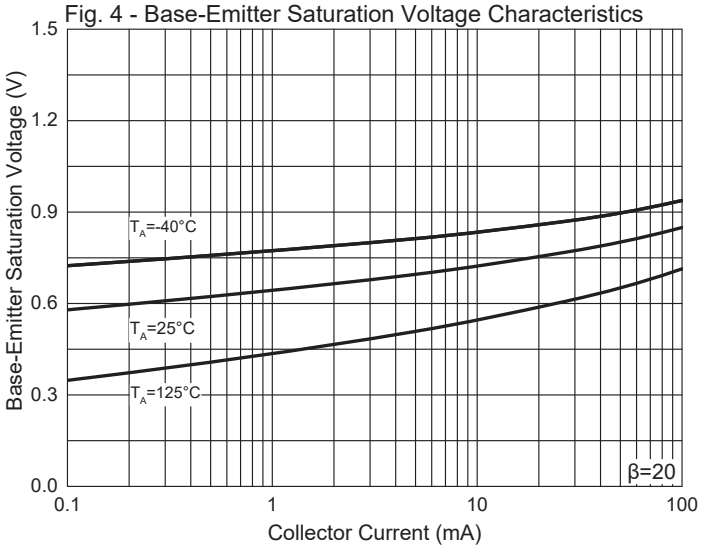


Fig. 5 - Base-Emitter Voltage Characteristics

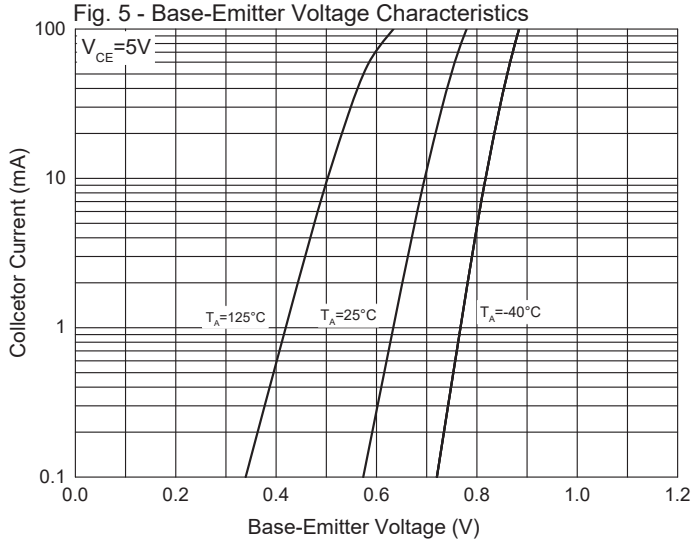
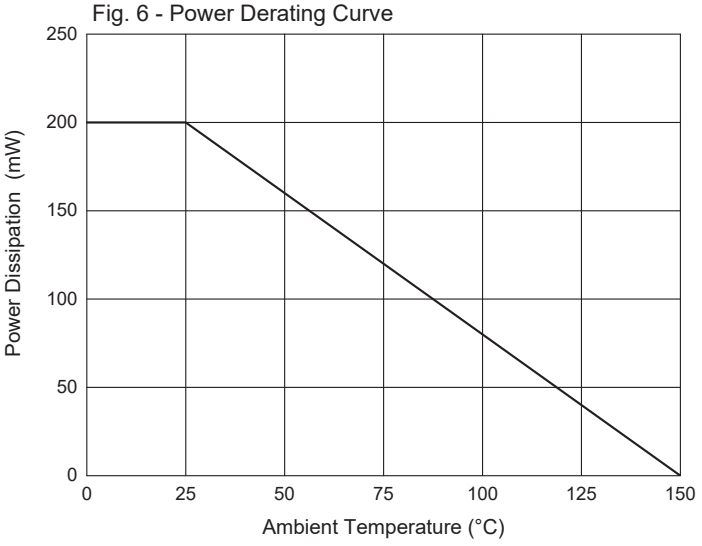


Fig. 6 - Power Derating Curve



Curve Characteristics (PNP Transistor)

Fig. 1 - Static Characteristics

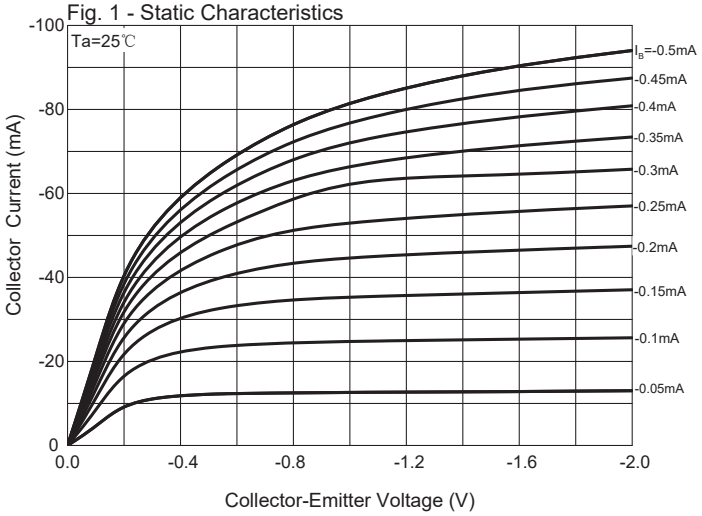


Fig. 2 - DC Current Gain Characteristics

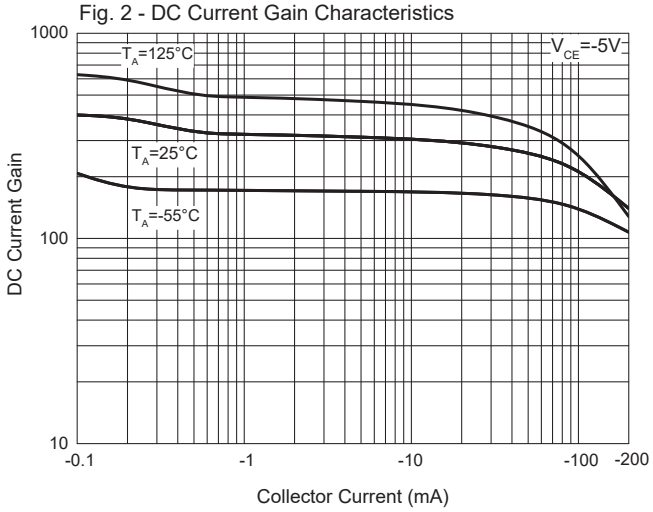


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

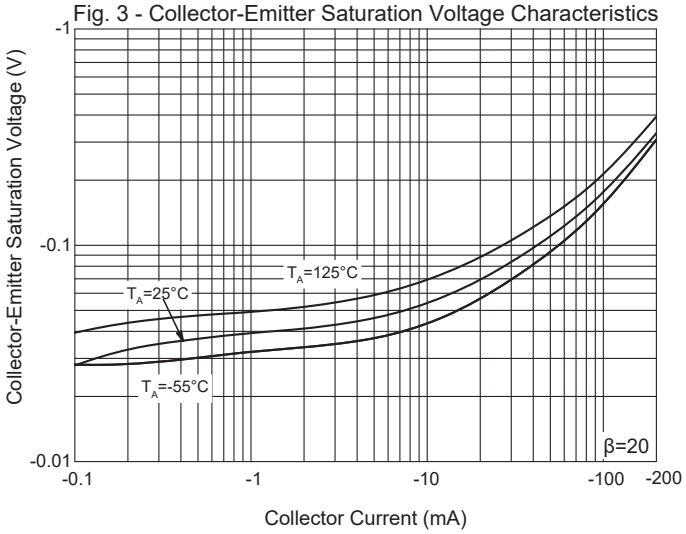


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

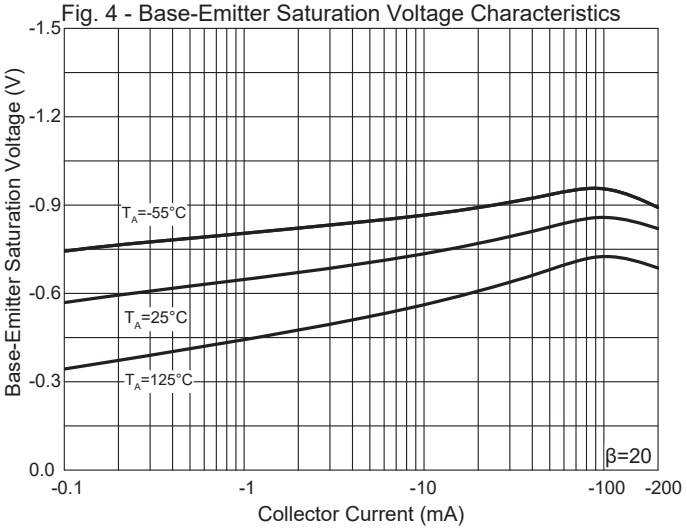


Fig. 5 - Base-Emitter Voltage Characteristics

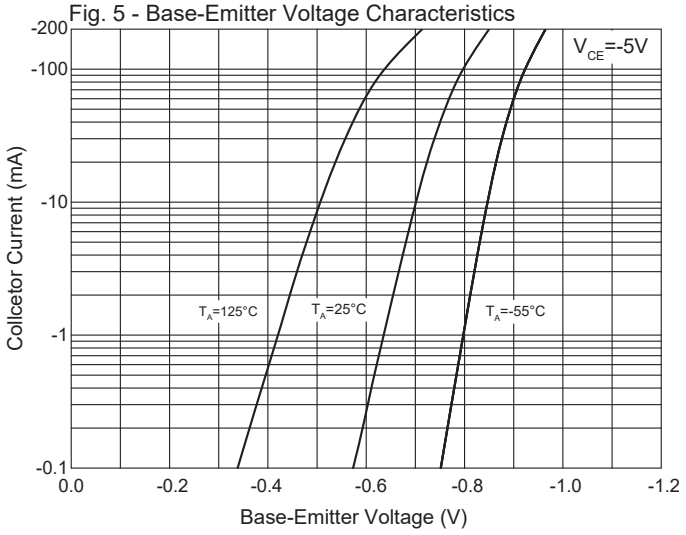
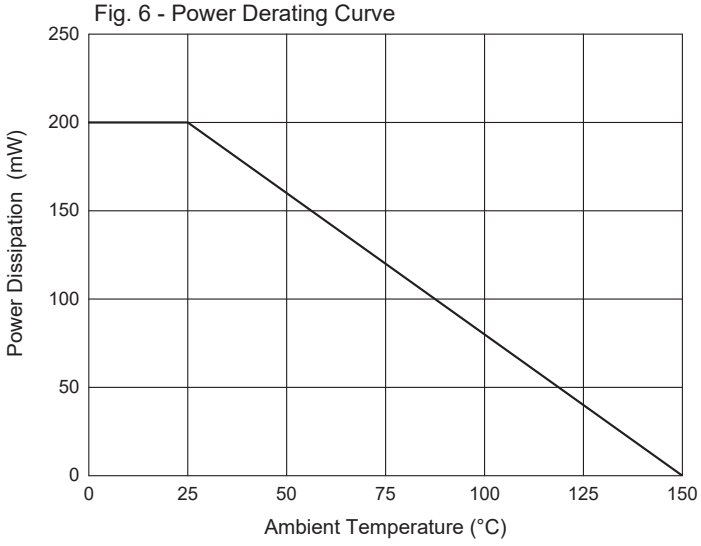


Fig. 6 - Power Derating Curve



Ordering Information

Device	Packing
BC846BPNHE3-TP	Tape&Reel:3Kpcs/Reel
BC846BPNHE3-13P	Tape&Reel:10Kpcs/Reel