

**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)

**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**

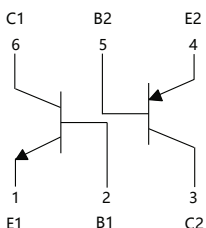
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	-80	V
Collector-Emitter Voltage	$V_{CEO}$	-65	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Collector Current	$I_C$	-100	mA
Power Dissipation	$P_D$	200	mW

**Thermal characteristics**

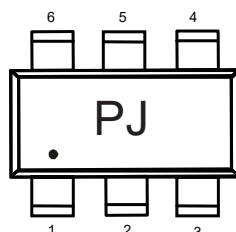
Parameter	Symbol	Rating	Unit
Operating Junction Temperature Range	$T_{OPR}$	-55~+150	°C
Storage Temperature Range	$T_{STR}$	-55~+150	°C
Thermal Resistance from Junction to Ambient	$R_{th(j-a)}$	625	°C/W

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

**Internal Structure**

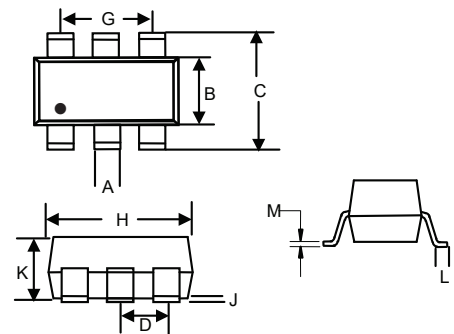


**Marking Code**



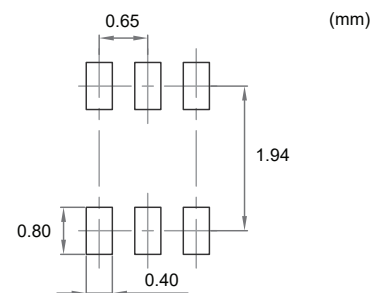
**NPN/PNP  
Small Signal  
Transistors**

**SOT-363**



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**



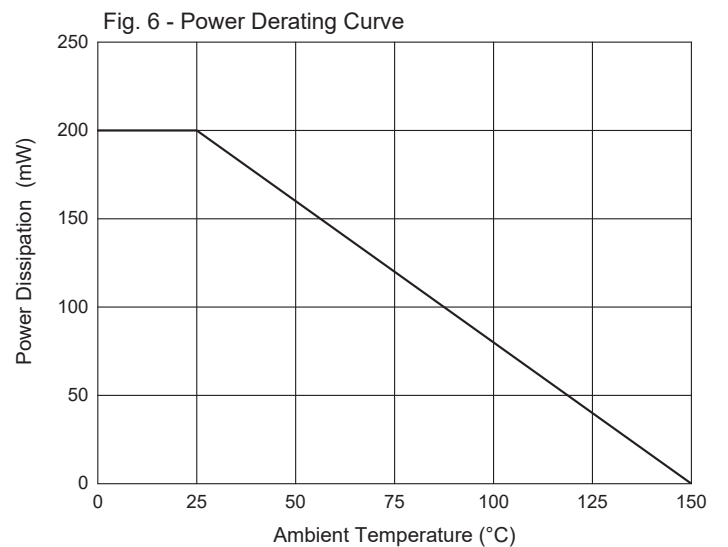
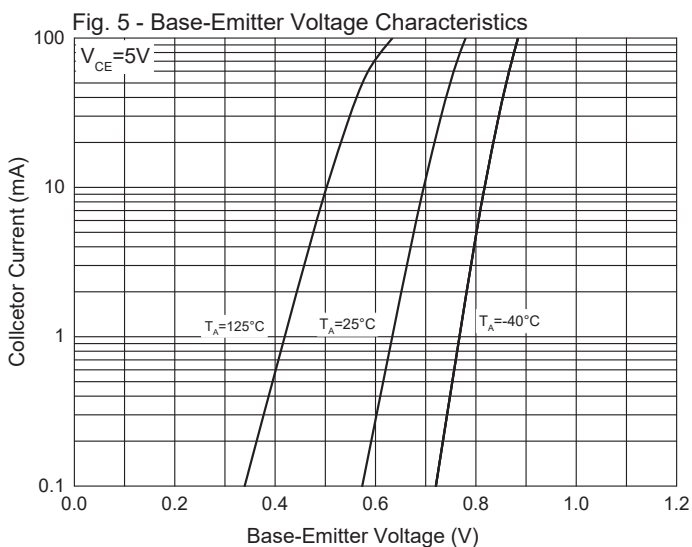
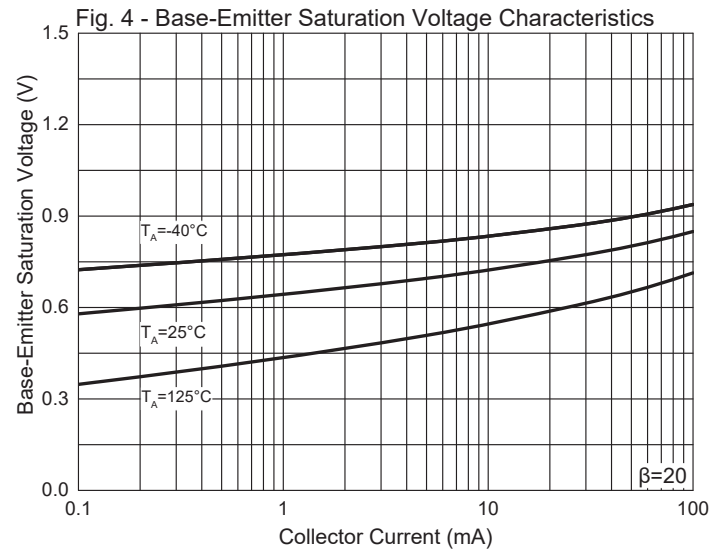
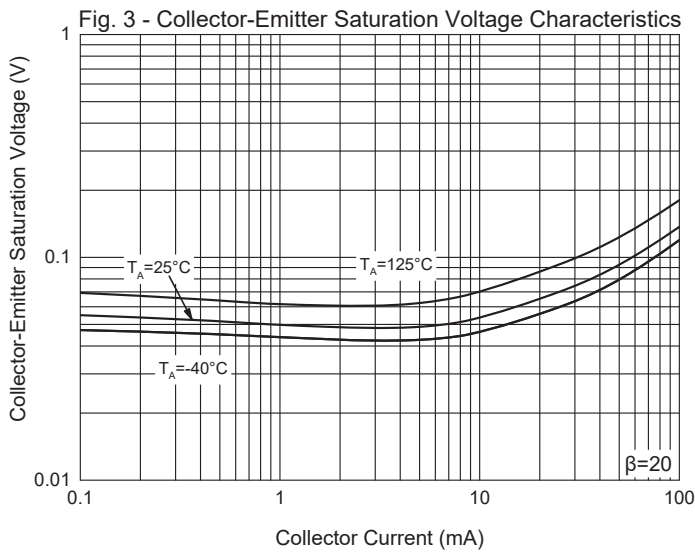
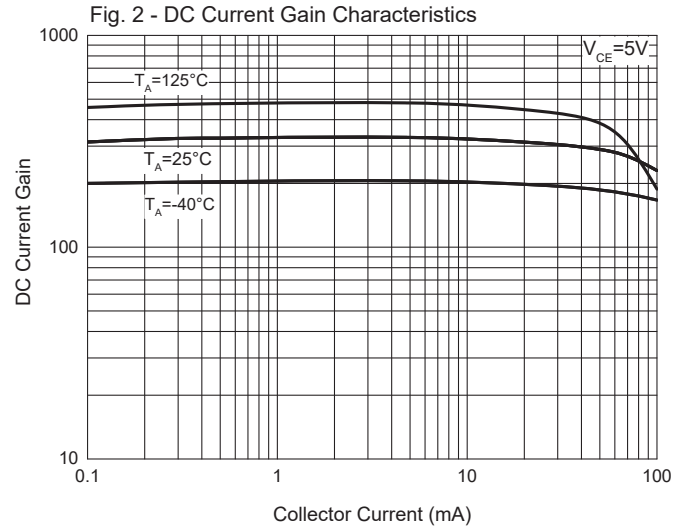
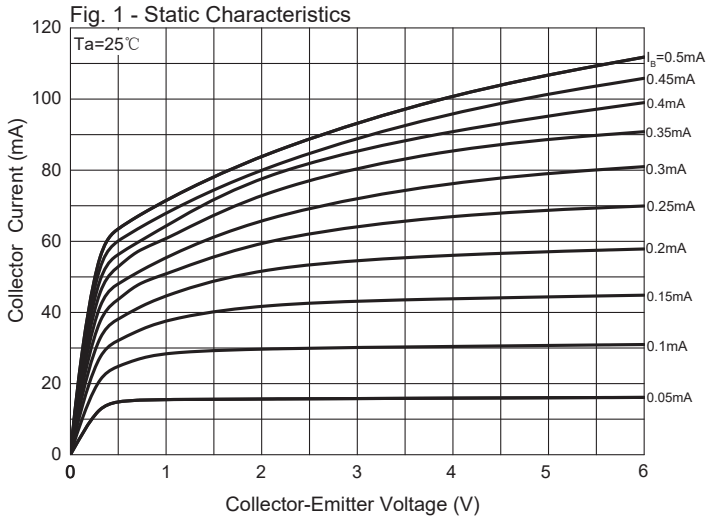
**NPN Electrical Characteristics @ 25°C Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80			V	$I_C=10\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	65			V	$I_C=10mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	$I_E=10\mu A, I_C=0$
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	$V_{CE}=5V, I_C=10mA, f=100MHz$

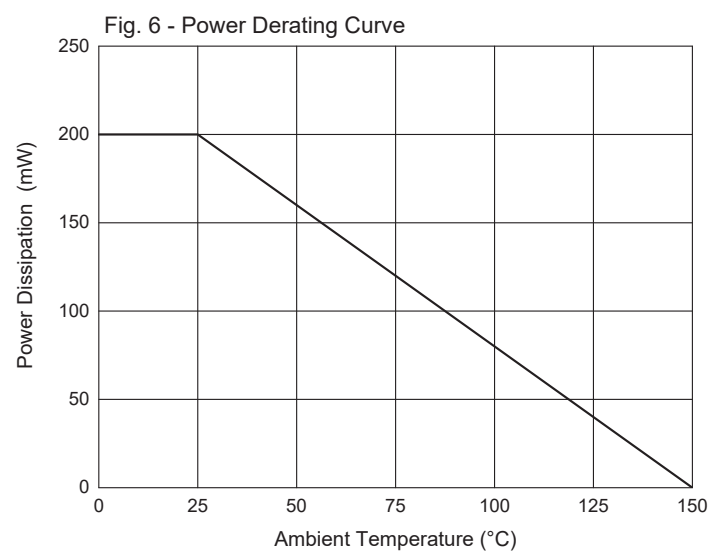
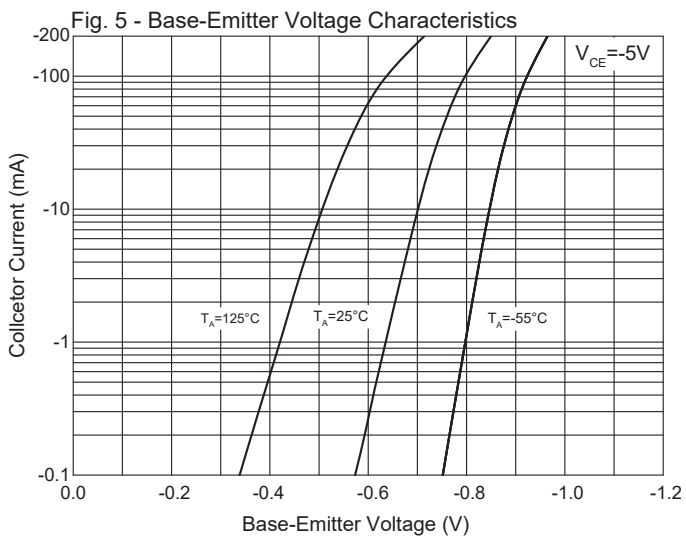
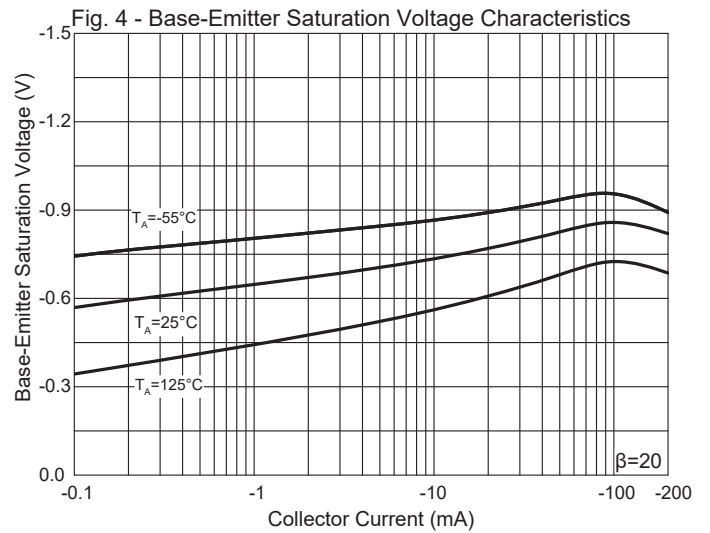
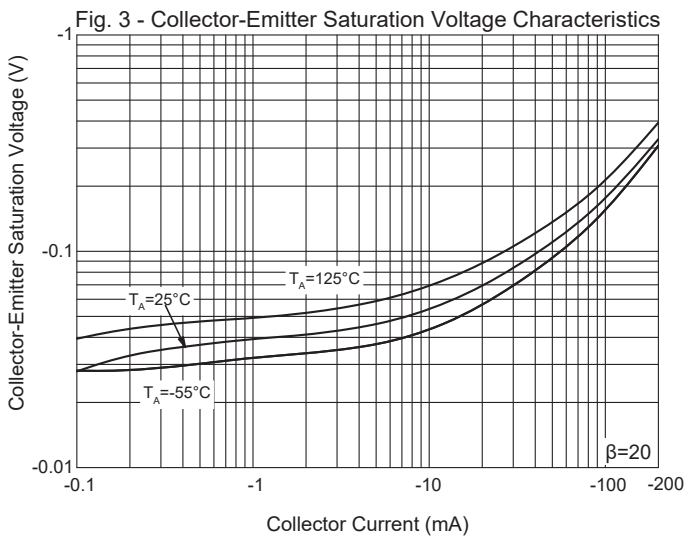
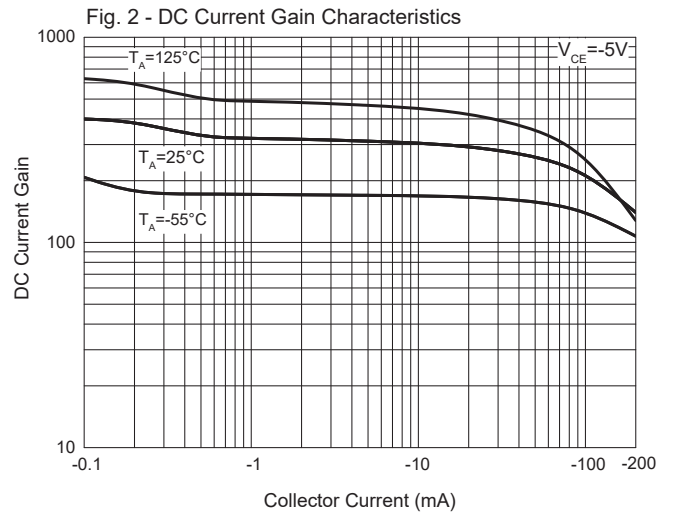
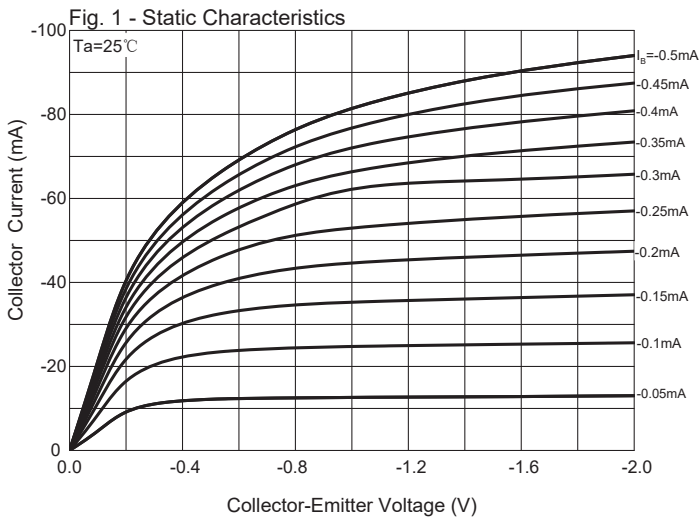
**PNP Electrical Characteristics @ 25°C Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-80			V	$I_C=-10\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-65			V	$I_C=-10mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6			V	$I_E=-10\mu A, I_C=0$
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)**



**Curve Characteristics (PNP Transistor)**



## Ordering Information

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

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