

**Features**

- Complementary Types: BCP51 (PNP)
- Halogen Free. "Green" Device (Note 1)
- 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)

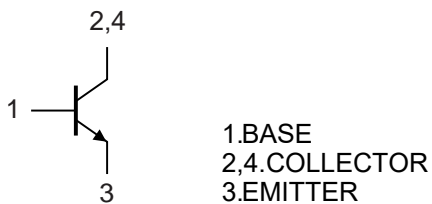
**Maximum Ratings @ 25°C Unless Otherwise Specified**

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 83.3°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	45	V
Collector-Emitter Voltage	$V_{CEO}$	45	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	1	A
Power Dissipation	$P_D$	1.5	W

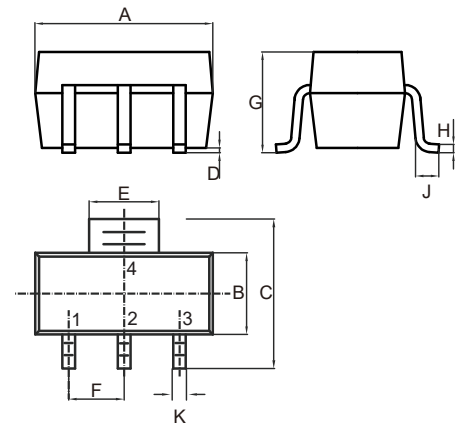
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**Internal Structure**



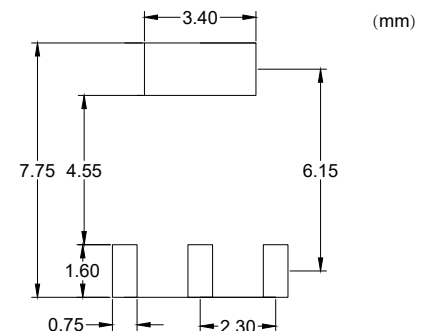
**NPN  
Plastic-Encapsulate  
Transistors**

**SOT-223**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.248	0.264	6.30	6.70	
B	0.130	0.146	3.30	3.70	
C	0.264	0.287	6.70	7.30	
D	0.001	0.004	0.02	0.10	
E	0.114	0.122	2.90	3.10	
F	0.091		2.30		TYP.
G	---	0.071	---	1.80	
H	0.009	0.014	0.23	0.35	
J	0.030	---	0.75	---	
K	0.026	0.033	0.66	0.84	

**Suggested Solder Pad Layout**



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

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	45			V	$I_C=100\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	45			V	$I_C=10\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=10\mu\text{A}, I_C=0$
Collector-Base Cutoff Current	$I_{CBO}$			100	nA	$V_{CB}=30\text{V}, I_E=0$
DC Current Gain	$h_{FE1}$	25				$V_{CE}=2\text{V}, I_C=5\text{mA}$
	$h_{FE2}$	63		250		$V_{CE}=2\text{V}, I_C=150\text{mA}$
	$h_{FE3}$	25				$V_{CE}=2\text{V}, I_C=500\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.5	V	$I_C=-500\text{mA}, I_B=50\text{mA}$
Base-Emitter Voltage	$V_{BE}$			1	V	$V_{CE}=2\text{V}, I_C=500\text{mA}$
Transition Frequency	$f_T$	100			MHz	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$

**Classification of  $h_{FE(2)}$** 

Rank	BCP54-10	BCP54-16
Range	63~160	100~250

## Curve Characteristics

Fig. 1 - Static Characteristics

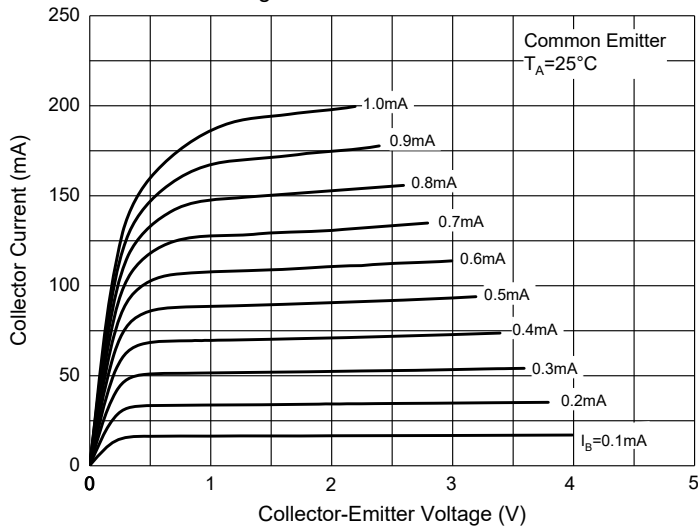


Fig. 2 - DC Current Gain Characteristics

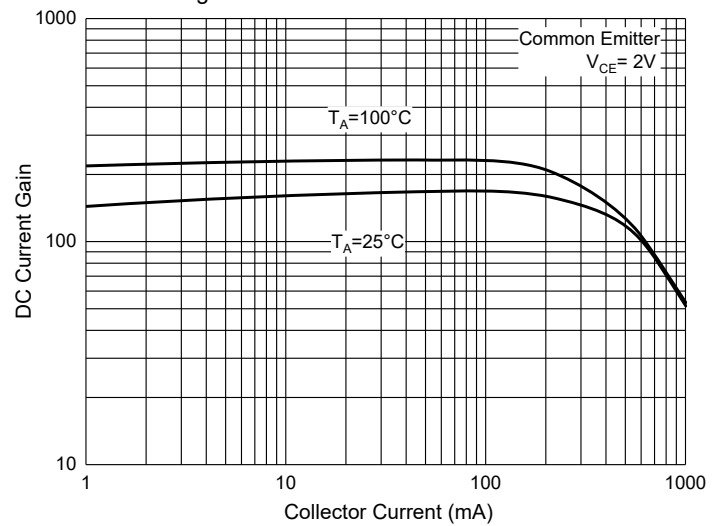


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

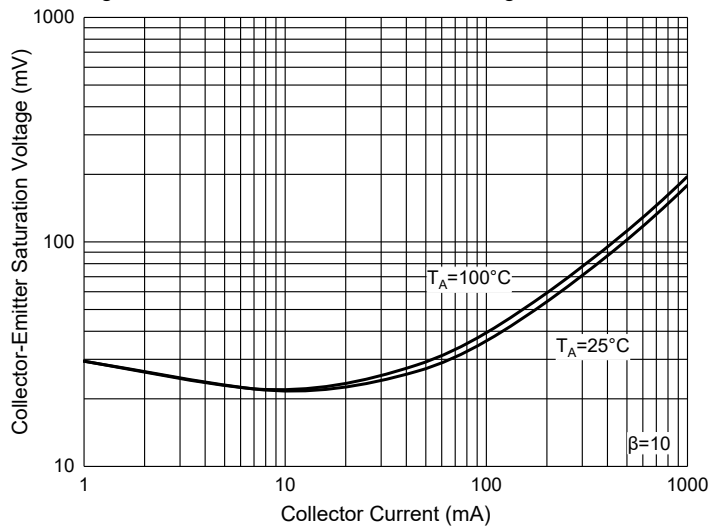


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

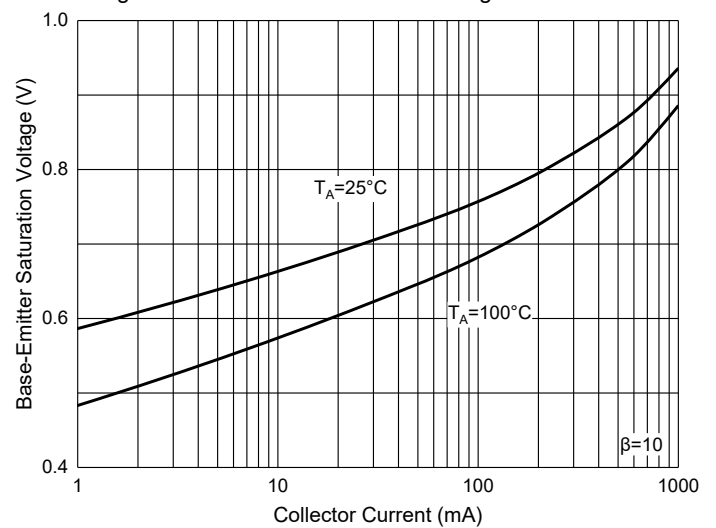


Fig. 5 - Base-Emitter Voltage Characteristics

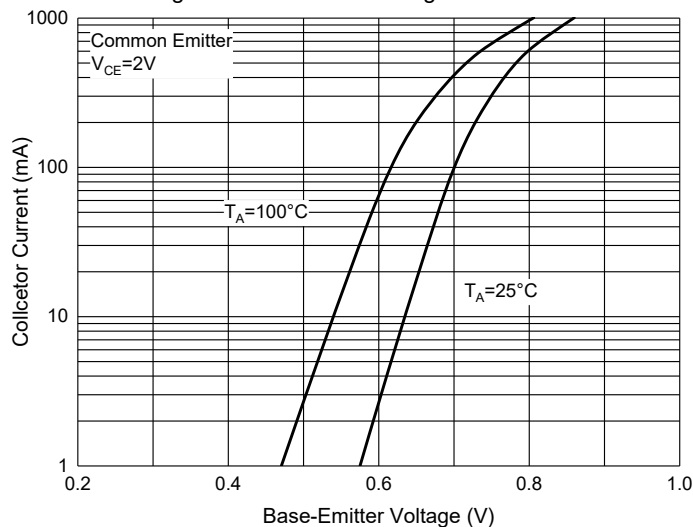
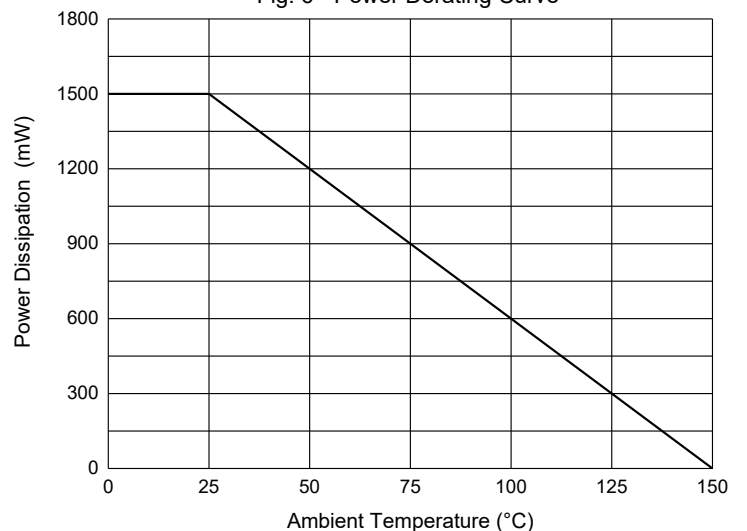


Fig. 6 - Power Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

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