

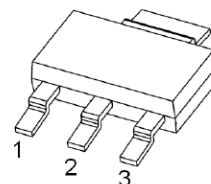
## Plastic-Encapsulate Transistors

**BCP610T**

TRANSISTOR (NPN)

**FEATURES**

- Complementary to BCP611T
- Power amplifier applications up to 5.0 amps.
- AEC-Q101 qualified(Automotive grade with suffix'Q')

**SOT-223**

1. BASE
2. COLLECTOR
3. EMITTER

**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	100	V
V <sub>CEO</sub>	Collector-Emitter Voltage	100	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
I <sub>C</sub>	Collector Current -Continuous	6	A
P <sub>C</sub>	Collector Power Dissipation	2	W
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~150	°C

**ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =1mA, I <sub>E</sub> =0	100			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =30mA, I <sub>B</sub> =0	100			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =3mA, I <sub>C</sub> =0	5			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =100V, I <sub>E</sub> =0			400	uA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			1	mA
DC current gain	h <sub>FE(1)</sub> *	V <sub>CE</sub> =4V, I <sub>C</sub> =0.3A	30			
	h <sub>FE(2)</sub> *	V <sub>CE</sub> =4V, I <sub>C</sub> =3A	15		75	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> *	I <sub>C</sub> =3.0A, I <sub>B</sub> =375mA			1.5	V
Base-emitter voltage	V <sub>BE</sub> *	V <sub>CE</sub> =4V, I <sub>C</sub> =3A			2.0	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA, f=1MHz	3			MHz

\* Pulsed , 2%D.C.

Typical Characteristics

Fig. 1 - Static Characteristics

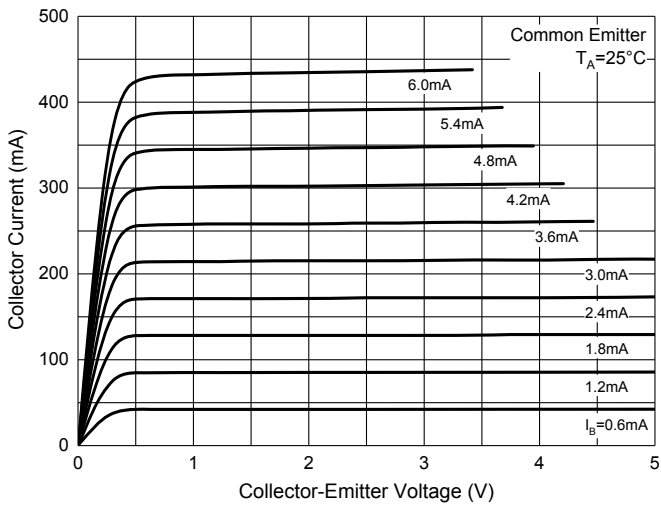


Fig. 2 - DC Current Gain Characteristics

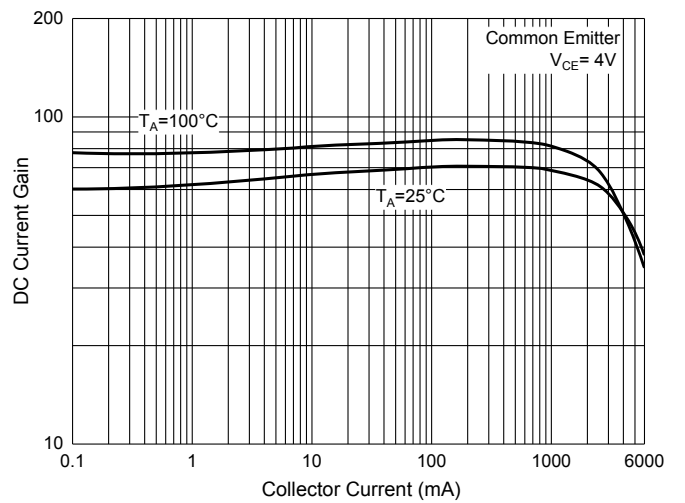


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

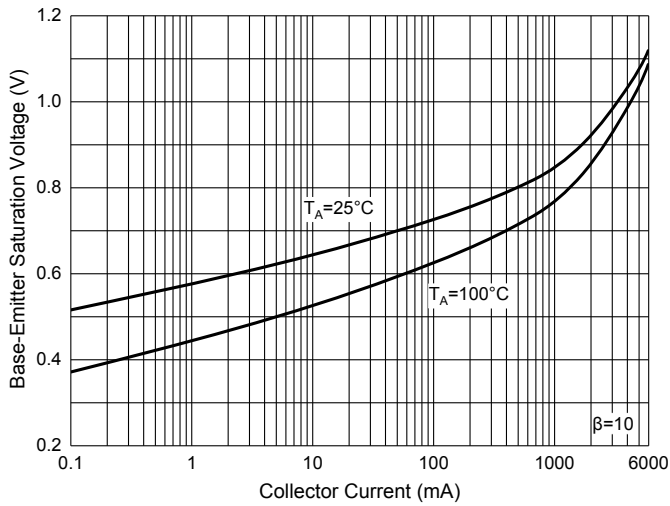


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

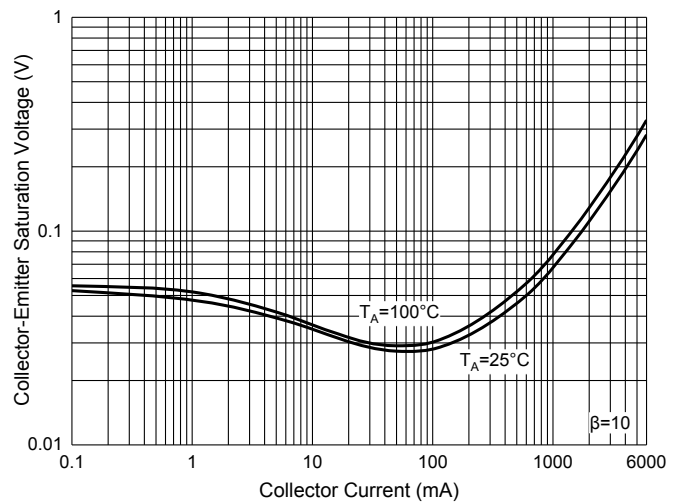


Fig. 5 - Base-Emitter Voltage Characteristics

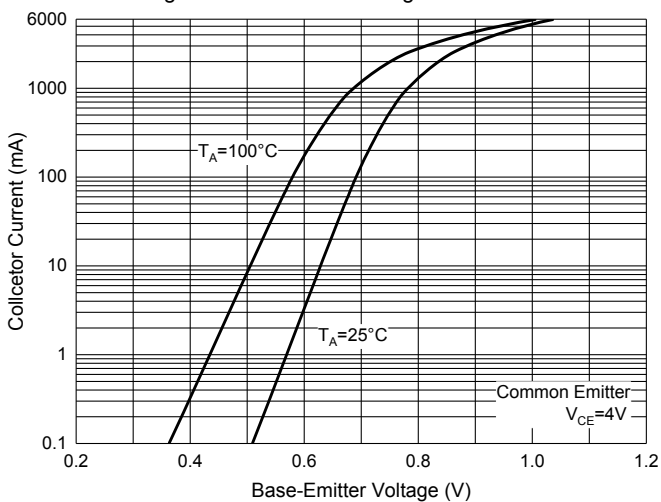
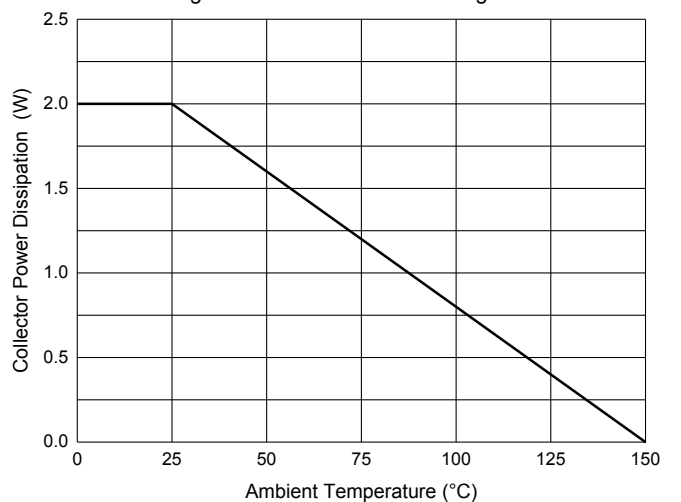
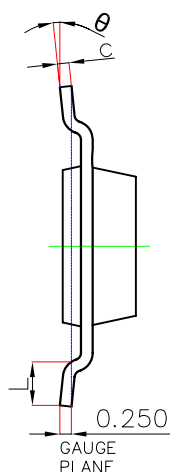
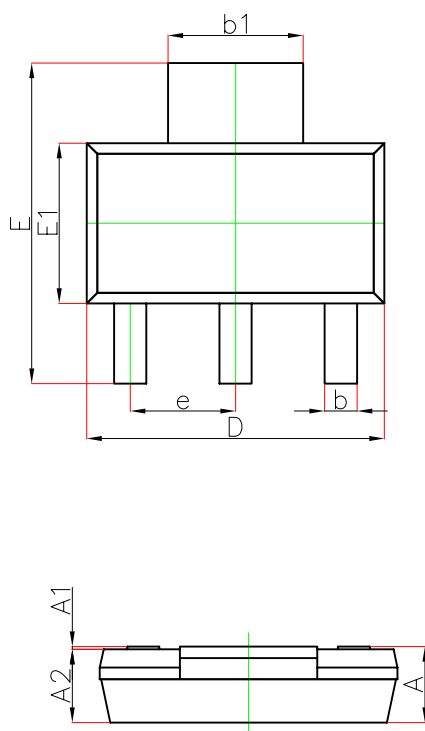


Fig. 6 - Collector Power Derating Curve

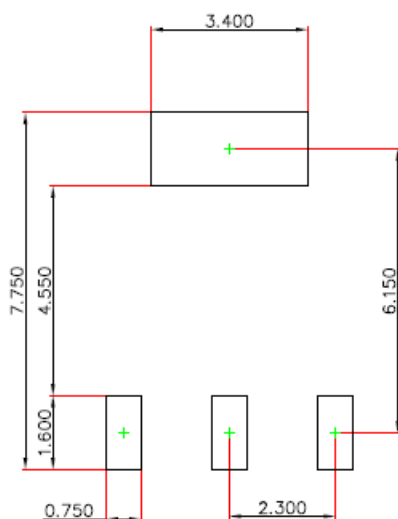


## SOT-223 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	—	1.800	—	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
$b_1$	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	6.700	7.300	0.264	0.287
$E_1$	3.300	3.700	0.130	0.146
e	2.300(BSC)		0.091(BSC)	
L	0.750	—	0.030	—
$\theta$	0°	10°	0°	10°

## SOT-223 Suggested Pad Layout

**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.050$  mm.
3. The pad layout is for reference purposes only.

## Ordering information

Device	Package	Shipping
BCP610T	SOT-223	2500/Tape&Reel