

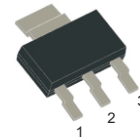
BCP54-xx-HF Thru. BCP56-xx-HF (NPN)

RoHS Device

Halogen Free

Features

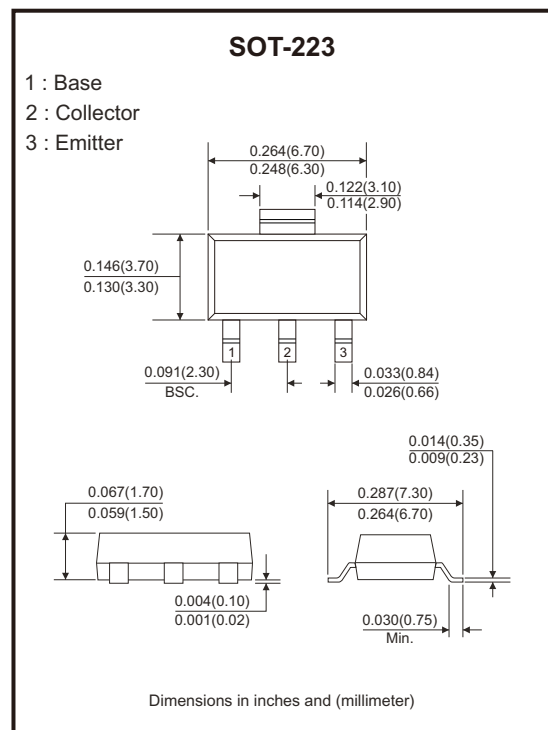
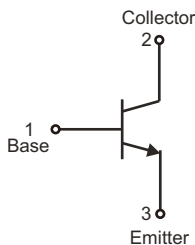
- For AF driver and output stages.
- High collector current.
- Low collector-emitter saturation voltage.



Mechanical data

- Case : SOT-223, Molded plastic.

Circuit Diagram



Maximum Ratings (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	BCP54	BCP55	BCP56	Unit
Collector-base voltage	V_{CBO}	45	60	100	V
Collector-emitter voltage	V_{CEO}	45	60	80	V
Emitter-base voltage	V_{EBO}	5			V
Collector current-continuous	I_C	1			A
Collector power dissipation	P_C	1.5			W
Operation junction and storage temperature range	T_J, T_{STG}	-55 to +150			$^{\circ}\text{C}$
Thermal resistance junction to ambient	$R_{\theta JA}$	83.3			$^{\circ}\text{C/W}$

Electrical Characteristics (Ta=25°C, unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Max.	Unit
Collector-base breakdown voltage	BCP54 BCP55 BCP56 $I_C = 0.1\text{mA}$, $I_E = 0$	$V_{(BR)CBO}$	45 60 100		V
Collector-emitter breakdown voltage	BCP54 BCP55 BCP56 $I_C = 10\text{mA}$, $I_B = 0$	$V_{(BR)CEO}$	45 60 80		V
Base-emitter breakdown voltage	$I_E = 10\mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	5		V
Collector cut-off current	$V_{CB} = 30\text{V}$, $I_E = 0$	I_{CBO}		100	nA
DC current gain	$V_{CE} = 2\text{V}$, $I_C = 5\text{mA}$	$h_{FE(1)}$	25		
	$V_{CE} = 2\text{V}$, $I_C = 150\text{mA}$	$h_{FE(2)}$	63	250	
	$V_{CE} = 2\text{V}$, $I_C = 500\text{mA}$	$h_{FE(3)}$	25		
Collector-emitter saturation voltage	$I_C = 500\text{mA}$, $I_B = 50\text{mA}$	$V_{CE(sat)}$		0.5	V
Base-emitter voltage	$V_{CE} = 2\text{V}$, $I_C = 500\text{mA}$	V_{BE}		1	V
Transition frequency	$V_{CE} = 10\text{V}$, $I_C = 50\text{mA}$, $f = 100\text{MHz}$	f_T	100		MHz

Classification of $h_{FE(2)}$

Rank	BCP54-10-HF, BCP55-10-HF, BCP56-10-HF	BCP54-16-HF, BCP55-16-HF, BCP56-16-HF
Range	63 - 160	100 - 250

Rating and Characteristic Curves (BCP54-xx-HF Thru. BCP56-xx-HF)

Fig.1 - Static Characteristic

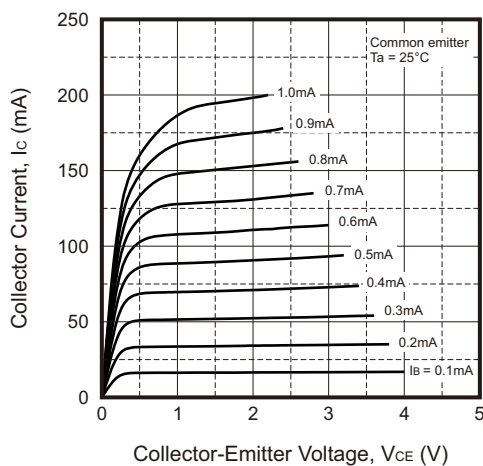
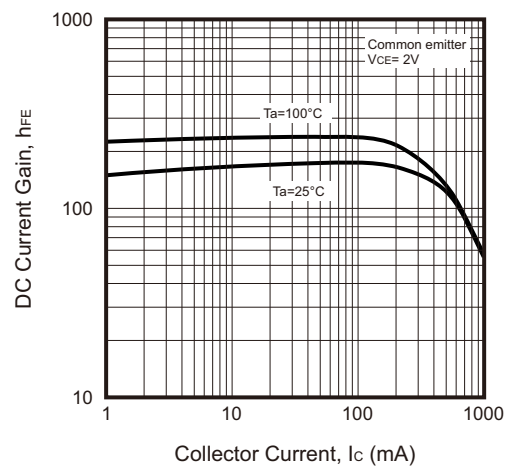


Fig.2 - $h_{FE} — I_C$



Rating and Characteristic Curves (BCP54-xx-HF Thru. BCP56-xx-HF)

Fig.3 - V_{CEsat} — I_C

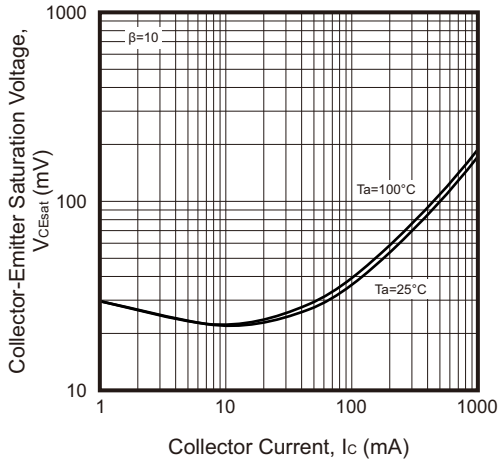


Fig.4 - V_{BEsat} — I_C

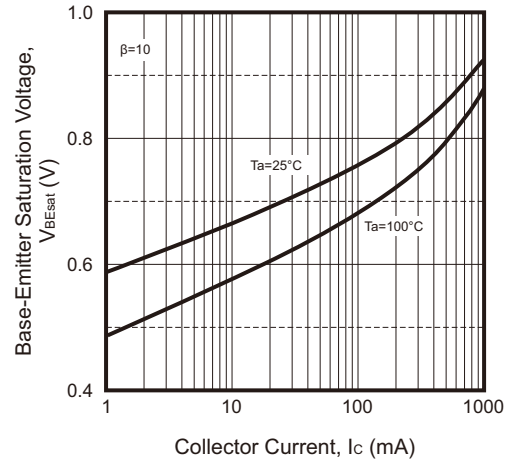


Fig.5 - I_C — V_{BE}

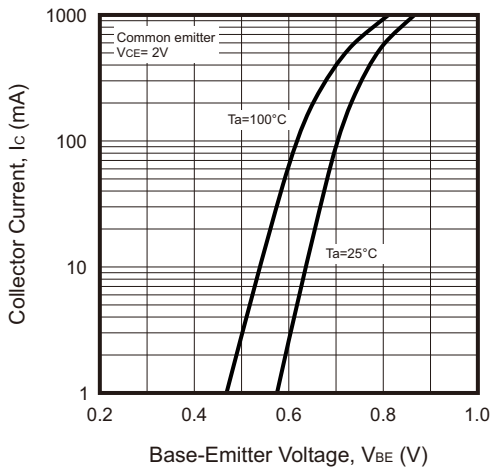


Fig.6 - C_{ob}/C_{ib} — V_{CB}/V_{EB}

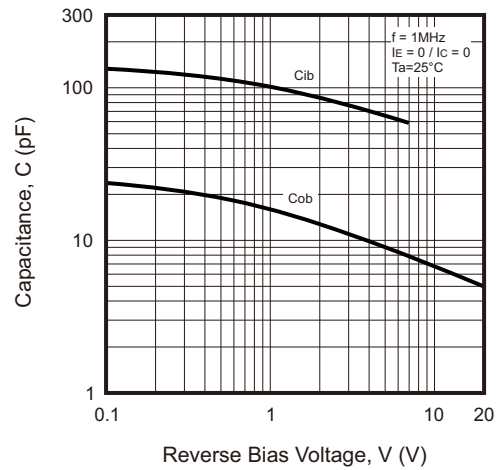


Fig.7 - f_T — I_C

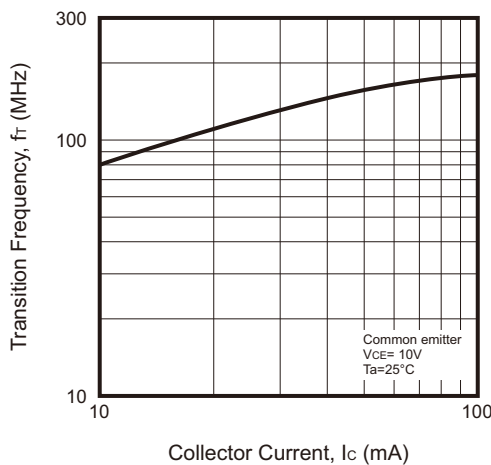
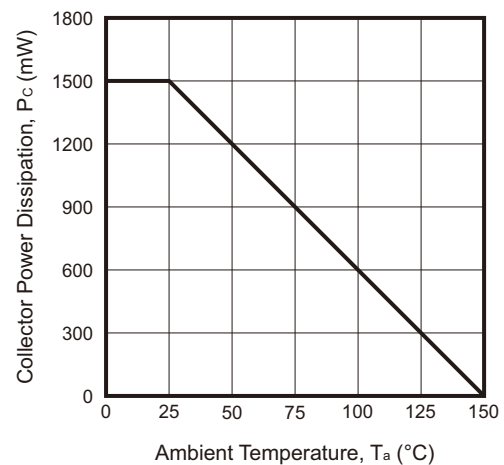
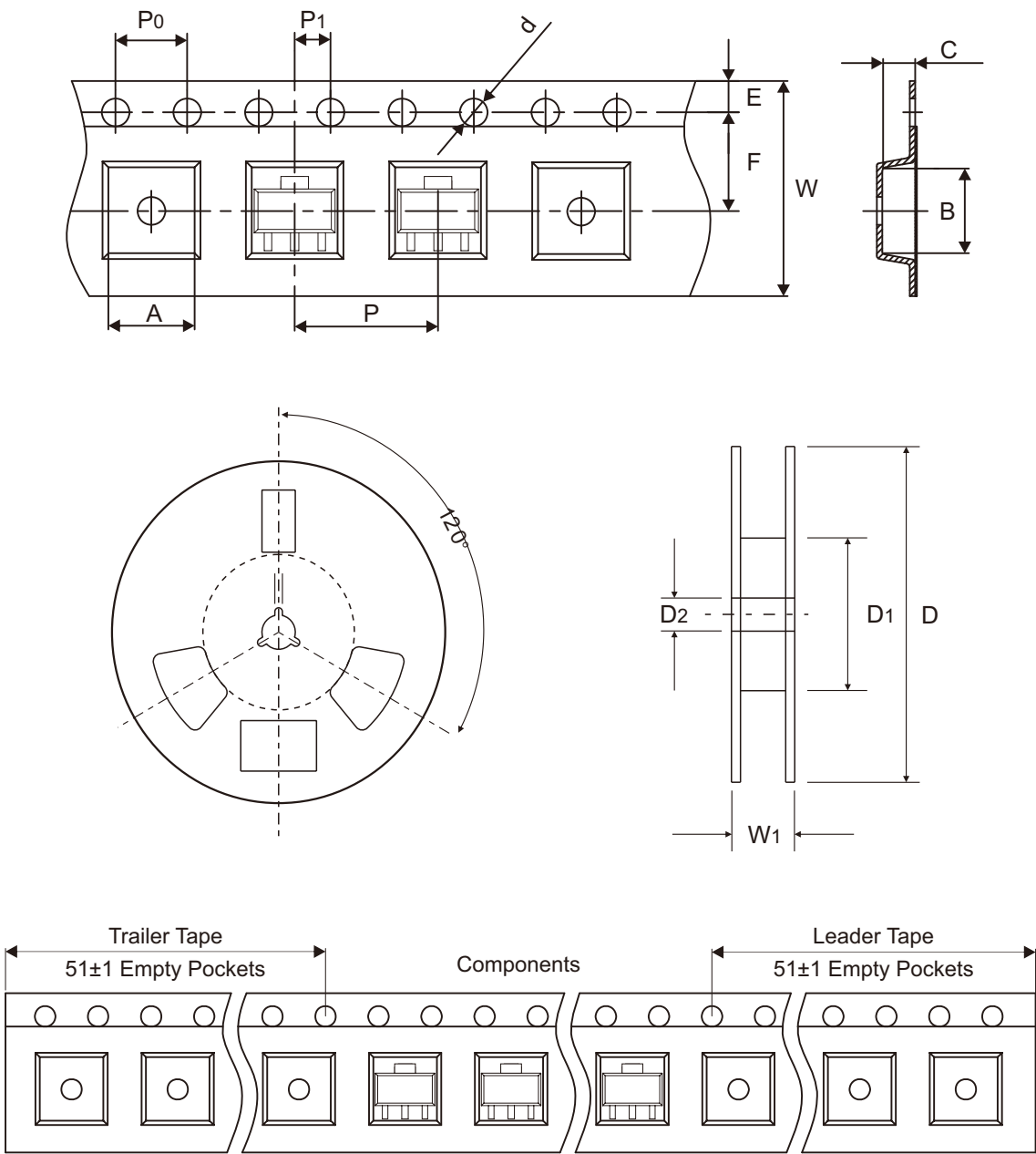


Fig.8 - P_C — T_a



Company reserves the right to improve product design, functions and reliability without notice.

Reel Taping Specification

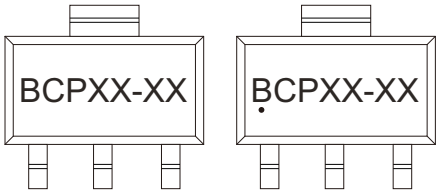


SOT-223	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	6.765 Typ	7.335 Typ	1.88 Typ	1.50 Typ	330.00 Typ	100.00 Typ	13.00 Typ
	(inch)	0.266 Typ	0.289 Typ	0.074 Typ	0.059 Typ	12.992 Typ	3.937 Typ	0.512 Typ

SOT-223	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 Typ	5.50 Typ	8.00 Typ	4.00 Typ	2.00 Typ	12.00 Typ	17.60 Typ
	(inch)	0.069 Typ	0.217 Typ	0.315 Typ	0.157 Typ	0.079 Typ	0.472 Typ	0.693 Typ

Marking Code

Part Number	Marking Code
BCP54-10-HF	BCP54-10
BCP55-10-HF	BCP55-10
BCP56-10-HF	BCP56-10
BCP54-16-HF	BCP54-16
BCP55-16-HF	BCP55-16
BCP56-16-HF	BCP56-16

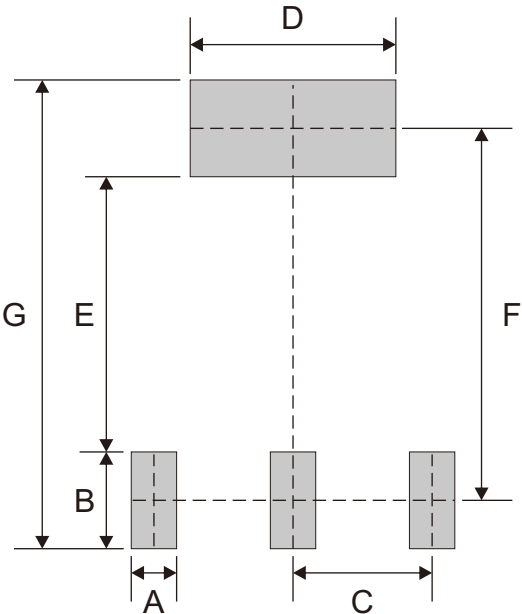


Solid dot = Control code
XX-XX = Product type marking code

Suggested P.C.B. PAD Layout

SIZE	SOT-223	
	(mm)	(inch)
A	0.75	0.030
B	1.60	0.063
C	2.30	0.091
D	3.40	0.134
E	4.55	0.179
F	6.15	0.242
G	7.75	0.305

Note: 1. The pad layout is for reference purposes only.



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-223	2,500	13