

BCP54-10/16 , BCP55-10/16 , BCP56-10/16



NPN TRANSISTOR

VOLTAGE: 45-100 Volts

CURRENT: 1 Ampers

Package: SOT-223

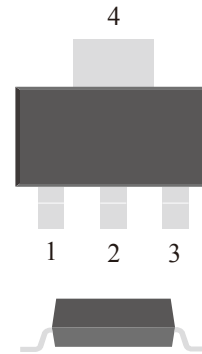
FEATURES

- NPN General-Purpose Small Signal Transistor.
- Small Temperature Drift And Low Cost.
- Extremely Low Saturation Voltage Drop
- The Summary Capacitor Is Suitable For High-Frequency Applications.

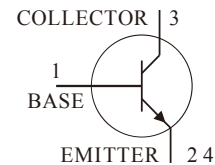
MECHANICAL DATA

- **Package:** Molding Compound Meets UL 94V-0 Flammability Rating.
The Material Of Product Compliance With RoHS Requirements.
- **Mounting Position:** Any.
- **Pin and polarity:**As Shown In The Figure On The Right.

Diagram:



Polarity:



Maximum Ratings (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	BCP 54	BCP 55	BCP 56	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
Base Current		I_B	0.1			A

Thermal Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	BCP 54	BCP 55	BCP 56	Unit
Total Device Power Dissipation		P_D	1500			mW
Derating Factor	above 25°C	D_F	12.0			mW/°C
Operating Junction Temperature Range		T_J	-55	to	150	°C
Storage Temperature Range		T_{STD}	-55	to	150	
Thermal Resistance From Junction To Ambient With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz.Copper	$R_{\theta JA}$	83.3			°C/W

H_{FE} Classification

Claasification	BCP	BCP	BCP	BCP	BCP	BCP
	54-10	55-10	56-10	54-16	55-16	56-16
Range	63~160			100~250		

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ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Test Condition		Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS							
Collector-Base Breakdown Voltage	IC= 100 uAdc,IE= 0	BCP54	V _{(BR)CBO}	45	-	-	V
		BCP55		60	-	-	
		BCP56		100	-	-	
Collector-Emitter Breakdown Voltage	IC= 10 mAdc,IB= 0	BCP54	V _{(BR)CEO}	45	-	-	V
Collector-Emitter Breakdown Voltage		BCP55		60	-	-	
Collector-Emitter Breakdown Voltage		BCP56		80	-	-	
Emitter-Base Breakdown Voltage	IE= 10 uAdc,IC= 0		V _{(BR)EBO}	5	-	-	V
Collector Cut-off Current	VCB= 30 Vdc,IE= 0		I _{CBO}	-	-	100	nA
ON CHARACTERISTICS							
DC Current Gain	VCE= 2 V,IC= 5 mA		H _{FE}	25	-	-	-
	VCE= 2 V,IC= 150 mA			63	-	250	
	VCE= 2 V,IC= 500 mA			25	-	-	
Collector-Emitter Saturation Voltage	IC= 500 mA,IB= 50 mA		V _{CE(Sat)}	-	-	0.5	V
Base-Emitter Saturation Voltage	IC= 500 mA,VCE= 2 V		V _{BE(Sat)}	-	-	1	V
Transition Frequency, f= 100MHz	VCE= 10 V,IC= 50 mA		f _T	100	-	-	MHZ

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Typical Characteristics Curves

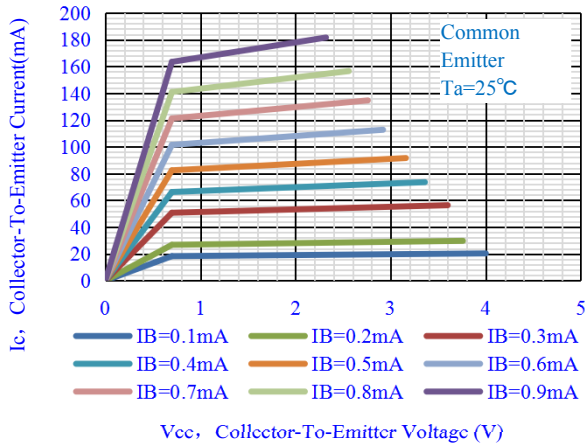


Fig.1-Static Characteristics

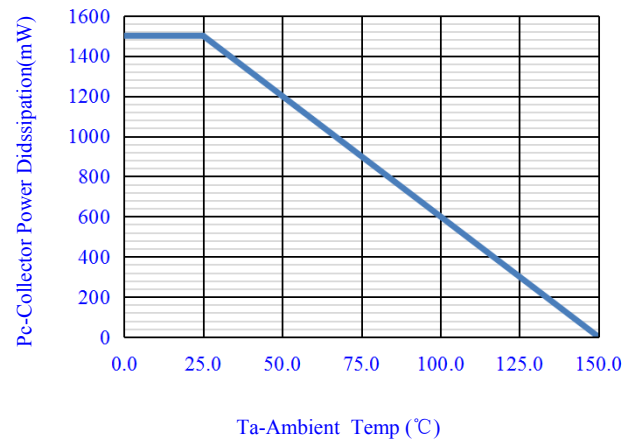


Fig.2-Collector Power Dissipation Vs. Ta

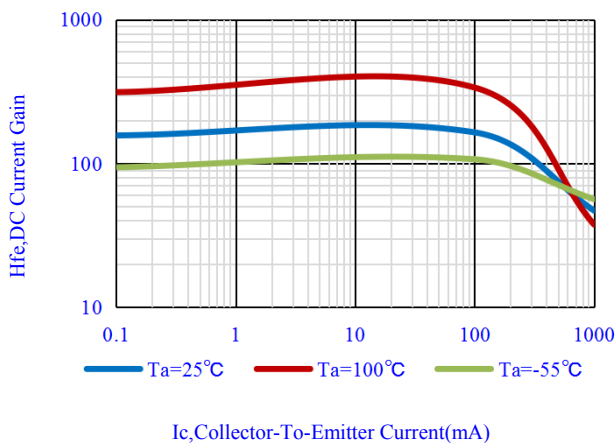


Fig.3-Dc Current Gain Vs. Collector Current

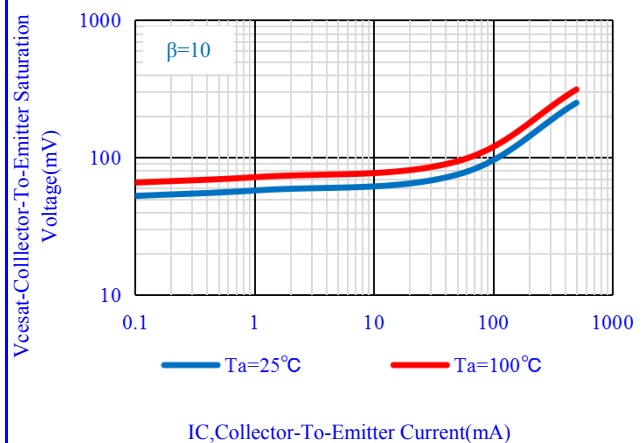


Fig.4-Base-To-Emitter Saturation Voltage Vs. Collector Current

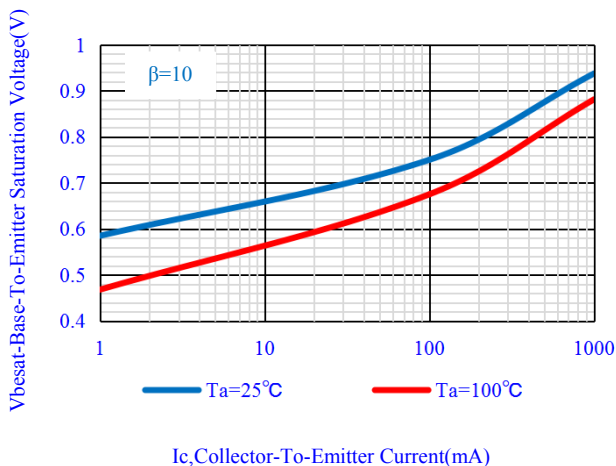


Fig.5-Base-To-Emitter Saturation Voltage Vs. Collector Current

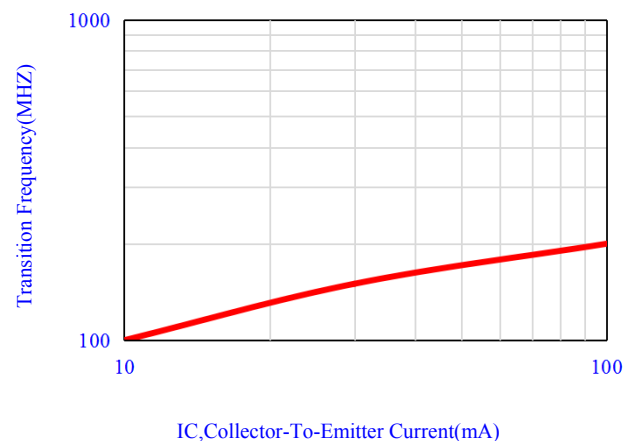


Fig.6-Collector Current Vs. Transition Frequency

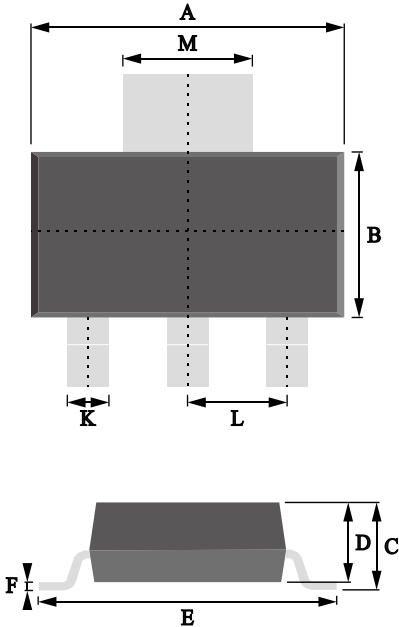
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OUTLINE DRAWINGS

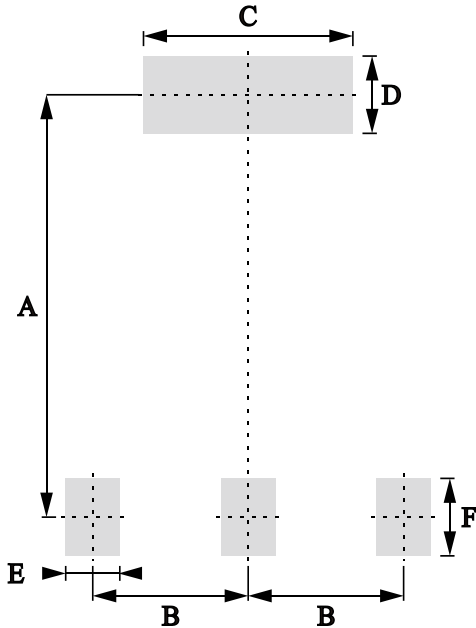
SOT-223



OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.05	-	6.60	0.2382	-	0.2598
B	3.30	-	3.70	0.1299	-	0.1457
C	1.45	-	1.85	0.0571	-	0.0728
D	1.40	-	1.80	0.0551	-	0.0709
E	6.70	-	7.20	0.2638	-	0.2835
F	0.20	-	0.40	0.0079	-	0.0157
K	0.55	-	0.85	0.0217	-	0.0335
L	2.10	-	2.50	0.0827	-	0.0984
M	2.85	-	3.25	0.1122	-	0.1280

RECOMMEDND LAYOUT DRAWINGS

SOT-223



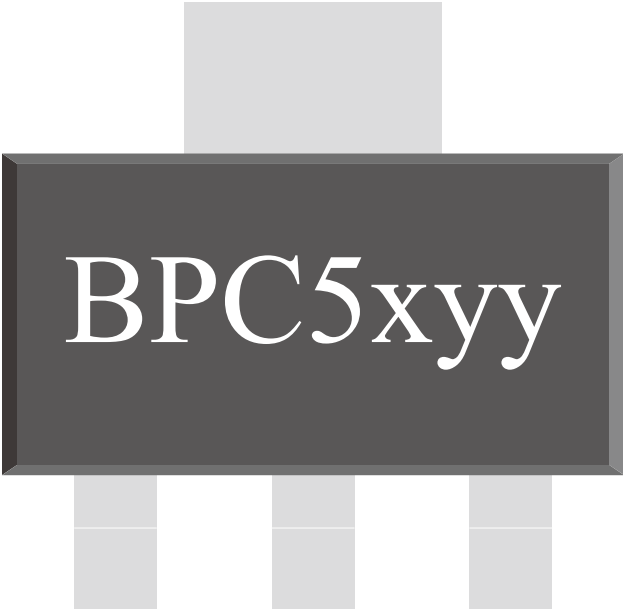
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	6.00	-	-	0.0000	-
B	-	2.30	-	-	0.0906	-
C	-	3.10	-	-	0.1220	-
D	-	1.10	-	-	0.0433	-
E	-	0.80	-	-	0.0315	-
F	-	1.10	-	-	0.0433	-

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MARKING INFORMATION



MARKING INSTRUCTIONS

BPC5xyy=Make,xyy=410,510,610,416,516,616

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
SOT-223	P1	0.19	13" Reel	2500	5000	50000

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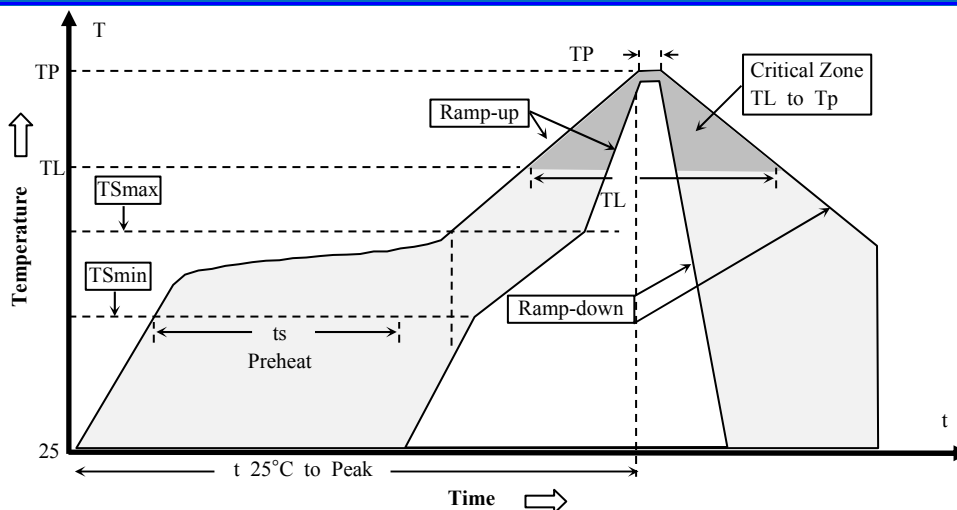


NPN TRANSISTOR

Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(T _S min) -Temperature Max(T _S max) -Time(t _s min to t _s max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

NPN TRANSISTOR**Disclaimer**

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