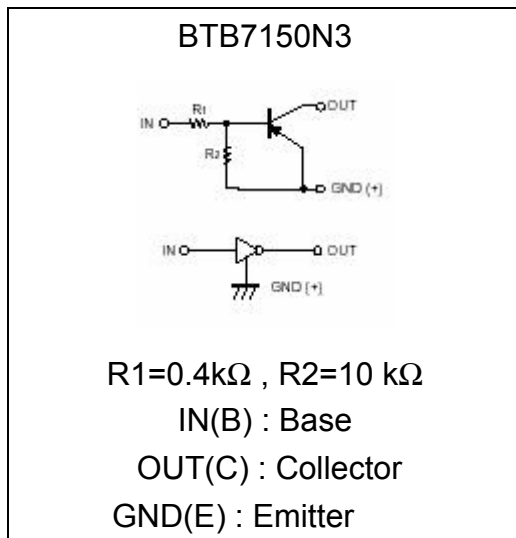
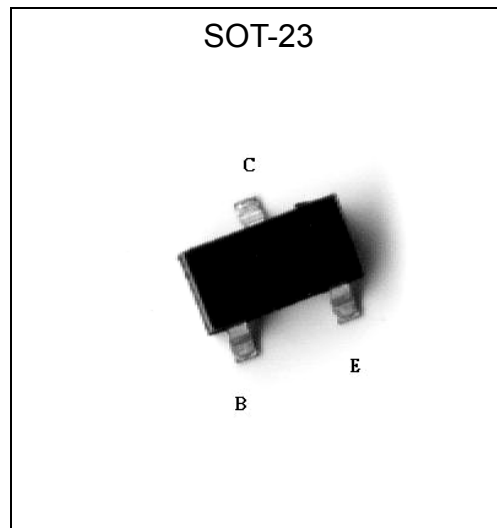


High Current PNP Digital Transistors (Built-in Resistors)

BTB7150N3

Features

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, making device design easy.
- Pb-free & Halogen-free package

Equivalent Circuit

Outline

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector Base Breakdown Voltage	BV_{CBO}	-30	V
Collector Emitter Breakdown Voltage	BV_{CEO}	-30	V
Input Voltage	V_{IN}	-20~+10	V
Collector Current	I_C	-5	A
	I_{CP}	-7	A
Power Dissipation	P_d	225	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55~+150	°C

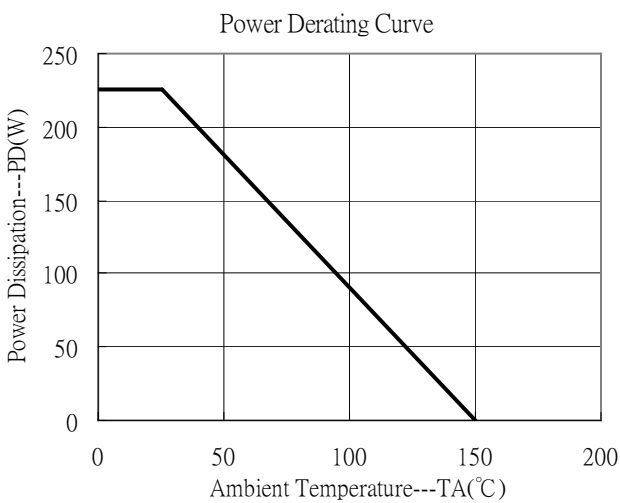
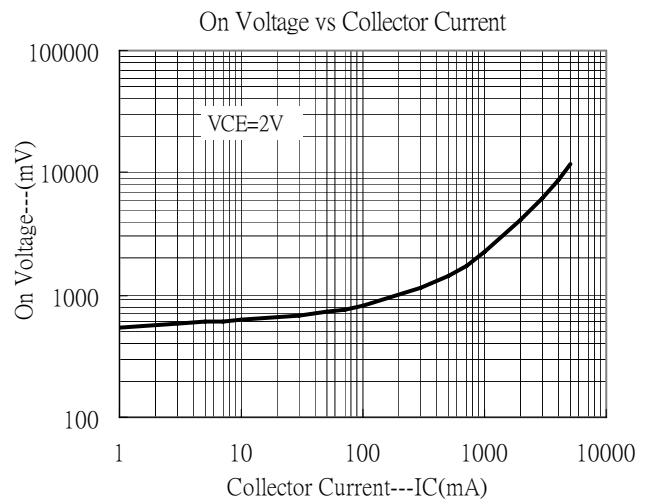
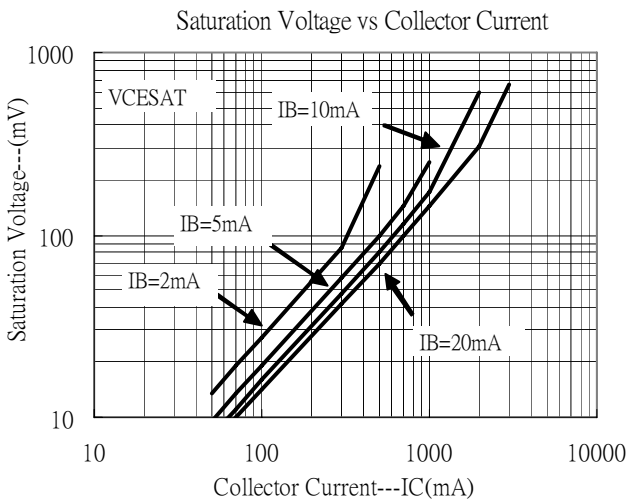
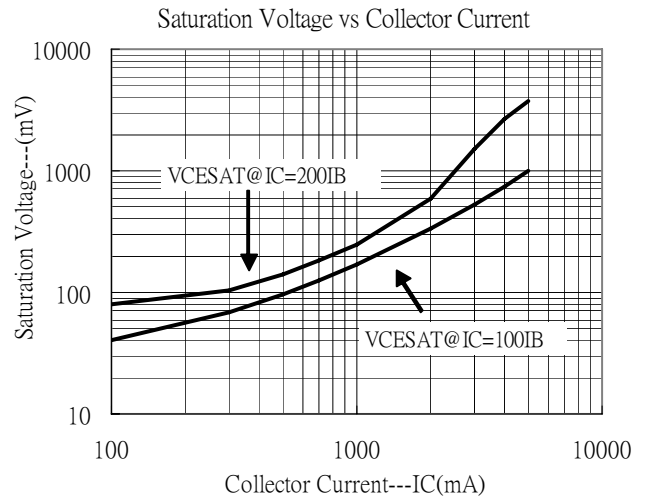
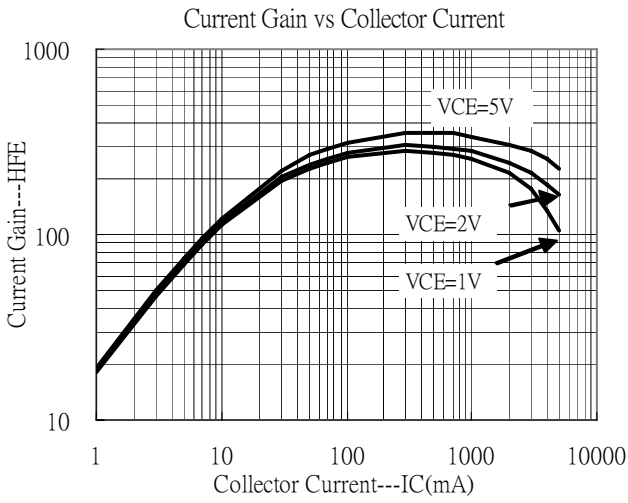
**Electrical Characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector Base Cutoff Current	ICBO	-	-	-100	nA	V _{CB} =-30V, I _E =0A
Collector Emitter Cutoff Current	ICEO	-	-	-100	nA	V _{CE} =-30V, I _B =0A
Emitter Base Cutoff Current	IEBO	-	-	-0.6	mA	V _{EB} =-5V
DC Current Gain	H _{FE}	120	-	-	-	V _{CE} =-2V, I _C =-100mA
		140	-	-	-	V _{CE} =-2V, I _C =-1A
		100	-	-	-	V _{CE} =-2V, I _C =-4A
Collector Emitter Saturation Voltage	V _{CE(SAT)}	-	-0.25	-0.35	V	I _C =-1A, I _B =-5mA
		-	-0.34	-0.5	V	I _C =-2A, I _B =-20mA
		-	-0.53	-0.7	V	I _C =-3A, I _B =-30mA
Input Resistance	R ₁	280	400	520	Ω	-
Bias Resistance	R ₂	7	10	13	kΩ	-
Transition Frequency	f _T	100	-	-	MHz	V _{CE} =-10V, I _E =-500mA, f=100MHz

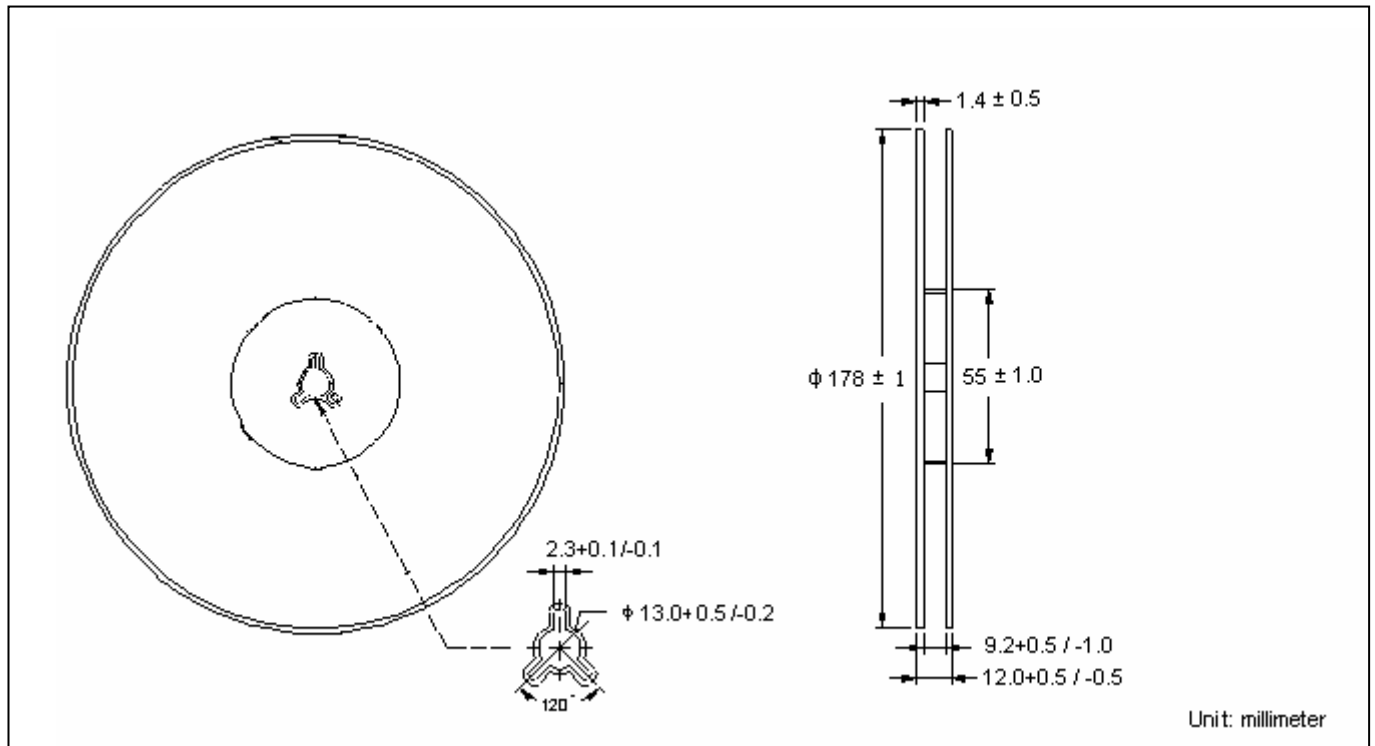
Ordering Information

Device	Package	Shipping
BTB7150N3	SOT-23 (Pb-free & Halogen-free package)	3000 pcs / Tape & Reel

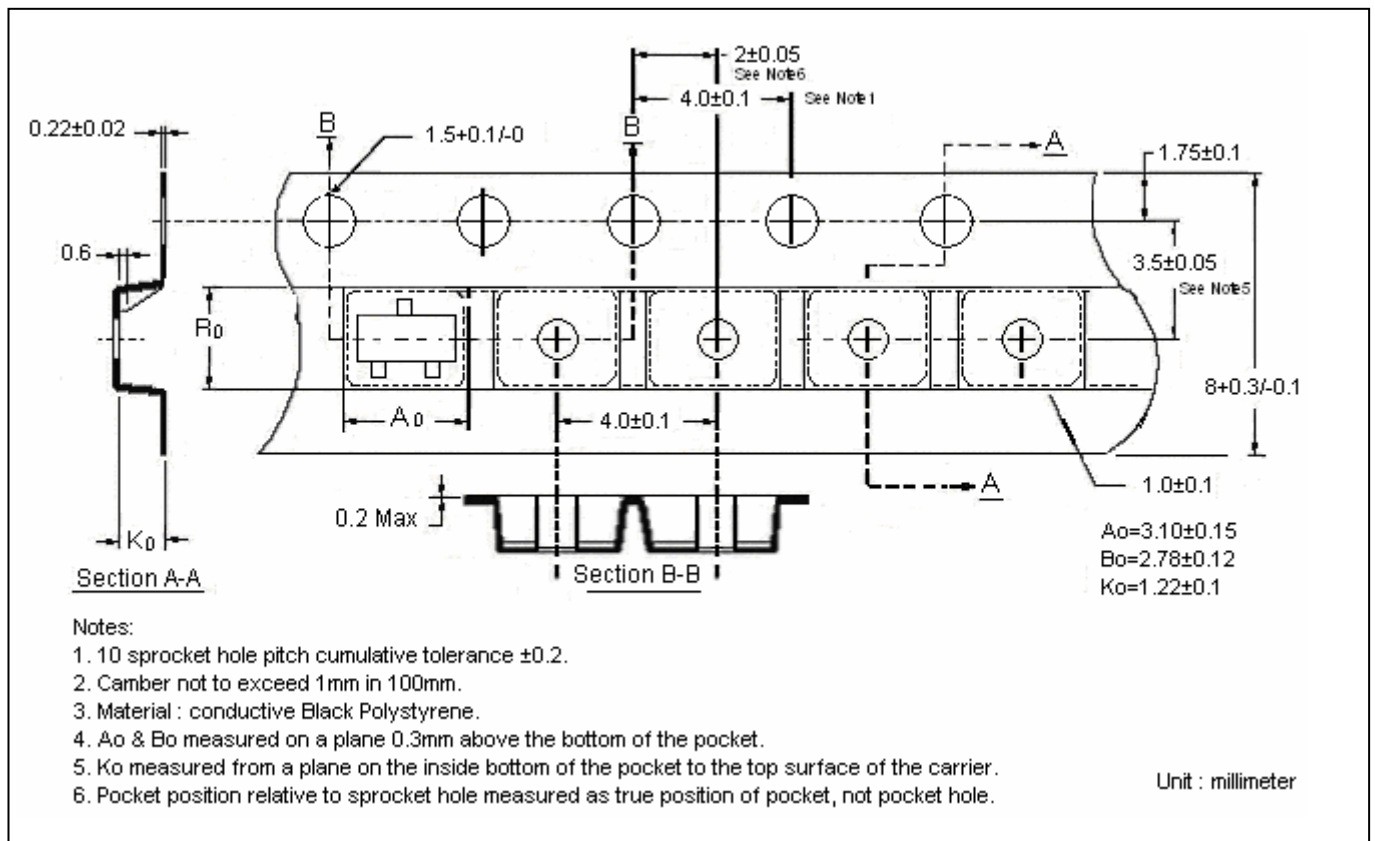
Characteristic Curves



Reel Dimension



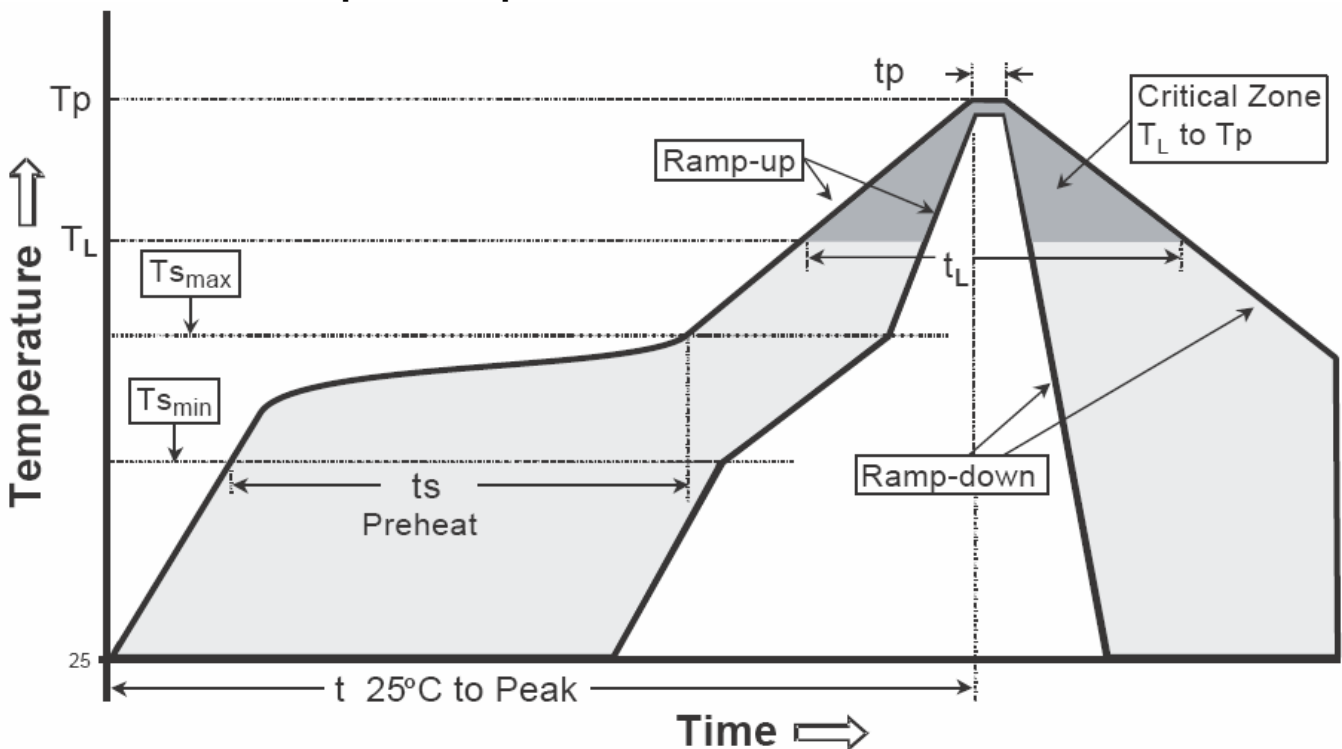
Carrier Tape Dimension



Recommended wave soldering condition

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

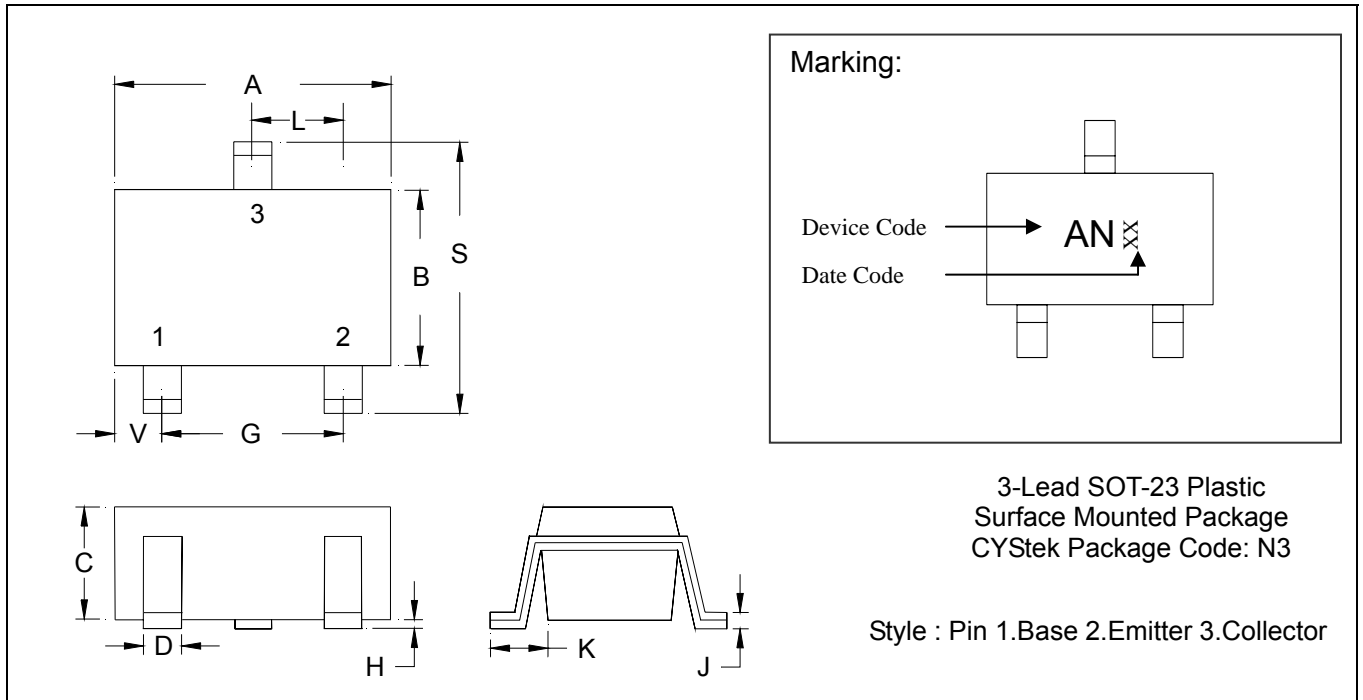
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(Ts min)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (Tl)	183°C	217°C
- Time (tl)	60-150 seconds	60-150 seconds
Peak Temperature(Tp)	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.

SOT-23 Dimension



*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0034	0.0070	0.085	0.177
B	0.0472	0.0630	1.20	1.60	K	0.0128	0.0266	0.32	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1083	2.10	2.75
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0005	0.0040	0.013	0.10					

Notes : 1.Controlling dimension : millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : Pure tin plated
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0

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