Low Vcesat PNP Epitaxial Planar Transistor

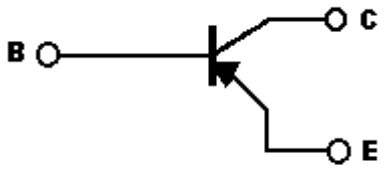
BTB772AT3

Features

- Low $V_{CE(sat)}$, $V_{CE(sat)}$=-0.3 V (max), at I_C / I_B = -2A / -0.1A
- Excellent current gain characteristics
- Pb-free lead plating package

Symbol

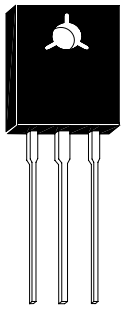
BTB772AT3



B：Base
C：Collector
E：Emitter

Outline

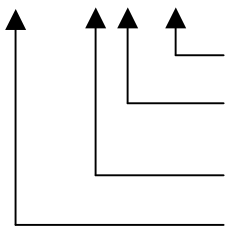
TO-126



E C B

Ordering Information

Device	Package	Shipping
BTB772AT3-0-BL-X	TO-126 (Pb-free lead plating and halogen-free package)	200 pcs / bag, 3,000 pcs/box 30,000 pcs/carton
BTB772AT3-0-UC-X		60 pcs/ tube, 32 tubes/box



Environment friendly grade : S for RoHS compliant products, G for RoHS compliant and green compound products

Packing spec, BL: bulk, 200 pcs/bag, 15 bags/box, 10 boxes/carton ; UC : tube, 60 pcs/tube, 32 tubes/box

Product rank, zero for no rank products

Product name

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-30	V
Emitter-Base Voltage	V_{EBO}	-7	V
Collector Current (DC)	I_C	-3	A
Collector Current (Pulse)	I_{CP}	-5 (Note 1)	A
Power Dissipation @T_A=25°C	P_D	1	W
Power Dissipation @T_C=25°C		10	W
Operating Junction and Storage Temperature Range	Tj ; Tstg	-55~+150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	$R_{\theta JC}$	12.5	°C/W
Thermal Resistance, Junction-to-ambient, max	$R_{\theta JA}$	125	°C/W

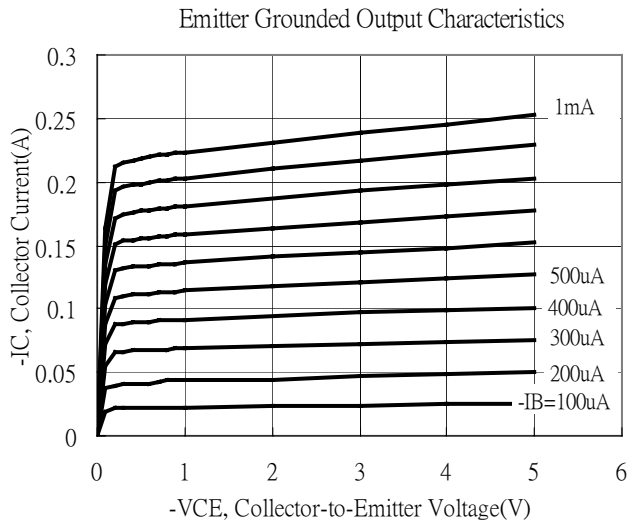
Note：1. Single Pulse , Pw=10ms

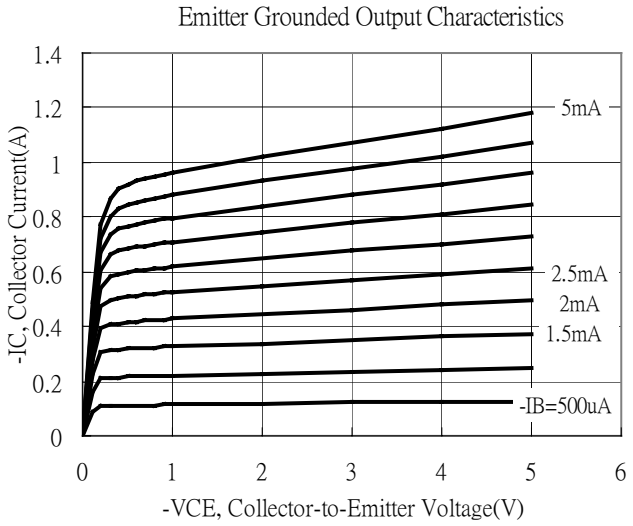
Characteristics (Ta=25°C)

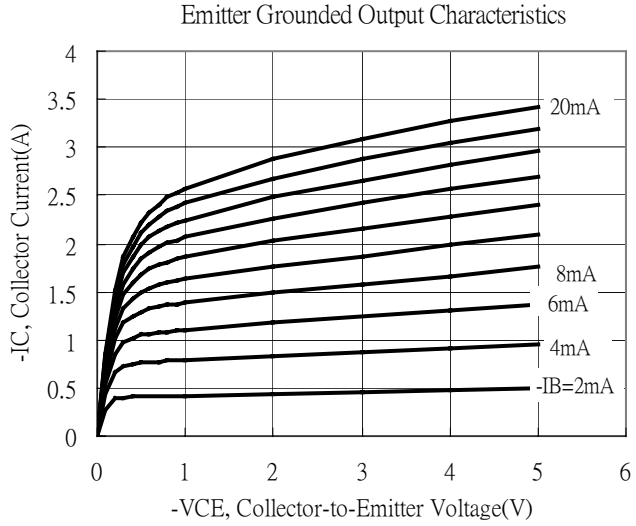
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	-50	-	-	V	I_C=-50μA, I_E=0
BV_{CEO}	-30	-	-	V	I_C=-1mA, I_B=0
BV_{EBO}	-7	-	-	V	I_E=-50μA, I_C=0
I_{CBO}	-	-	-100	nA	V_{CB}=-50V, I_E=0
I_{EBO}	-	-	-100	nA	V_{EB}=-7V, I_C=0
*$V_{CE(sat)}$	-	-0.05	-0.2	V	I_C=-400mA, I_B=-20mA
*$V_{CE(sat)}$	-	-0.2	-0.3	V	I_C=-2A, I_B=-100mA
*$V_{BE(sat)}$	-	-1	-1.2	V	I_C=-2A, I_B=-200mA
*h_{FE} 1	160	-	-	-	V_{CE}=-2V, I_C=-100mA
*h_{FE} 2	180	-	390	-	V_{CE}=-2V, I_C=-500mA
*h_{FE} 3	150	-	-	-	V_{CE}=-2V, I_C=-1A
f_T	-	190	-	MHz	V_{CE}=-10V, I_C=-0.5A, f=100MHz
Cob	-	33	-	pF	V_{CB}=-10V, f =1MHz

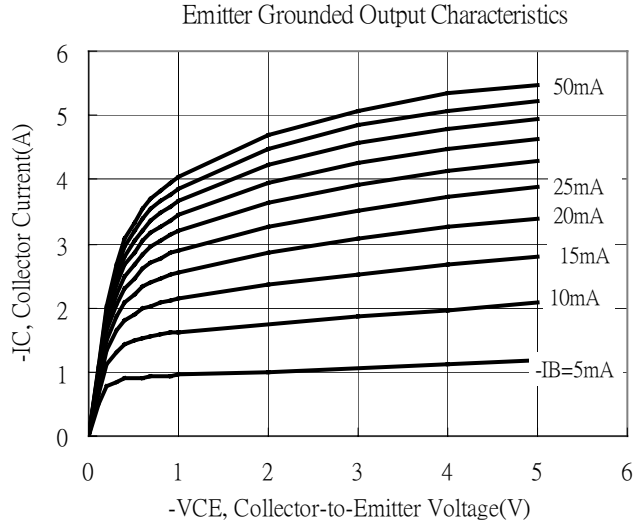
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

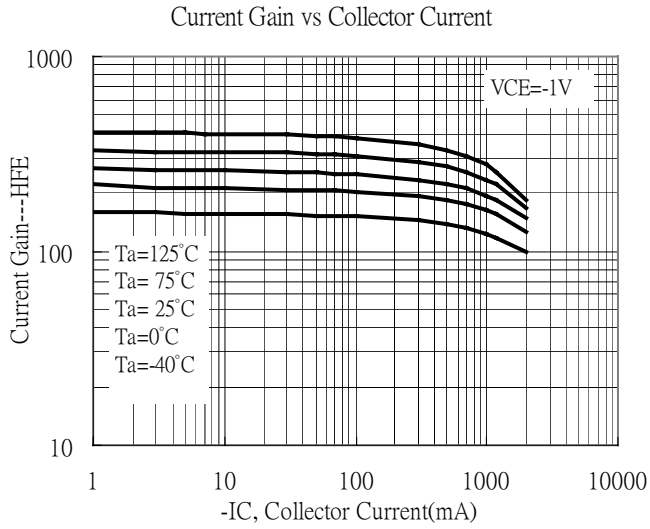
Typical Characteristics

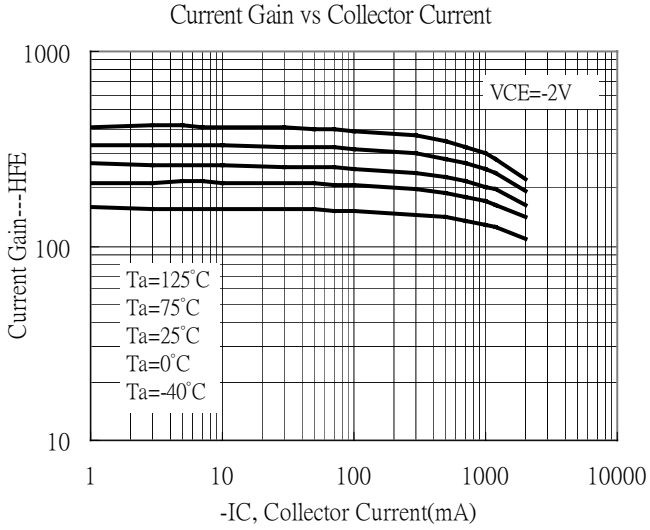






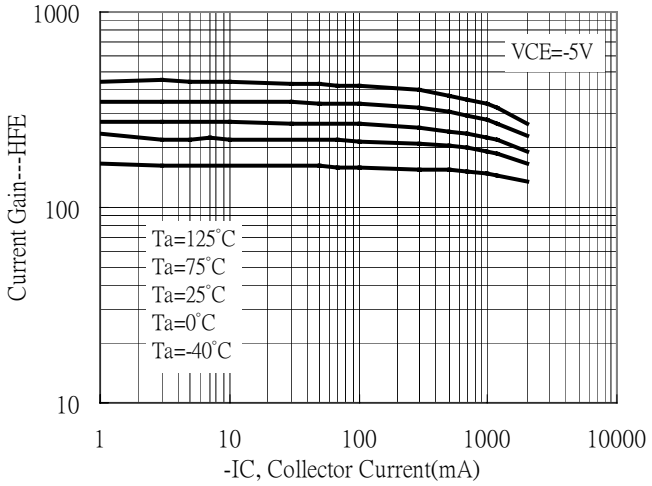




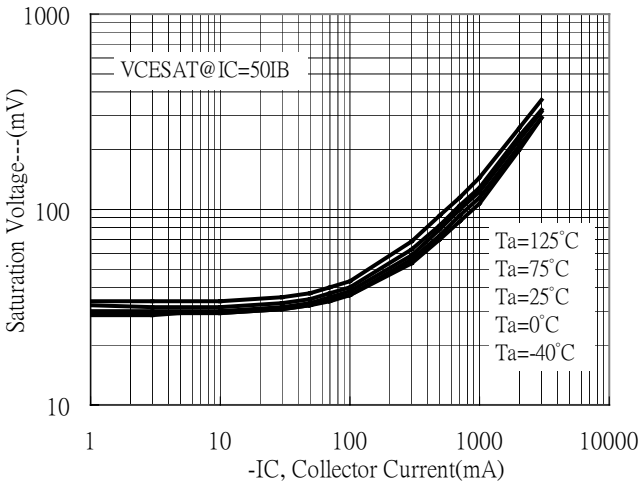


Typical Characteristics(Cont.)

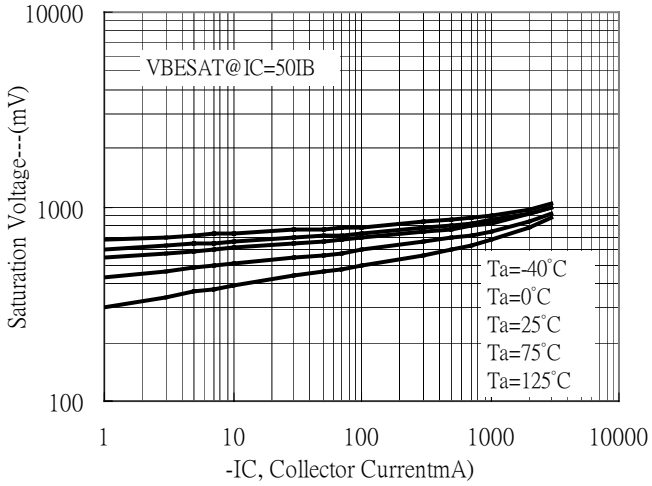
Current Gain vs Collector Current



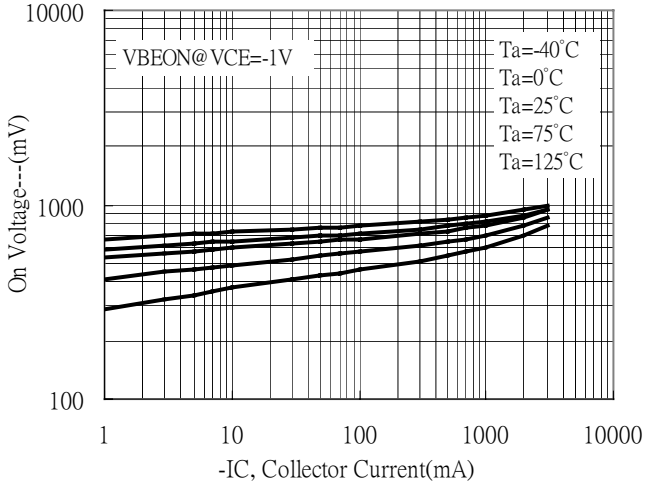
Saturation Voltage vs Collector Current



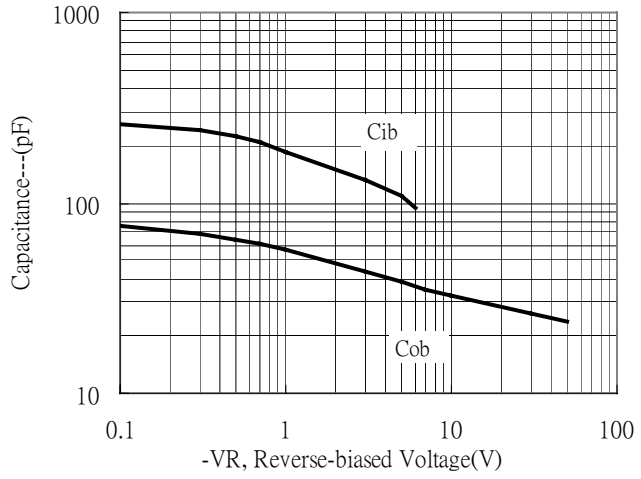
Saturation Voltage vs Collector Current



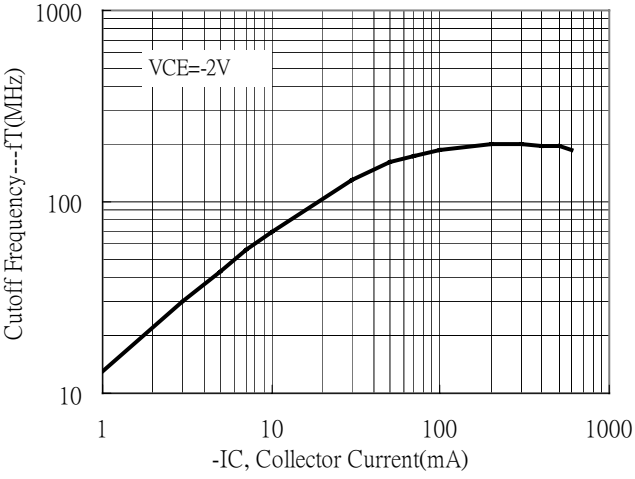
On Voltage vs Collector Current



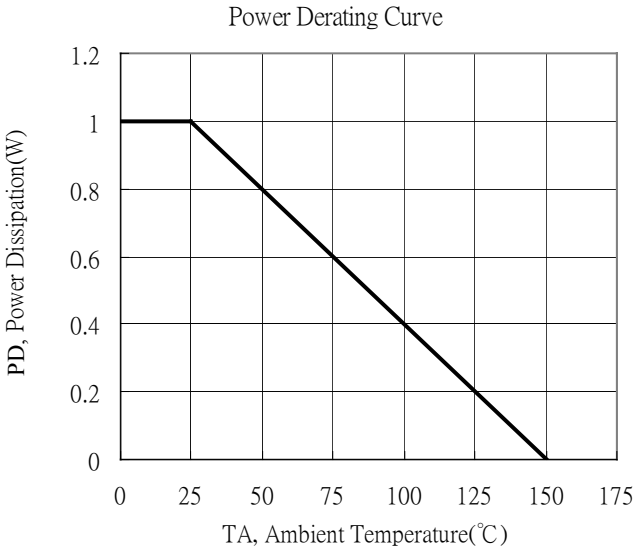
Capacitance vs Reverse-biased Voltage

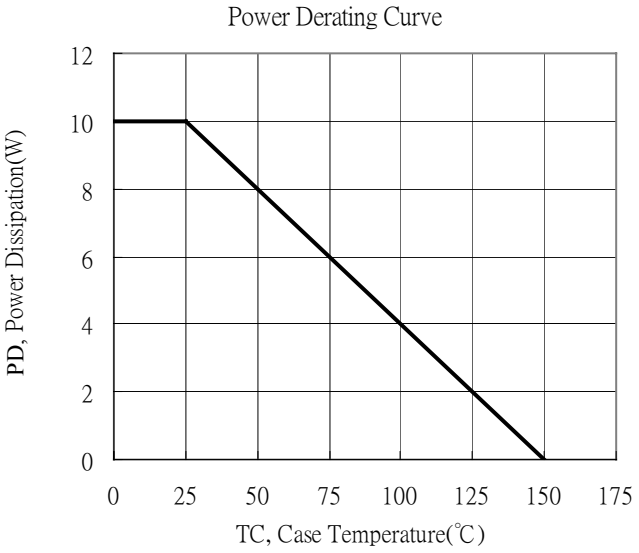


Cutoff Frequency vs Collector Current



Typical Characteristics(Cont.)

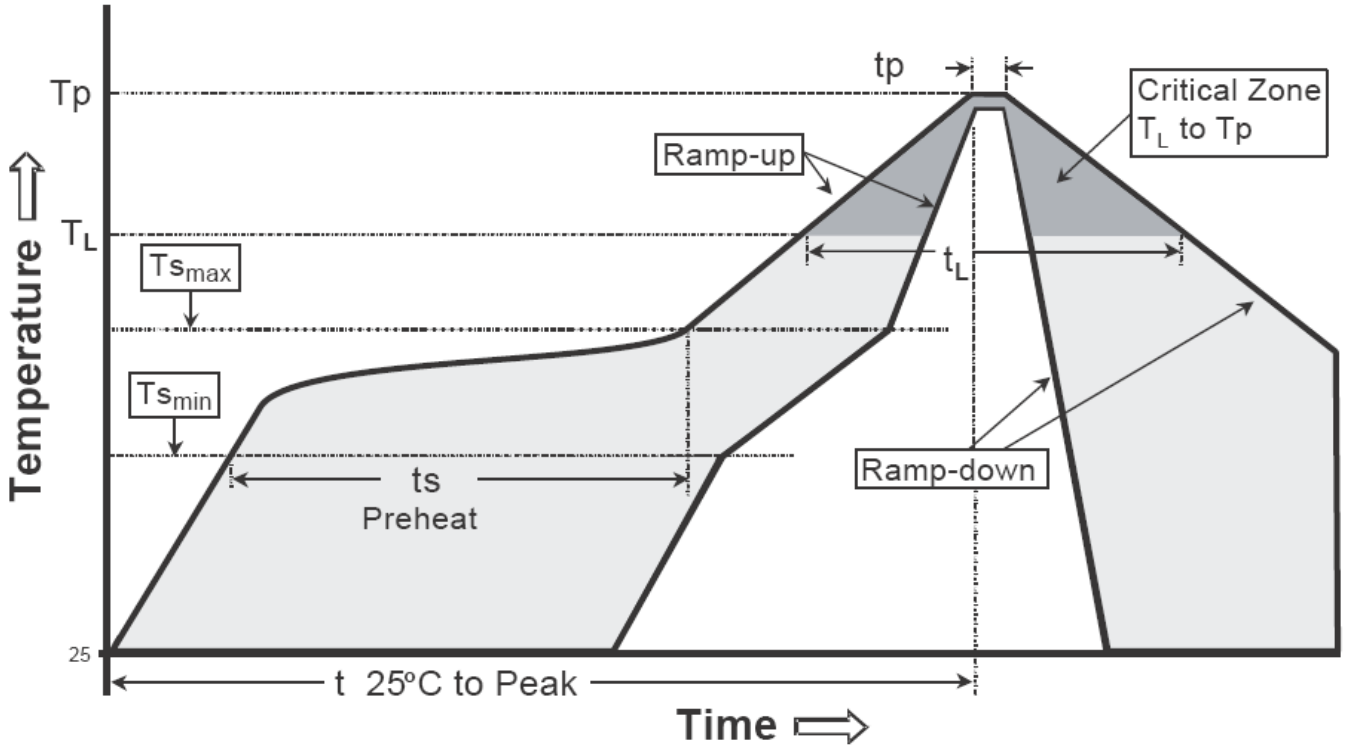




Recommended wave soldering condition

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

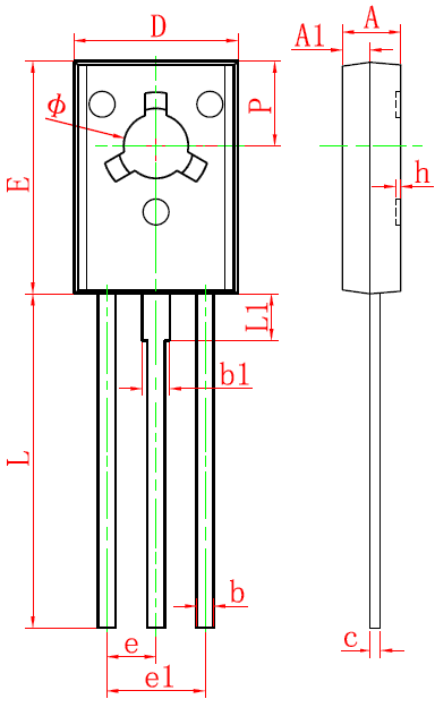
Recommended temperature profile for IR reflow



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(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.

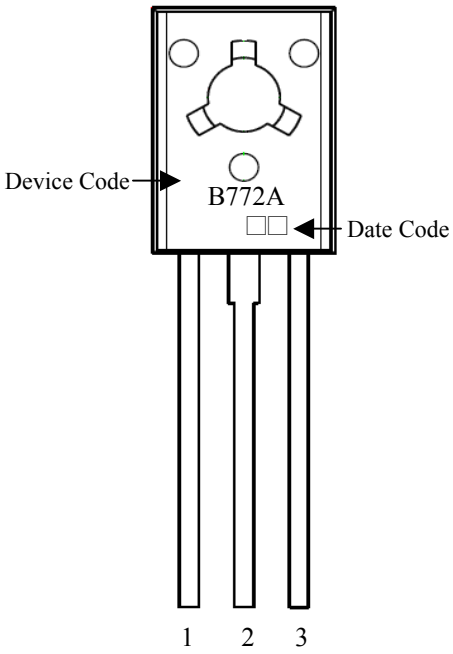
TO-126 Dimension



Style: Pin 1.Emitter 2.Collector 3.Base

3-Lead TO-126 Plastic Package
CYStek Package Code: T3

Marking:



Date Code : Year Code + Month Code
Year Code : 2011→1, 2012→2,…, 2020→0,
2021→1, 2022→2, …, etc
Month Code : Jan →1, Feb → 2,…, Sep→9,
Oct→A, Nov→B, Dec→C

*: Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	2.500	2.900	0.098	0.114	e	*2.290		*0.090	
A1	1.100	1.500	0.043	0.059	e1	4.480	4.680	0.176	0.184
b	0.660	0.860	0.026	0.034	h	0.000	0.300	0.000	0.012
b1	1.170	1.370	0.046	0.054	L	15.300	15.700	0.602	0.618
c	0.450	0.600	0.018	0.024	L1	2.100	2.300	0.083	0.091
D	7.400	7.800	0.291	0.307	P	3.900	4.100	0.154	0.161
E	10.600	11.000	0.417	0.433	Φ	3.000	3.200	0.118	0.126

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.