General Purpose PNP Epitaxial Planar Transistor

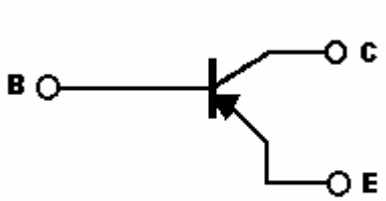
BTA1270A3

Description

- The BTA1270A3 is designed for using in driver stage of AF amplifier and general purpose amplification.
- Large I_C , $I_{C\ Max}$.= -0.6A
- Low $V_{CE(sat)}$, typically -0.09V at I_C/I_B = -100mA / -10mA. Ideal for low-voltage operation
- Pb-free lead plating and halogen-free package.

Symbol

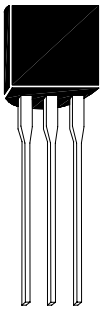
BTA1270A3



B：Base
C：Collector
E：Emitter

Outline

TO-92



E C B

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-80	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-7	V
Collector Current	I_C	-0.6	A
Power Dissipation	Pd	625	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	-80	-	-	V	I_C=-100μA
BV_{CEO}	-60	-	-	V	I_C=-1mA
BV_{EBO}	-7	-	-	V	I_E=-100μA
I_{CBO}	-	-	-0.1	μA	V_{CB}=-80V, I_E=0
I_{EBO}	-	-	-0.1	μA	V_{EB}=-7V, I_C=0
*$V_{CE(sat)}$	-	-0.09	-0.2	V	I_C=-100mA, I_B=-10mA
*$V_{BE(sat)}$	-	-0.83	-1.2	V	I_C=-100mA, I_B=-10mA
*$V_{BE(on)}$	-0.6	-0.8	-1.0	V	V_{CE}=-1V, I_C=-100mA
h_{FE} 1	120	-	240	-	V_{CE}=-1V, I_C=-100mA
h_{FE} 2	100	-	-	-	V_{CE}=-6V, I_C=-400mA
f_T	200	-	-	MHz	V_{CE}=-10V, I_C=-20mA, f=100MHz
Cob	-	4.5	8.5	pF	V_{CB}=-10V, f=1MHz

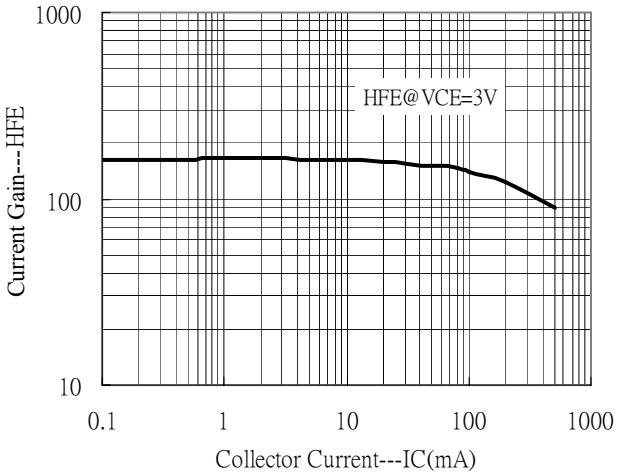
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Ordering Information

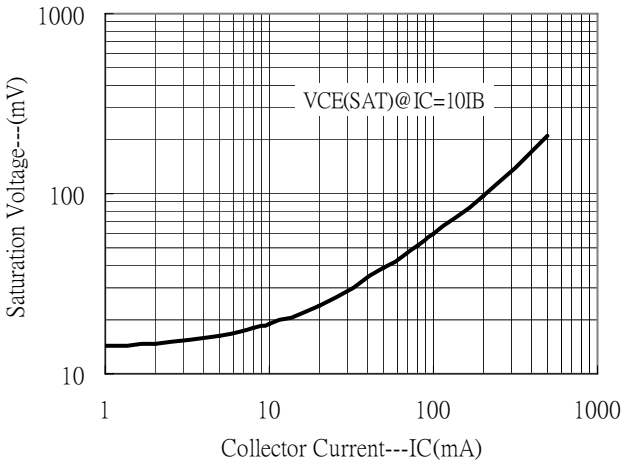
Device	Package	Shipping
BTA1270A3-0-TB-G	TO-92 (Pb-free lead plating and halogen-free)	2000 pcs / Tape & Box
BTA1270A3-0-BK-G	TO-92 (Pb-free lead plating and halogen-free)	1000 pcs/ bag, 10 bags/box, 10boxes/carton

Characteristic Curves

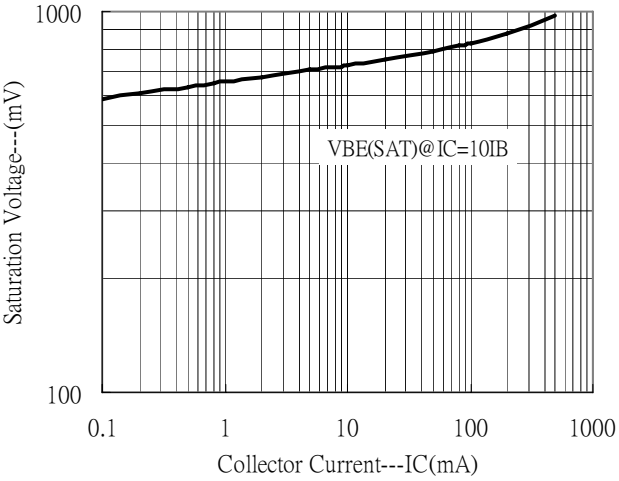
Current Gain vs Collector Current



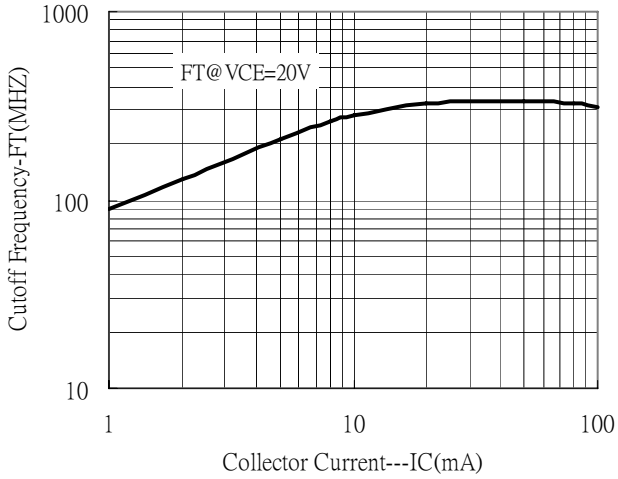
Saturation Voltage vs Collector Current



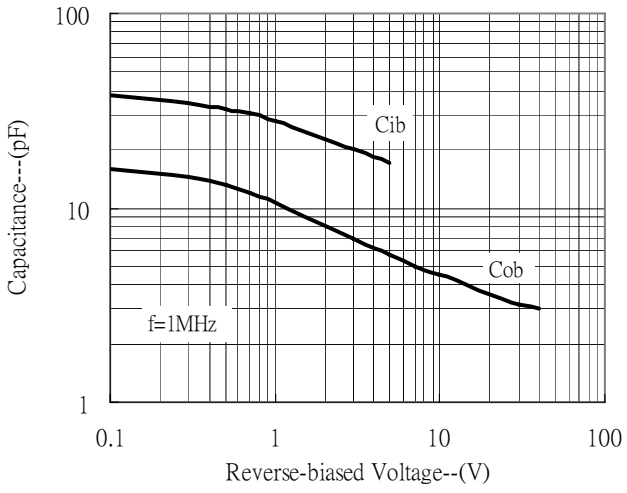
Saturation Voltage vs Collector Current



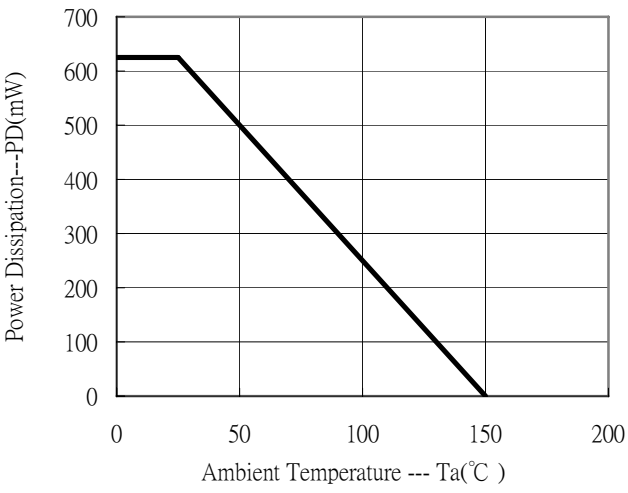
Cutoff Frequency vs Collector Current



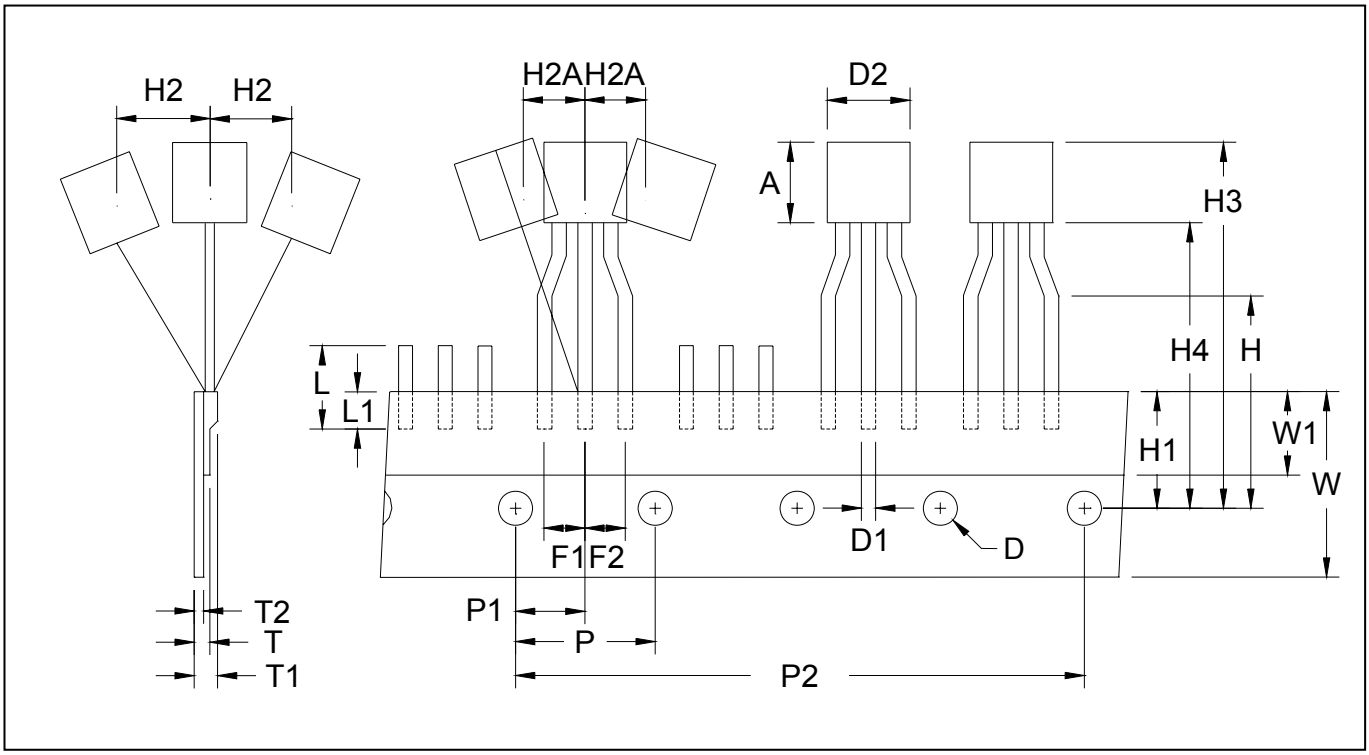
Capacitances vs Reverse-biased Voltage



Power Derating Curve



TO-92 Taping Outline

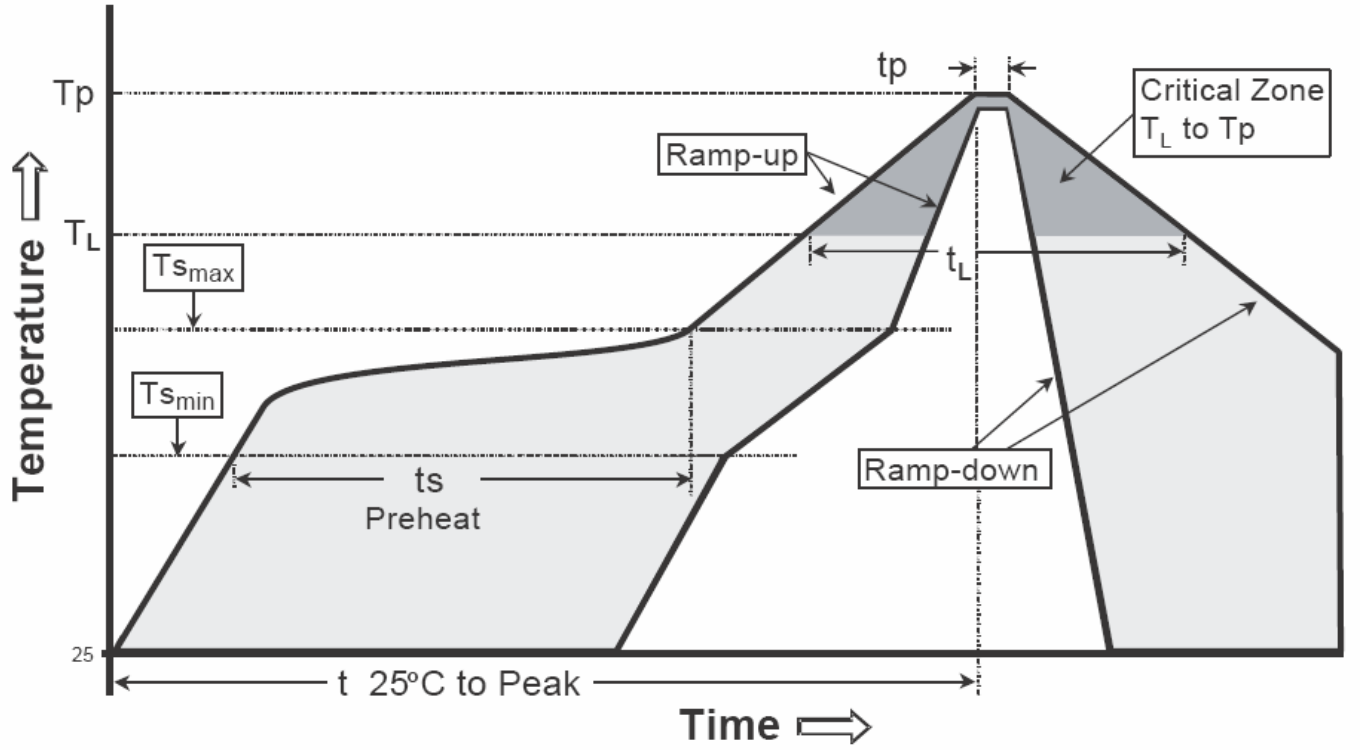


DIM	Item	Millimeters	
		Min.	Max.
A	Component body height	4.33	4.83
D	Tape Feed Diameter	3.80	4.20
D1	Lead Diameter	0.36	0.53
D2	Component Body Diameter	4.33	4.83
F1,F2	Component Lead Pitch	2.40	2.90
F1,F2	F1-F2	-	±0.3
H	Height Of Seating Plane	15.50	16.50
H1	Feed Hole Location	8.50	9.50
H2	Front To Rear Deflection	-	1
H2A	Deflection Left Or Right	-	1
H3	Component Height	-	27
H4	Feed Hole To Bottom Of Component	-	21
L	Lead Length After Component Removal	-	11
L1	Lead Wire Enclosure	2.50	-
P	Feed Hole Pitch	12.50	12.90
P1	Center Of Seating Plane Location	5.95	6.75
P2	4 Feed Hole Pitch	50.30	51.30
T	Over All Tape Thickness	-	0.55
T1	Total Taped Package Thickness	-	1.42
T2	Carrier Tape Thickness	0.36	0.68
W	Tape Width	17.50	19.00
W1	Adhesive Tape Width	5.00	7.00
-	20 pcs Pitch	253	255

Recommended wave soldering condition

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

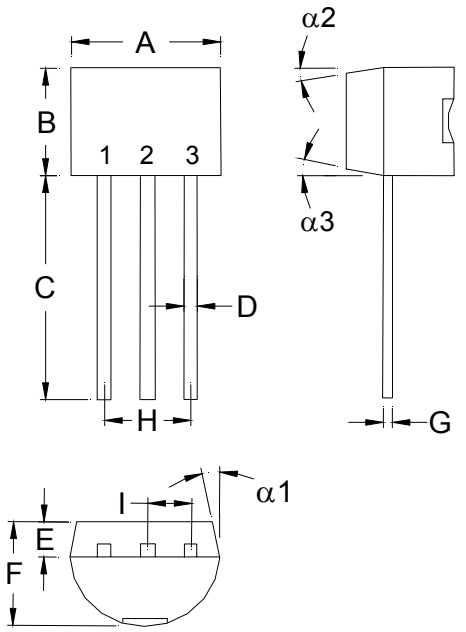
Recommended temperature profile for IR reflow



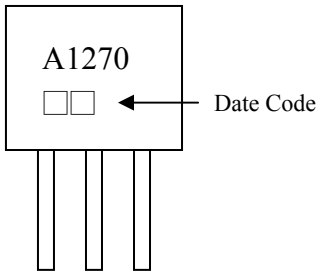
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (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-92 Dimension



Marking:



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

3-Lead TO-92 Plastic Package
CYStek Package Code: A3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1704	0.1902	4.33	4.83	G	0.0142	0.0220	0.36	0.56
B	0.1704	0.1902	4.33	4.83	H	-	*0.1000	-	*2.54
C	0.5000	-	12.70	-	I	-	*0.0500	-	*1.27
D	0.0142	0.0220	0.36	0.56	α1	-	*5°	-	*5°
E	-	*0.0500	-	*1.27	α2	-	*2°	-	*2°
F	0.1323	0.1480	3.36	3.76	α3	-	*2°	-	*2°

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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