High Voltage NPN Power Transistor

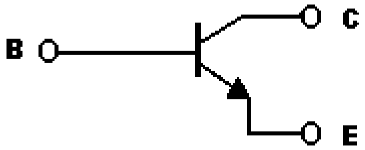
STBV32A3

Features

- High breakdown voltage, V_{CEO}=450V (min.)
- High collector current, $I_{C(max)}$=1.5A (DC)
- Pb-free lead plating package

Symbol

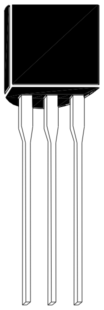
STBV32A3



B : Base
C : Collector
E : Emitter

Outline

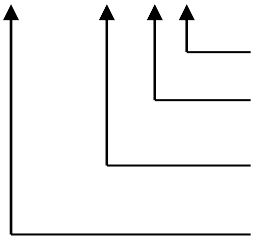
TO-92



E C B

Ordering Information

Device	Package	Shipping
STBV32A3-X-TB-X	TO-92 (Pb-free lead plating package)	2000 pcs / Tape & Box
STBV32A3-X-BK-X	TO-92 (Pb-free lead plating package)	1000 pcs/ bag, 10 bags/box, 10boxes/carton



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

Packing spec, TB :2000 pcs/tape & box; BK: 1000 pcs / bag, 10 bags/box, 10 boxes/carton

Product rank, zero for no rank products

Product name

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	700	V
Collector-Emitter Voltage	V_{CEO}	450	V
Emitter-Base Voltage	V_{EBO}	9	V
Collector Current (DC)	I_C	1.5	A
Collector Current (Pulse)	I_{CM}	3 (Note)	A
Base Current (DC)	I_B	0.5	A
Base Current (Pulse)	I_{BM}	1.5 (Note)	A
Power Dissipation	P_D	0.6	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	208	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-65~+150	°C

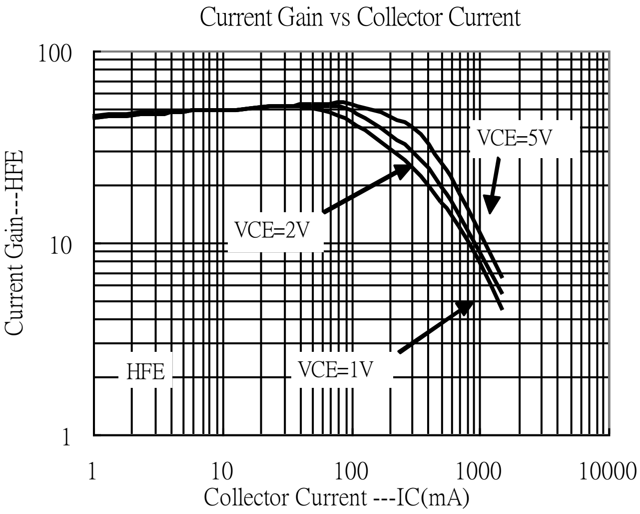
Note : Pulse test, $P_W \leq 5$ms

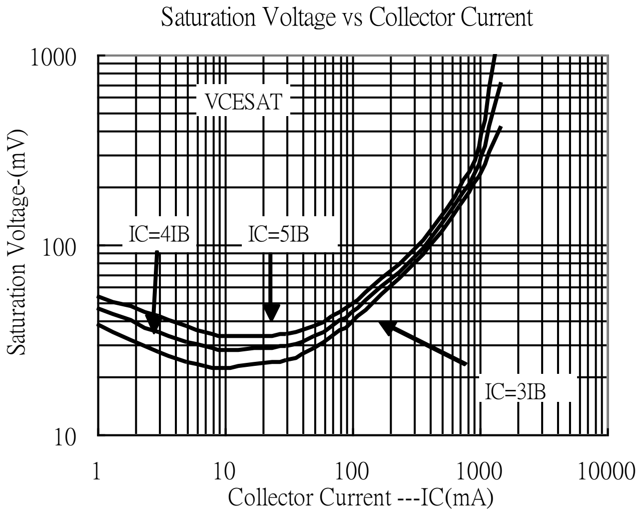
Characteristics (Ta=25°C)

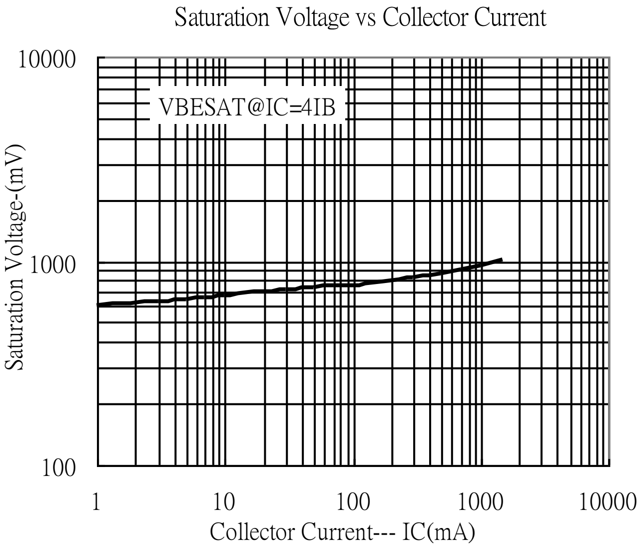
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	700	-	-	V	I_C=100μA
BV_{CEO}	450	-	-	V	I_C=10mA
BV_{EBO}	9	-	-	V	I_E=100μA
I_{CBO}	-	-	10	μA	V_{CB}=700V, I_E=0
I_{EBO}	-	-	10	μA	V_{EB}=9V, I_C=0
*$V_{CE(SAT)}$	-	-	0.4	V	I_C=500mA, I_B=100mA
*$V_{CE(SAT)}$	-	-	1	V	I_C=1.5A, I_B=500mA
*h_{FE} 1	18	-	39	-	V_{CE}=2V, I_C=500mA
*h_{FE} 2	5	-	35	-	V_{CE}=2V, I_C=1A
f_T	4	-	-	MHz	V_{CE}=10V, I_C=100mA, f=100MHz
Cob	-	21	-	pF	V_{CB}=10V, I_E=0A, f=1MHz
ton	-	1.1	-	μs	V_{CC}=125V, R_L=125Ω,I_C=1A, I_B1=-I_B2=0.2A
tstg	-	-	4		
tf	-	-	0.7		

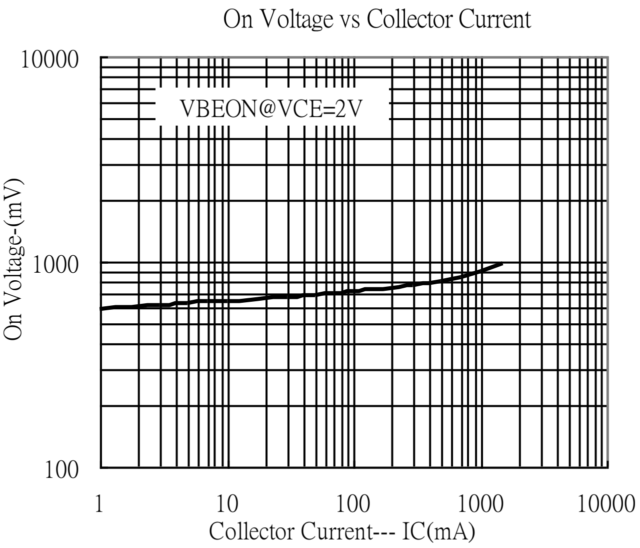
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

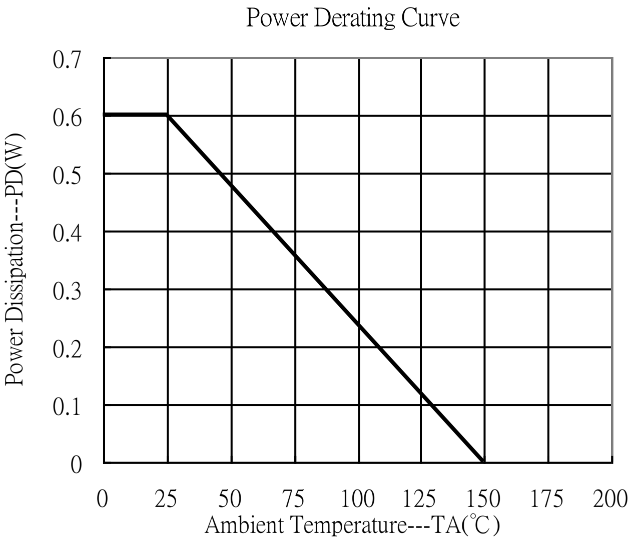
Typical Characteristics



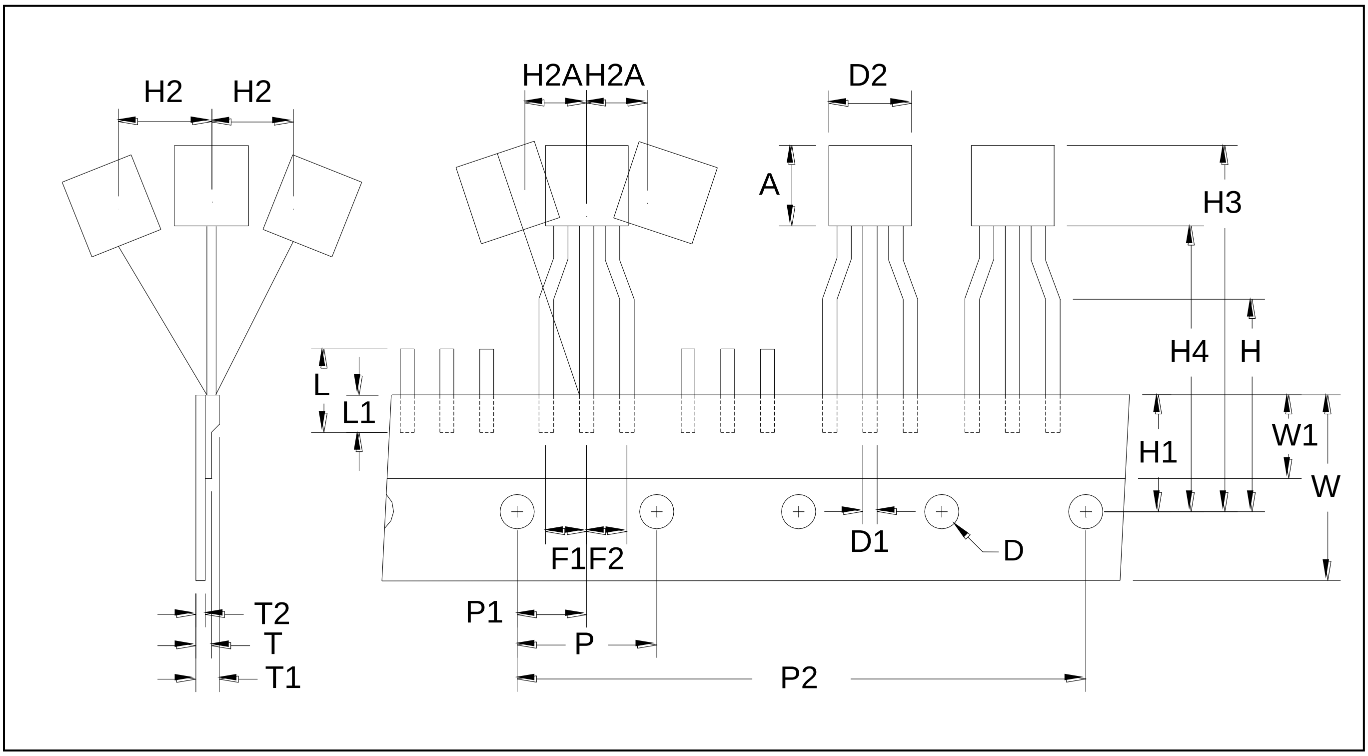








TO-92 Taping Outline

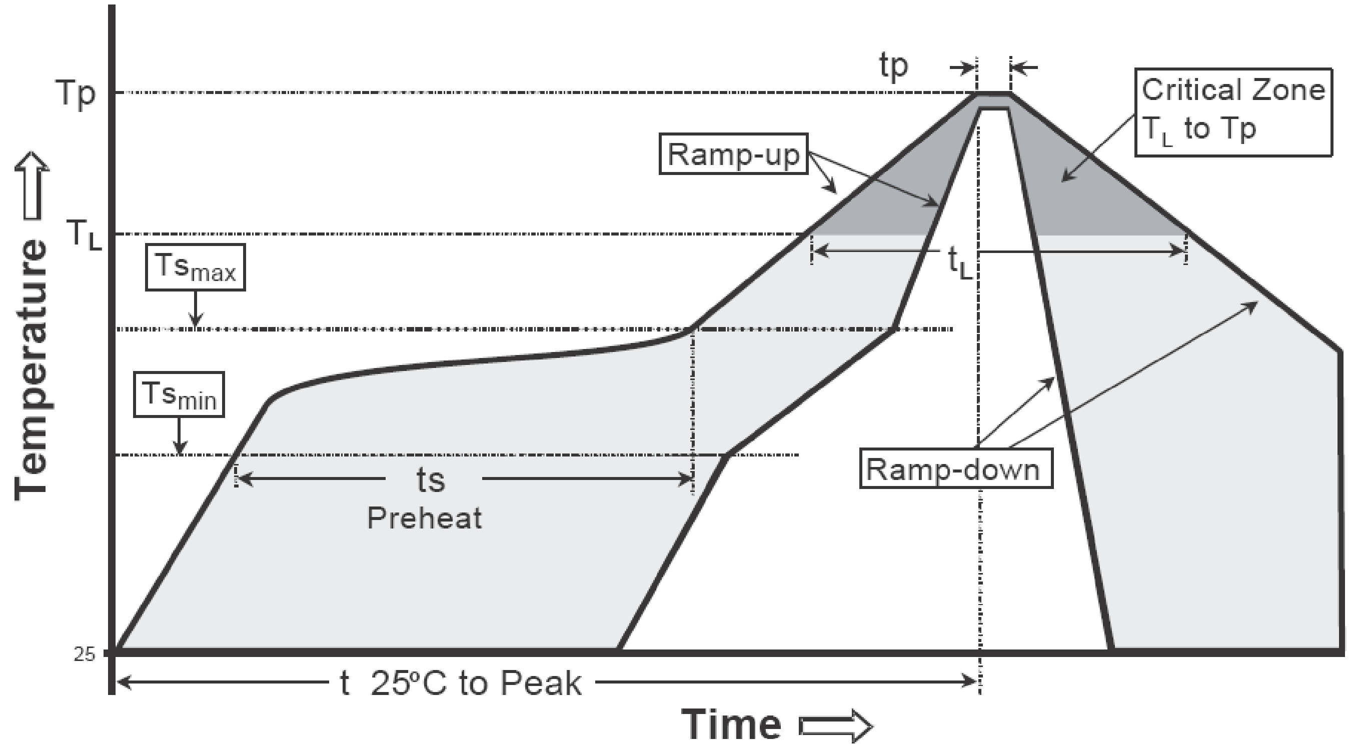


DIM	Item	Millimeters	
		Min.	Max.
A	Component body height	4.33	4.83
D	Tape Feed Diameter	3.80	4.20
D1	Lead Diameter	0.36	0.53
D2	Component Body Diameter	4.33	4.83
F1,F2	Component Lead Pitch	2.40	2.90
F1,F2	F1-F2	-	±0.3
H	Height Of Seating Plane	15.50	16.50
H1	Feed Hole Location	8.50	9.50
H2	Front To 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

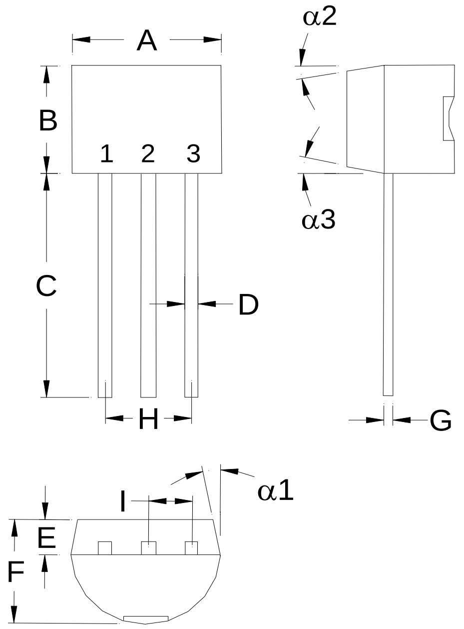
Recommended temperature profile for IR reflow



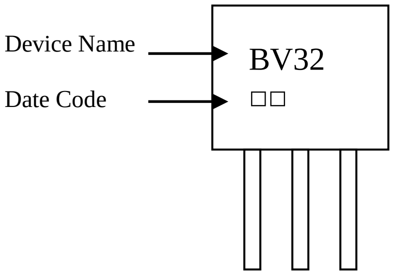
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL)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

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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