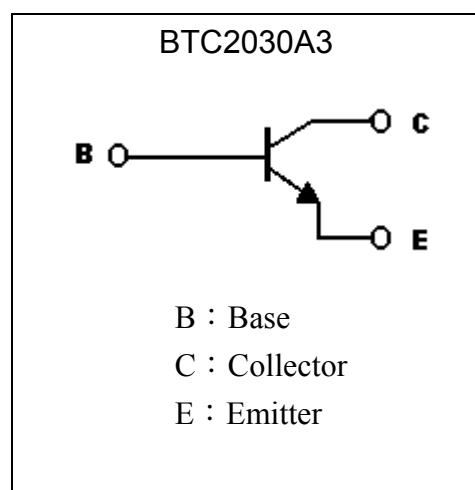
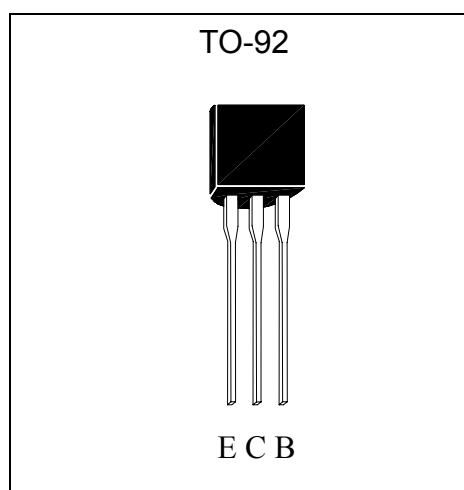


General Purpose NPN Epitaxial Planar Transistor

BTC2030A3

Features

- High breakdown voltage, $BV_{CEO} \geq 200V$
- Large continuous collector current capability
- Low collector saturation voltage
- Pb-free package

Symbol

Outline

Absolute Maximum Ratings ($T_a=25^{\circ}C$)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	280	V
Collector-Emitter Voltage	V_{CEO}	200	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	1	A
Base Current	I_B	0.5	A
Power Dissipation	P_d	900	mW
Junction Temperature	T_j	150	$^{\circ}C$
Storage Temperature	T_{stg}	-55~+150	$^{\circ}C$

**Characteristics** (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	280	-	-	V	I _C =10μA
BV _{CEO}	200	-	-	V	I _C =10mA
BV _{EB0}	6	-	-	V	I _E =10μA
I _{CB0}	-	-	100	nA	V _{CB} =250V
I _{EB0}	-	-	100	nA	V _{EB} =6V
*V _{CE(sat)}	-	0.2	0.5	V	I _C =500mA, I _B =50mA
*V _{CE(sat)}	-	-	1	V	I _C =1A, I _B =50mA
*V _{BE(sat)}	-	-	0.9	V	I _C =500mA, I _B =50mA
*V _{BE(on)}	0.45	-	0.75	V	V _{CE} =5V, I _C =5mA
*h _{FE} 1	100	-	-	-	V _{CE} =5V, I _C =50mA
*h _{FE} 2	100	-	320	-	V _{CE} =5V, I _C =200mA
*h _{FE} 3	50	-	-	-	V _{CE} =5V, I _C =1A
f _T	20	100	-	MHz	V _{CE} =5V, I _C =200mA
Cob	-	-	20	pF	V _{CB} =10V, I _E =0A, f=1MHz

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

Classification Of h_{FE} 2

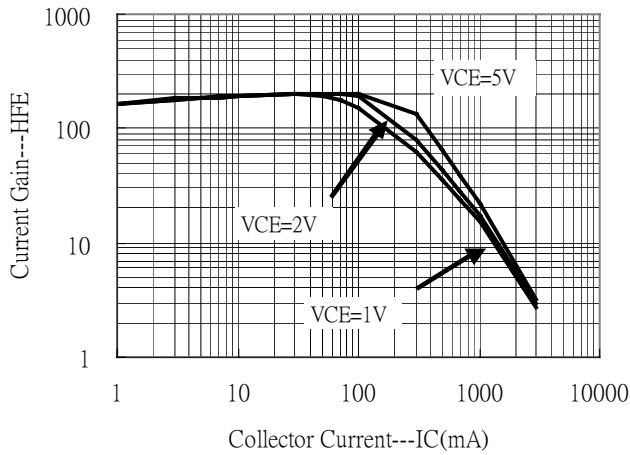
Rank	O	Y
Range	100~200	160~320

Ordering Information

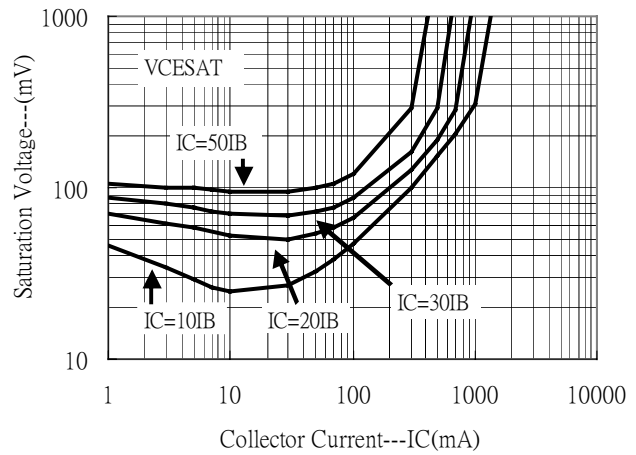
Device	Package	Shipping	Marking
BTC2030A3	TO-92 (Pb-free)	2000 pcs / Tape & Box	C2030

Characteristic Curves

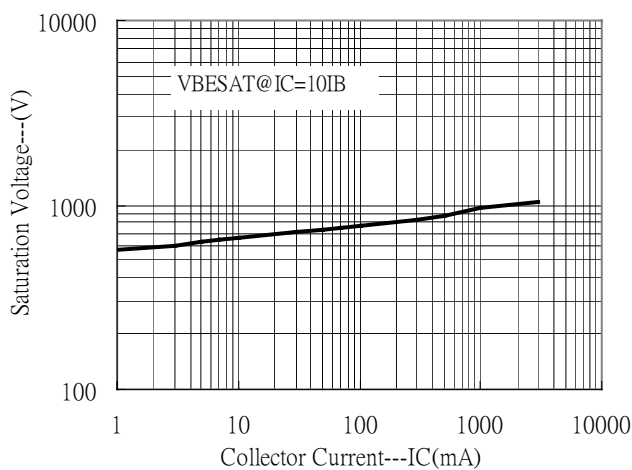
Current Gain vs Collector Current



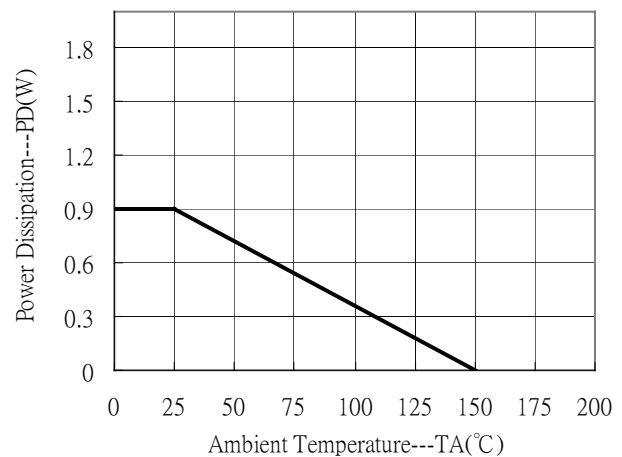
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current

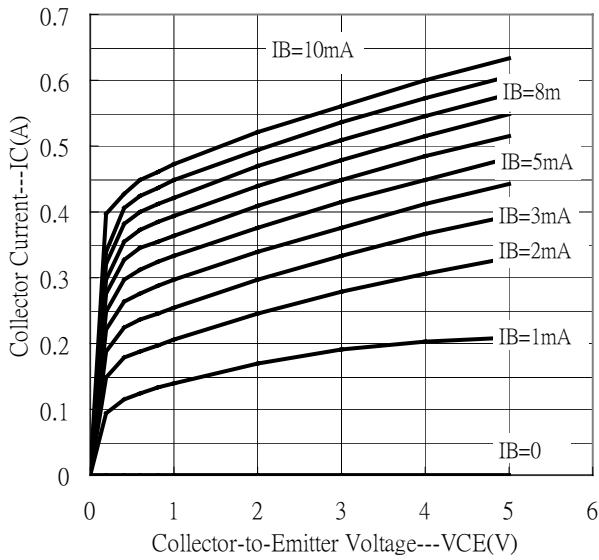


Power Derating Curve

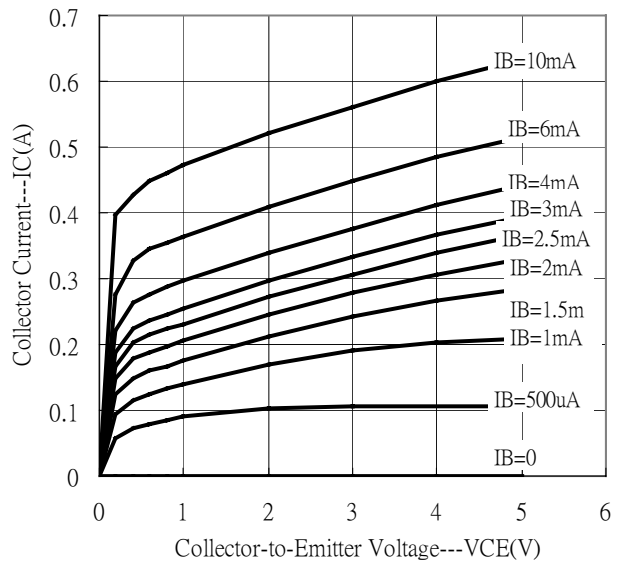


Characteristic Curves(Cont.)

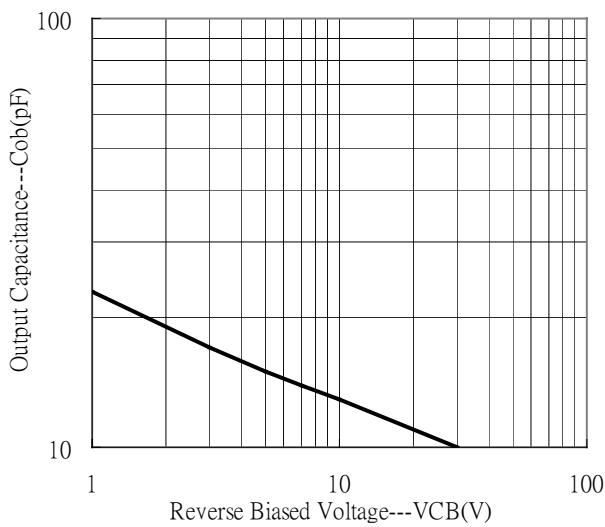
Output Characteristics



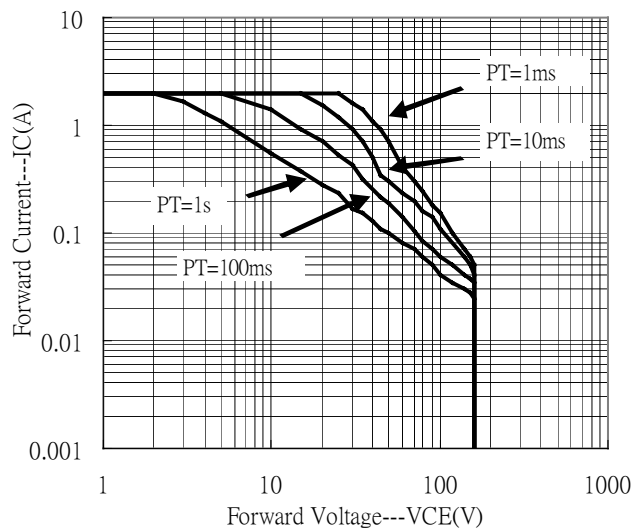
Output Characteristics



Output Capacitance vs Reverse Biased Voltage



Safe Operating Area





Product Designation

BT X XXXX XX
(1) (2) (3) (4)

(1) Indicates that transistor is bipolar

(2) Indicates polarity

A, B PNP

C, D NPN

(3) Indicates device random number

(4) Indicates package shape

N3 . . . SOT-23

A3 . . . TO-92

E3 . . . TO-220AB

FP . . . TO-220FP

J3 . . . TO-252

I3 . . . TO-251

F3 . . . TO-263

D3 . . . TO-126ML

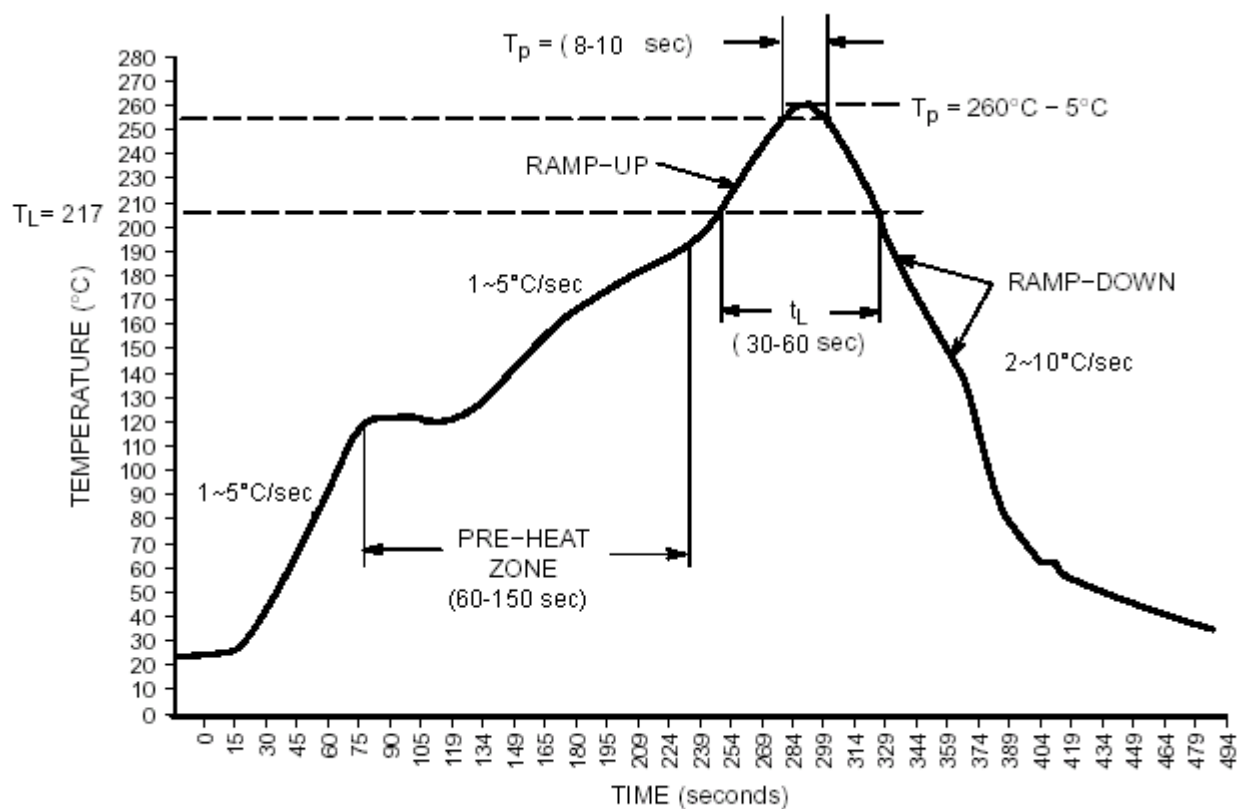
T3 . . . TO-126

L3 . . . SOT-223

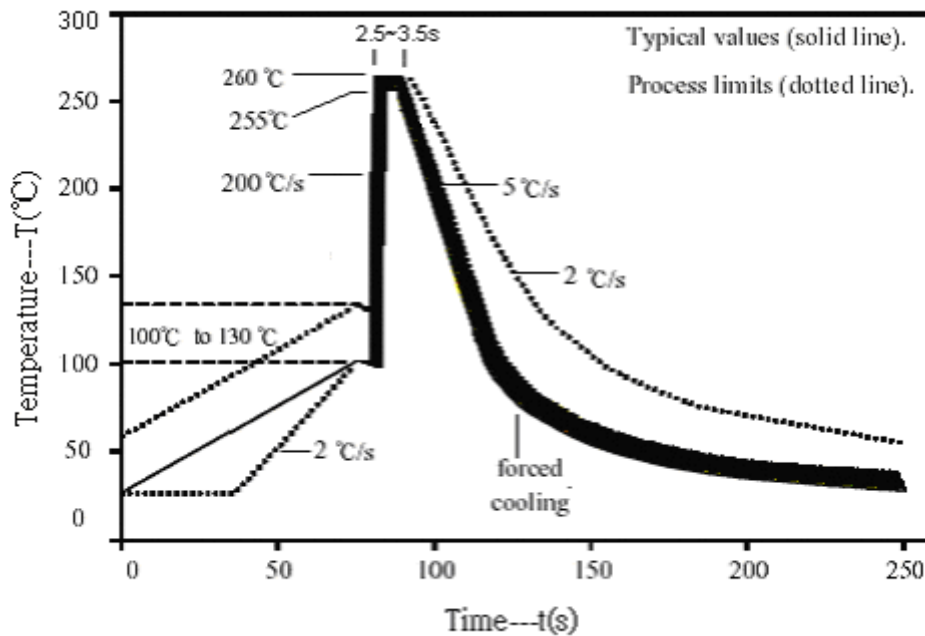
M3 . . . SOT-89

S3 . . . SOT-323

Recommended IR reflow profile



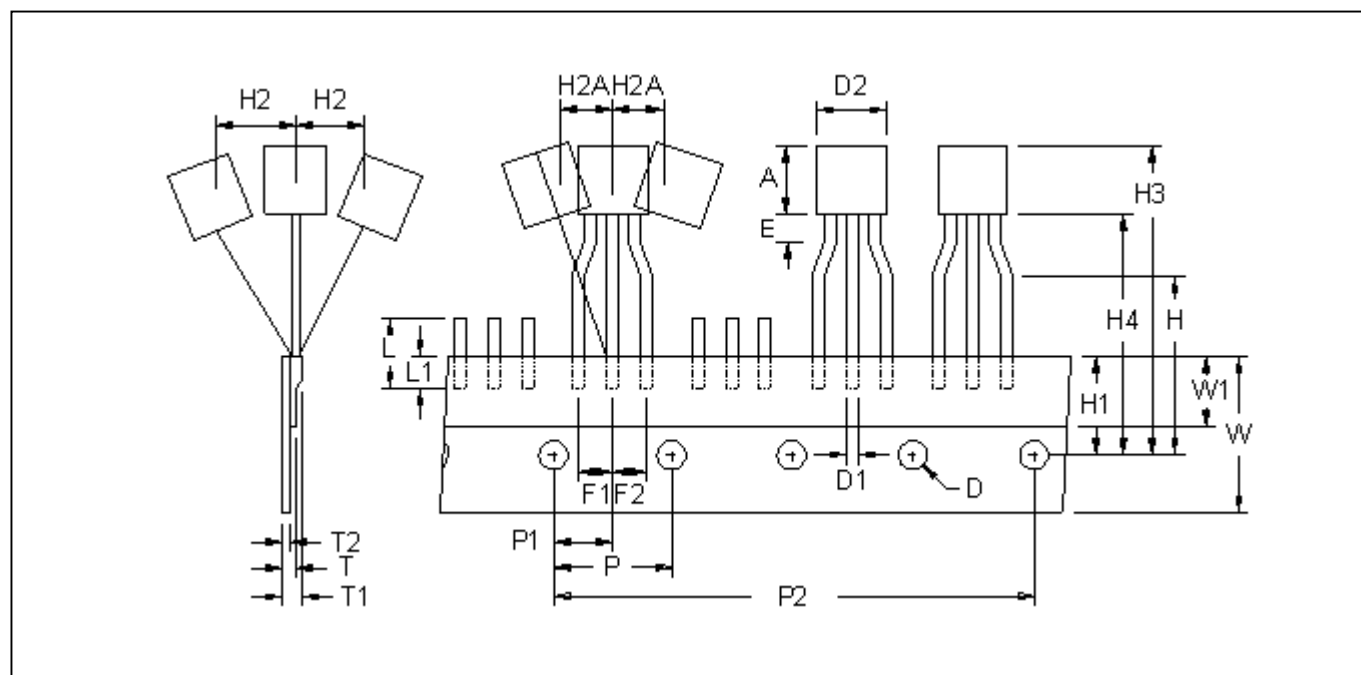
Recommended temperature profile for wave soldering



Recommendation:

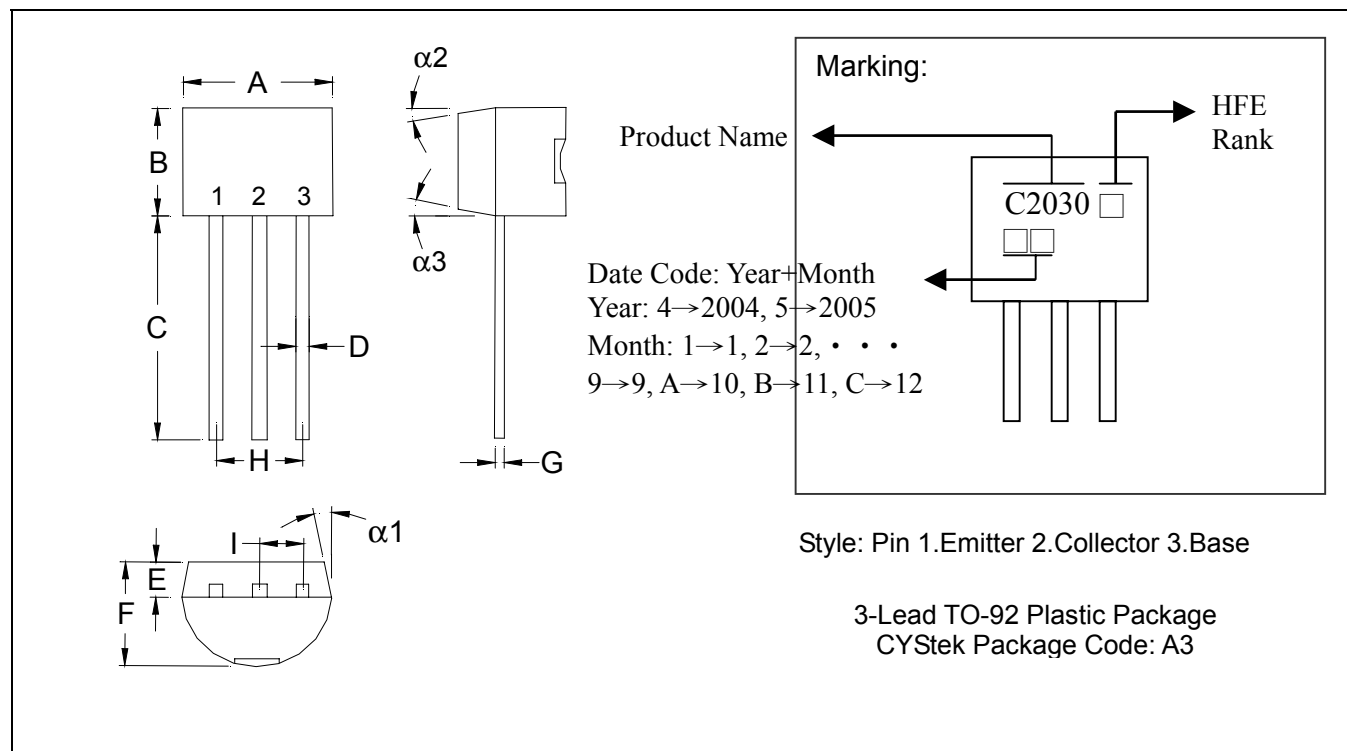
1. Preheat temperature at solder side must be between 100 and 130 $^{\circ}\text{C}$ for 80 to 100 seconds.
2. Temperature ramp-up rate : 1~2 $^{\circ}\text{C/s}$
3. The temperature gradient between preheat and wave soldering must be smaller than +160 $^{\circ}\text{C}$.
4. Terminations must go through the wave simultaneously.
5. Travel through the wave from 255 to 260 $^{\circ}\text{C}$ for 2.5 to 3.5 seconds
6. Temperature ramp-down rate : 2~3 $^{\circ}\text{C/s}$

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
E		1.5	2.0
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

TO-92 Dimension



*: 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	$\alpha 1$	-	*5°	-	*5°
E	-	*0.0500	-	*1.27	$\alpha 2$	-	*2°	-	*2°
F	0.1323	0.1480	3.36	3.76	$\alpha 3$	-	*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: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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