



JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

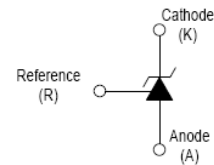
CJ431K Adjustable Reference Source

CJ431K Adjustable Accurate Reference Source

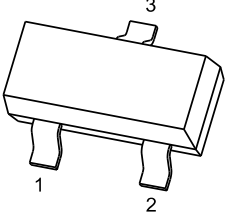
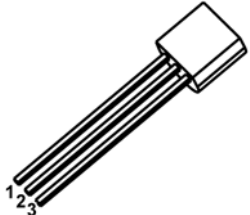
FEATURES

- The output voltage can be adjusted to 36V
- Low dynamic output impedance ,its typical value is 0.2Ω
- Trapping current capability is 1 to 100mA
- The typical value of the equivalent temperature factor in the whole temperature scope is 50 ppm/°C
- The effective temperature compensation in the working range of full temperature
- Low output noise voltage
- Fast on-state response
- ESD protected up to 3KV

Equivalent Circuit



PIN CONNENCTIONS and MARKING

CJ431K 	SOT -23 1.REFERENCE 2.CATHODE 3. ANODE
CJ431K 	TO-92 1.REFERENCE 2.ANODE 3.CATHODE

ORDERING INFORMATION

Part Number	MARKING ⁽¹⁾	Package	Packing Method	Pack Quantity
CJ431K	431K •	SOT-23	Reel	3000pcs/Reel
CJ431K	CJ ⁽²⁾ TL431K • XXX	TO-92	Bulk	1000pcs/Bag
CJ431K-TA	CJ ⁽²⁾ TL431K • XXX	TO-92	Tape	2000pcs/Box

Notes:(1).Solid dot=Green molding compound device,if none,the normal device.

(2).XXX=Code

ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value		Units
		SOT-23	TO-92	
Cathode Voltage	V_{KA}	37		V
Cathode Current Range (Continuous)	I_{KA}	-100~+150		mA
Reference Input Current Range	I_{ref}	0.05~+10		mA
Power Dissipation	P_D	300	770	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	417	162	°C/W
Operating Junction Temperature	T_J	-40~ +125		°C
Storage Temperature Range	T_{stg}	-65~+150		°C

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Reference input voltage	V _{ref}	V _{KA} =V _{REF} , I _{KA} =10mA		2.470	2.495	2.520	V
Deviation of reference input voltage over temperature (note)	V _{ref(dev)}	V _{KA} =V _{REF} , I _{KA} =10mA Tmin≤Ta≤Tmax			4.5	17	mV
Ratio of change in reference Input voltage to the change in cathode voltage	ΔV _{ref} /ΔV _{KA}	I _{KA} =10mA	ΔV _{KA} =10V~V _{REF}		-1.0	-2.7	mV/V
			ΔV _{KA} =36V~10V		-0.5	-2.0	mV/V
Reference input current	I _{ref}	I _{KA} = 10mA,R ₁ =10kΩ R ₂ =∞			1.5	4	μA
Deviation of reference input current over full temperature range	I _{ref(dev)}	I _{KA} =10mA, R ₁ =10kΩ R ₂ =∞ T _A =-25 to 125℃			0.4	1.2	μA
Minimum cathode current for regulation	I _{KA(min)}	V _{KA} =V _{REF}			0.45	1.0	mA
Off-state cathode current	I _{KA(OFF)}	V _{KA} =40V ,V _{REF} =0			0.05	0.5	μA
Dynamic impedance	Z _{KA}	V _{KA} =V _{REF} , I _{KA} =1 to 100mA f≤1.0kHz			0.15	0.5	Ω

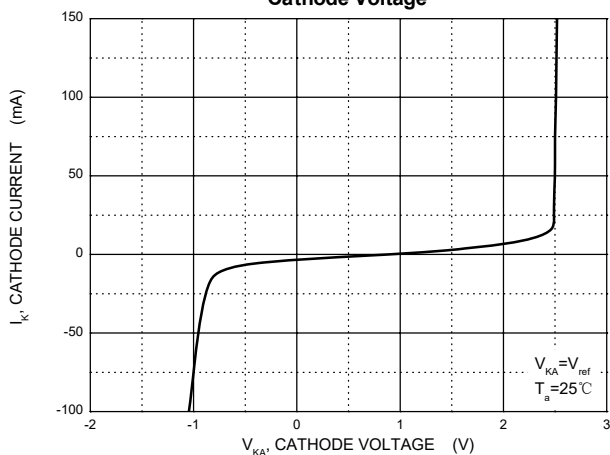
Note: $T_{MIN}=-25^\circ C$, $T_{MAX}=+85^\circ C$

CLASSIFICATION OF V_{ref}

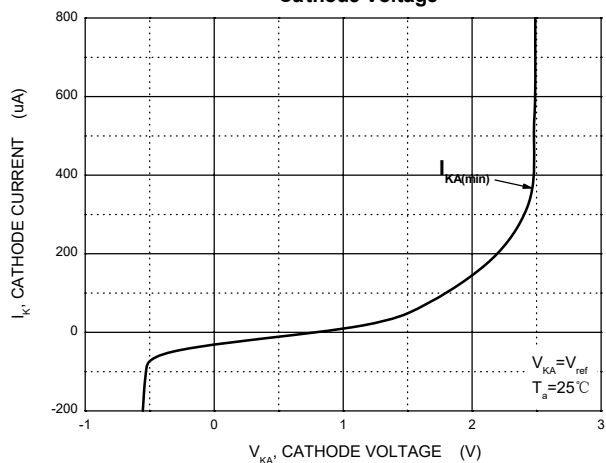
Rank	0.5%	1%
Range	2.483-2.507	2.47-2.52

Typical Characteristics

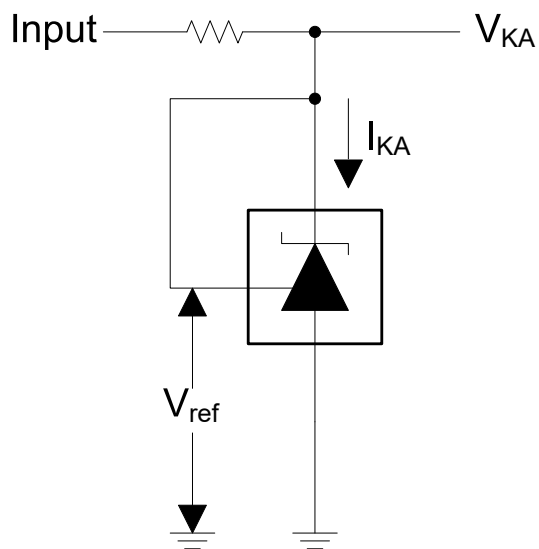
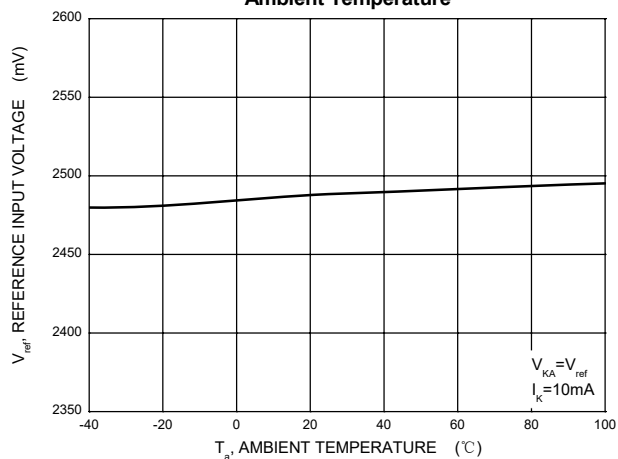
Cathode Current versus Cathode Voltage



Cathode Current versus Cathode Voltage

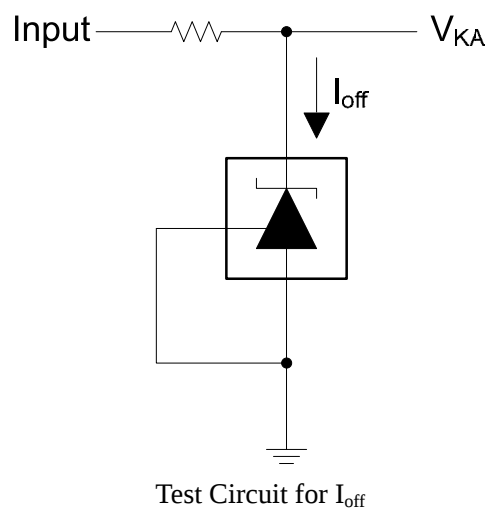
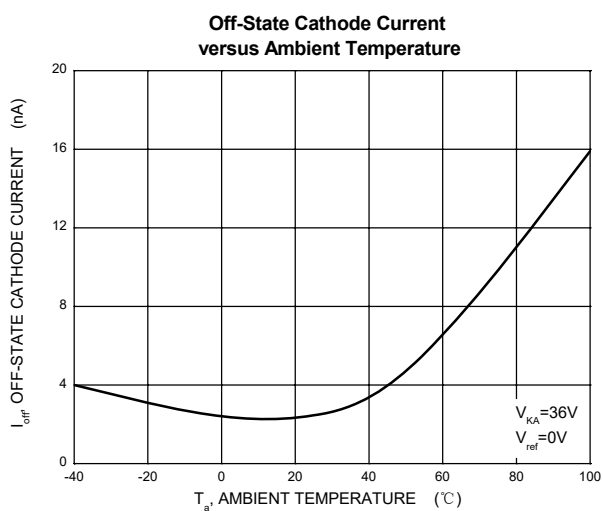
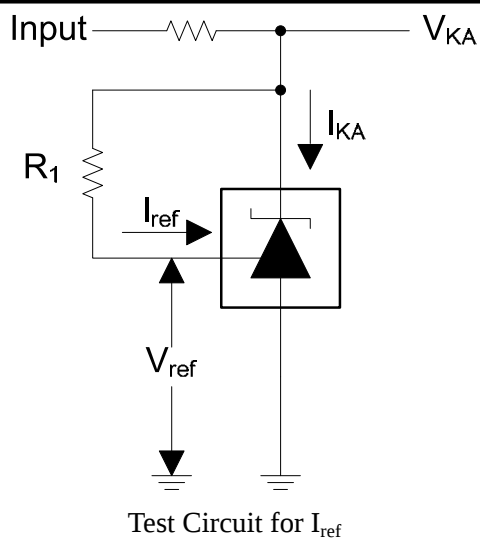
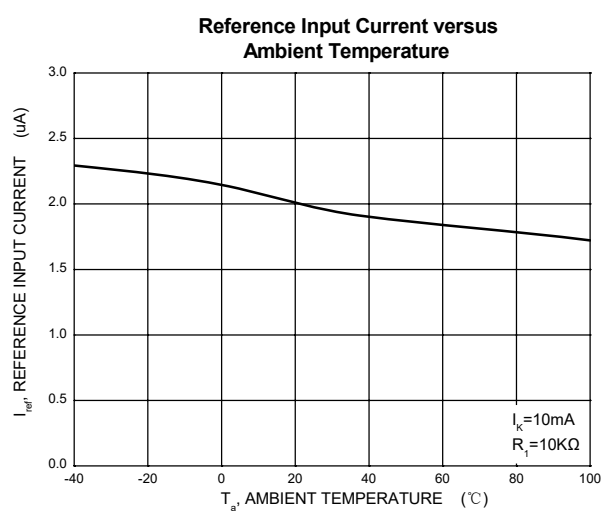
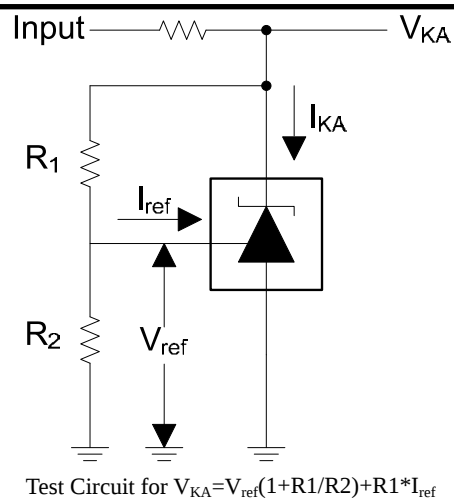
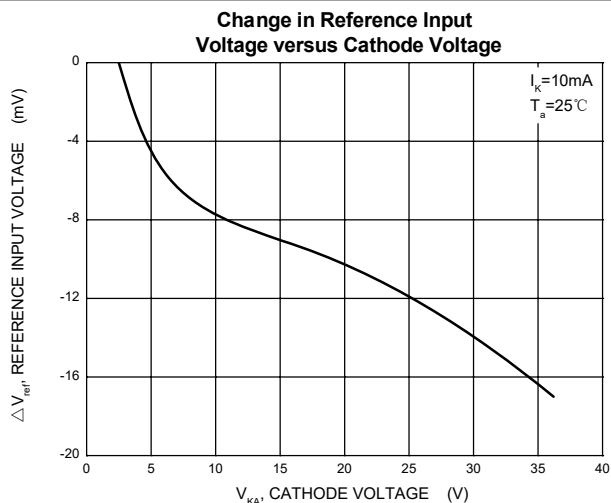


Reference Input Voltage versus Ambient Temperature

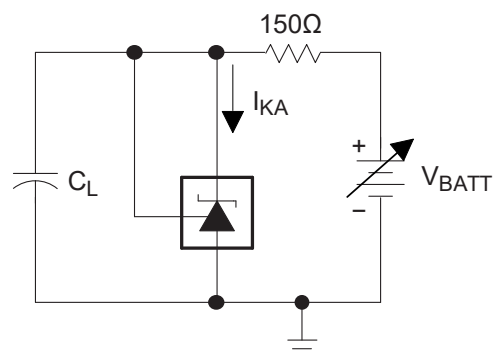
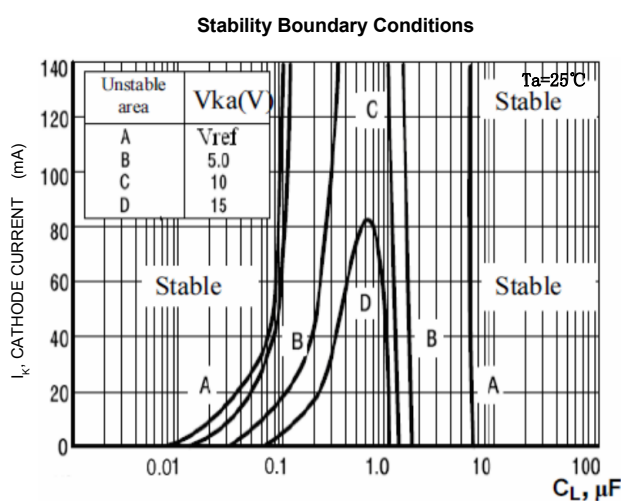


Test Circuit for $V_{KA} = V_{ref}$

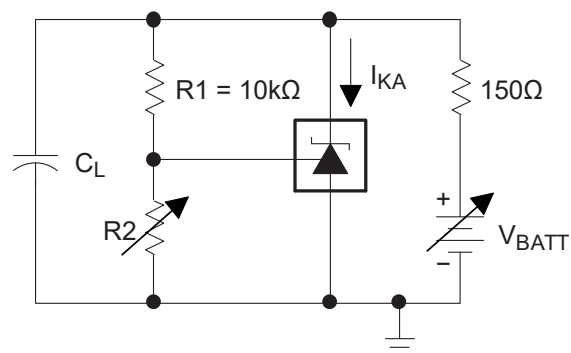
Typical Characteristics



Typical Characteristics

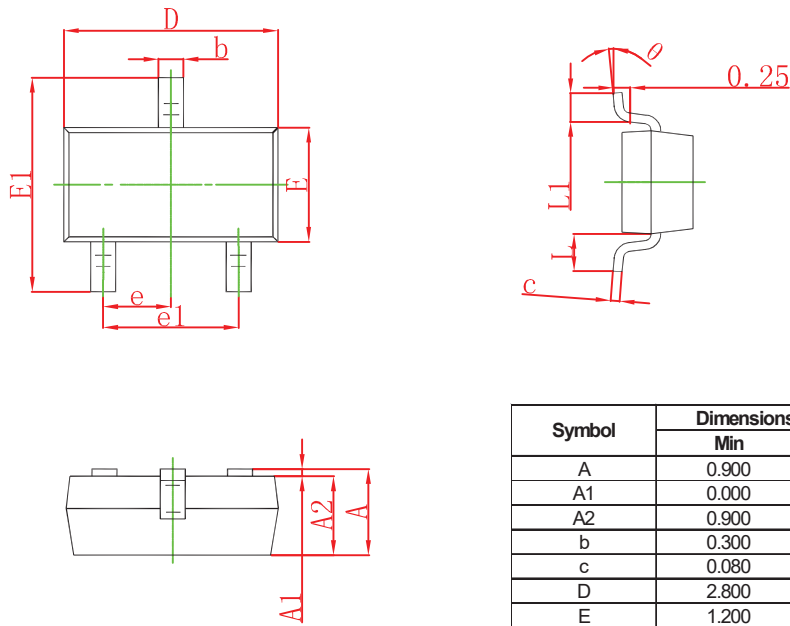


Test Circuit for $V_{KA}=V_{ref}$



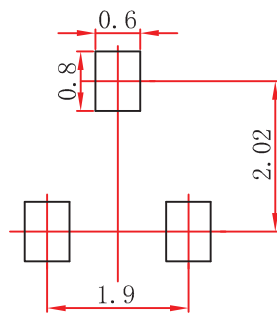
Test Circuit for $V_{KA}=V_{ref}(1+R1/R2)+R1*I_{ref}$

SOT-23 Package Outline Dimensions



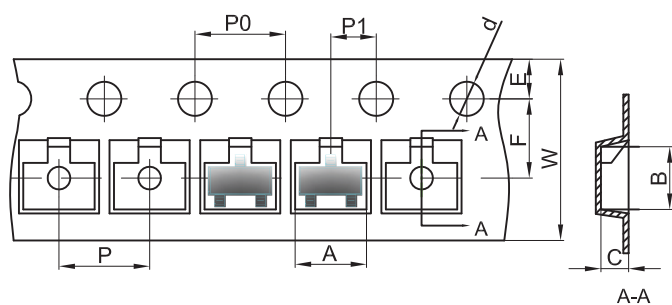
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
ϕ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
 1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.

SOT-23 Embossed Carrier Tape

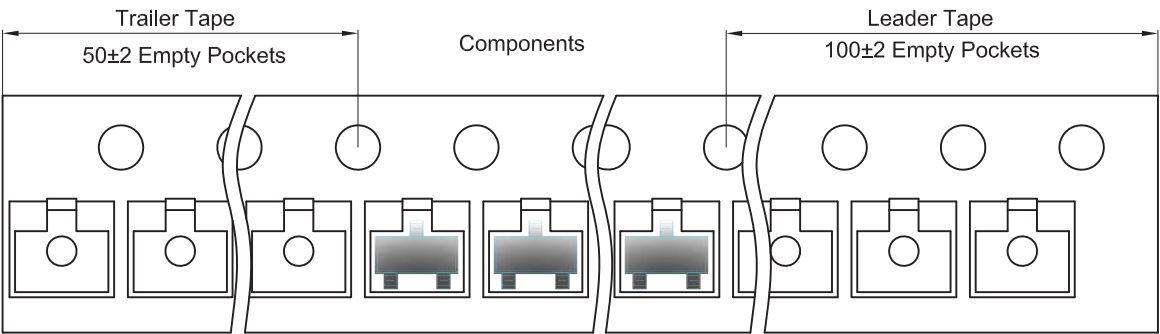


Packaging Description:

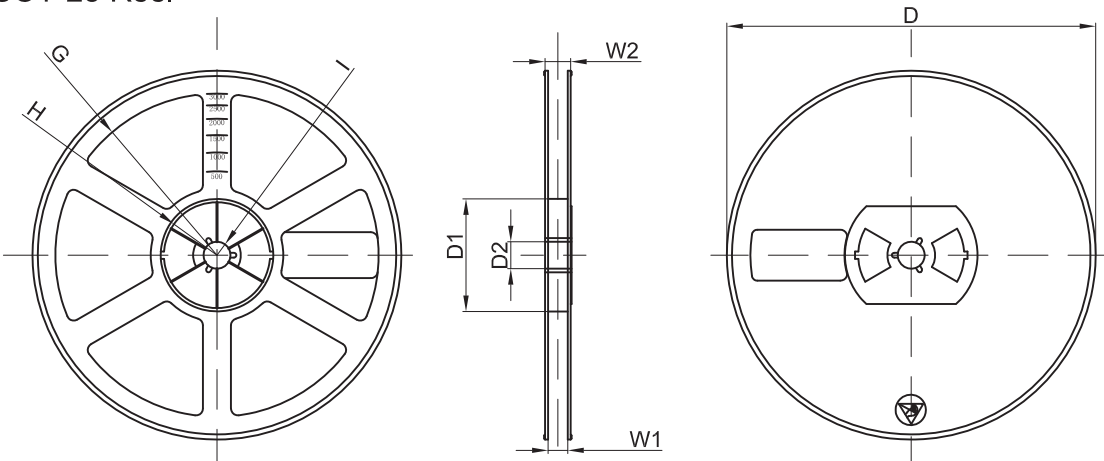
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



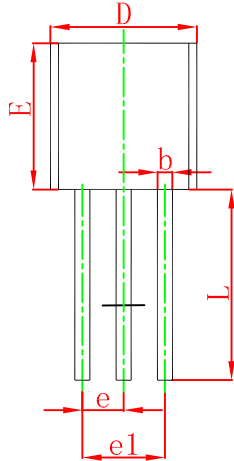
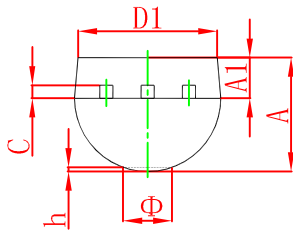
SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

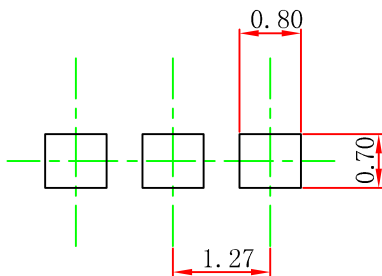
REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

TO-92 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

TO-92 Suggested Pad Layout



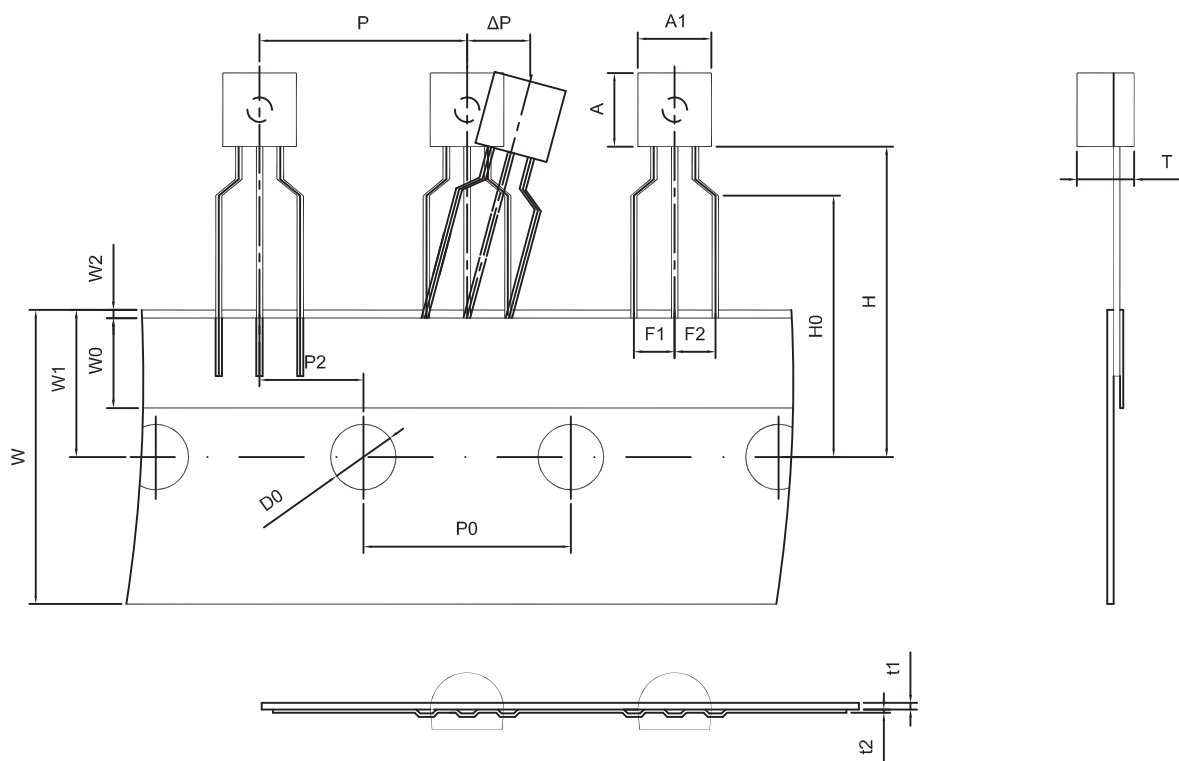
Note:

1. Controlling dimension: in millimeters.

2. General tolerance: $\pm 0.05\text{mm}$.

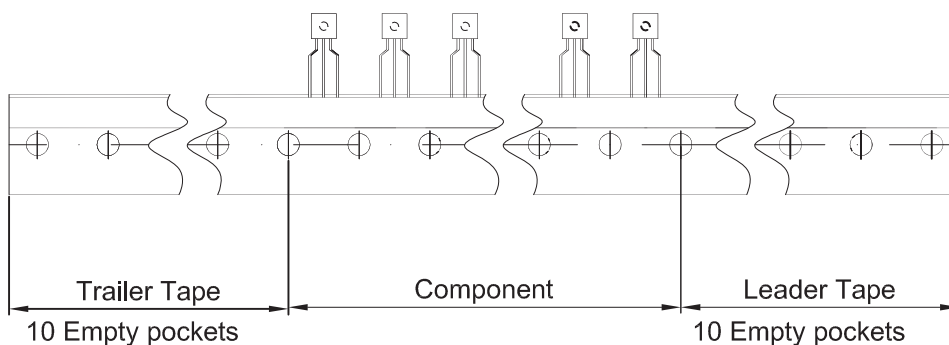
3. The pad layout is for reference purposes only.

TO-92 PACKAGE TAPEING DIMENSION



Dimiensions are in millimeter

A1	A	T	P	P0	P2	F1	F2	W
4.5	4.5	3.5	12.7	12.7	6.35	2.5	2.5	18.0
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0	9.0	1.0 MAX.	19.0	16.0	4.0	0.4	0.2	0



Package	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92	2000 pcs	333×162×43	20,000 pcs	350×340×250

DISCLAIMER

IMPORTANT NOTICE, PLEASE READ CAREFULLY

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