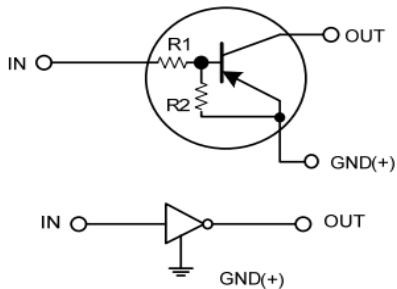




DESCRIPTION

The DTA114EM is available in SOT-723 package.
The DTA114EE is available in SOT-523 package.
The DTA114EUA is available in SOT-323 package.
The DTA114EKA is available in SOT-23 package.
The DTA114ECA is available in SOT-23S package.
The DTA114ESA is available in TO-92S package.

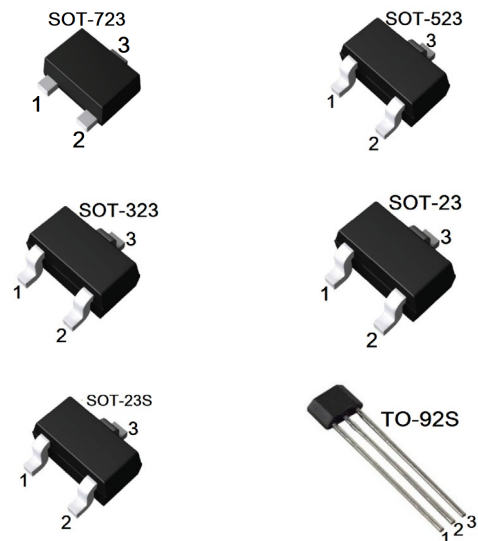
EQUIVALENT CIRCUIT



FEATURE

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input; also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, making the device design easy.

PIN DESCRIPTION



ORDERING INFORMATION

Package Type	Part Number
SOT-723 SPQ: 8,000pcs/Reel	DTA114EM
SOT-523 SPQ:3,000pcs/Reel	DTA114EE
SOT-323 SPQ:3,000pcs/Reel	DTA114EUA
SOT-23 SPQ:3,000pcs/Reel	DTA114EKA
SOT-23S SPQ:3,000pcs/Reel	DTA114ECA
TO-92S SPQ:1,000pcs/Bag	DTA114ESA
TO-92S SPQ:3,000pcs/Box	DTA114ESA-A (Ammo Tape)
AiT provides all RoHS Compliant Products	

Package	Pin1	Pin2	Pin3
SOT-723			
SOT-523			
SOT-323	IN	GND	OUT
SOT-23			
SOT-23S			
TO-92S	GND	OUT	IN



ABSOLUTE MAXIMUM RATINGS

T_A=25°C , unless otherwise noted.

Symbol	Parameter	DTA114E					
		M	E	UA	CA	KA	SA
V _{CC}	Supply Voltage	-50V					
V _{IN}	Input Voltage	-40V ~ +10V					
I _O	Output Current	-50mA					
I _{CM}	Peak Collector Current	-100 mA					
P _D	Power Dissipation	100 mW	150 mW	200 mW	200 mW	200 mW	300 mW
T _J , T _{stg}	Operation Junction and Storage Temperature Range	-55°C ~ +150°C					

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

T_A=25°C unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input voltage	V _{I(off)}	V _{CC} =-5V, I _O =-100μA	-0.5	-	-	V
	V _{I(on)}	V _O =-0.3V, I _O =-10 mA	-	-	-3	V
Output voltage	V _{O(on)}	I _O /I _I =-10mA/-0.5mA	-	-	-0.3	V
Input current	I _I	V _I =-5V	-	-	-0.88	mA
Output current	I _{O(off)}	V _{CC} =-50V, V _I =0	-	-	-0.5	μA
DC current gain	G _I	V _O =-5V, I _O =-5mA	30	-	-	-
Input resistance	R ₁		7	10	13	kΩ
Resistance ratio	R ₂ /R ₁		0.8	1	1.2	-
Transition frequency	f _T	V _O =-10V, I _O =-5mA, f=100MHz	-	250	-	MHz



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. ON Characteristics

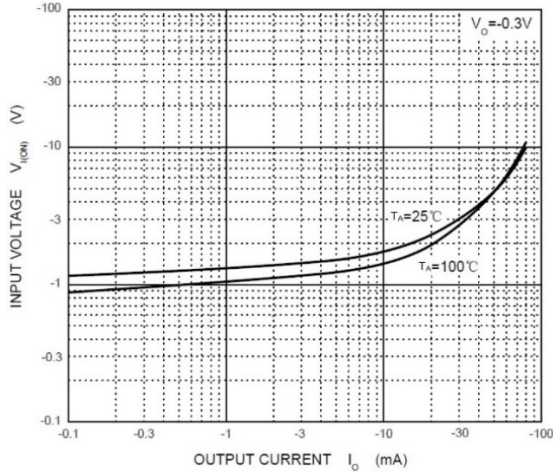


Fig 2. OFF Characteristics

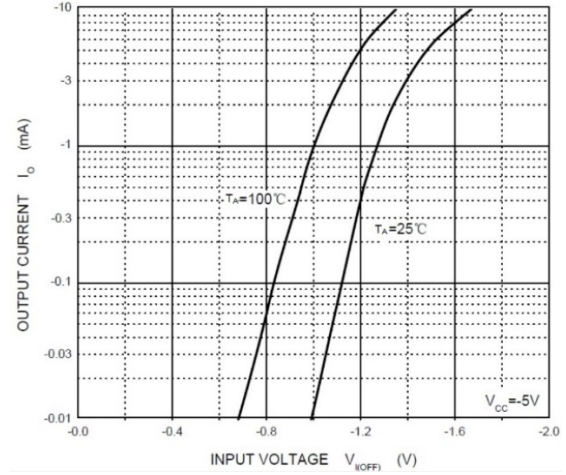


Fig 3. G_I — I_o

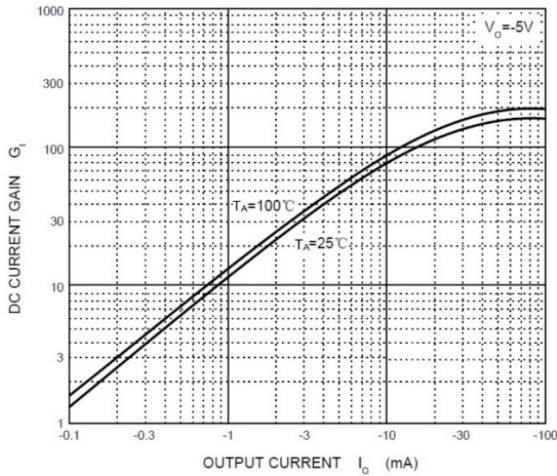


Fig 4. $V_{O(ON)}$ — I_o

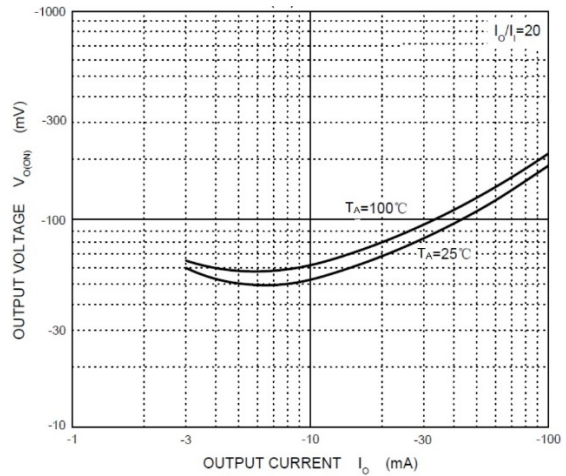


Fig 5. C_o — V_R

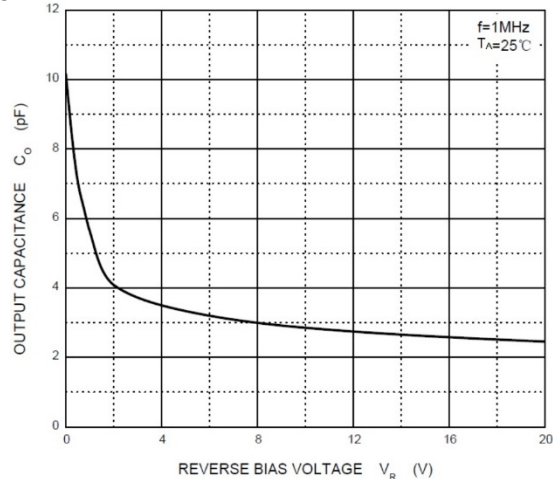
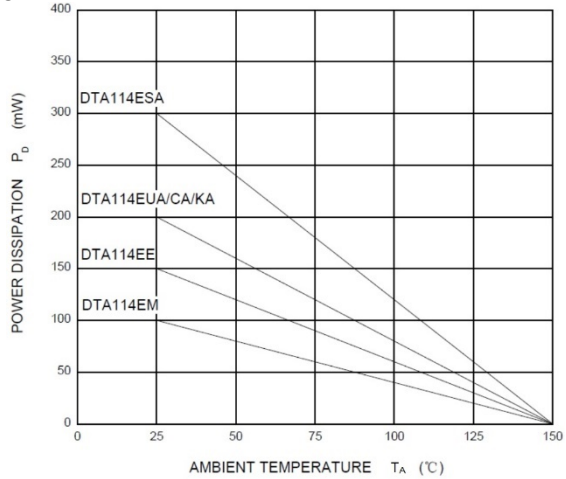


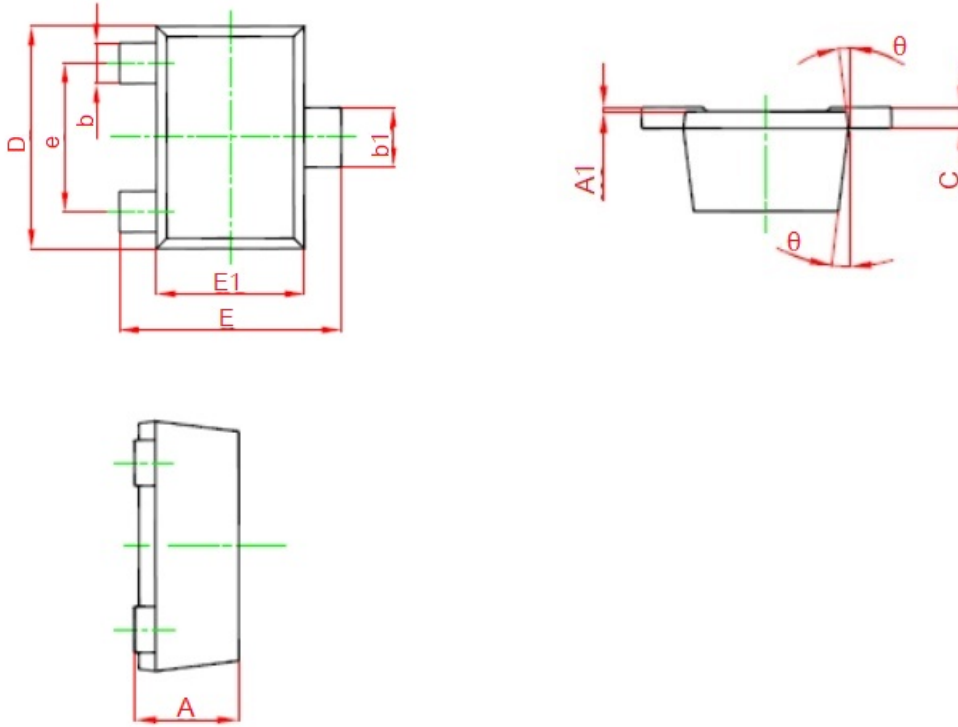
Fig 6. P_D — T_a





PACKAGE INFORMATION

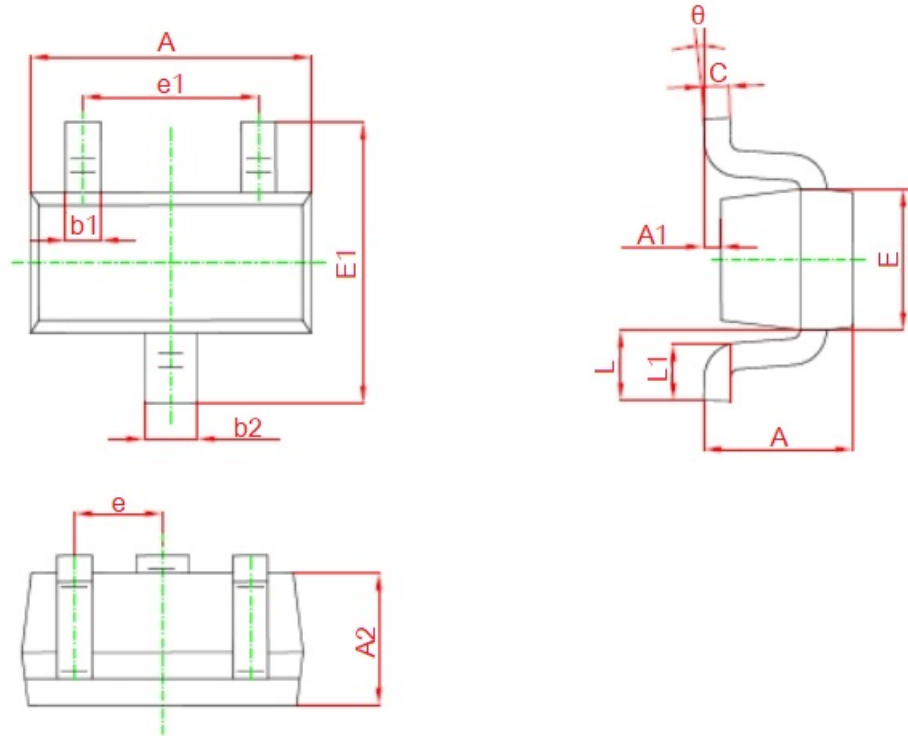
Dimension in SOT-723 (Unit: mm)



Symbol	MILLIMETERS	
	Min.	Max.
A	0.430	10.600
A1	0.000	16.000
b	0.170	9.500
b1	0.270	4.800
c	0.080	3.100
D	1.150	1.400
E	1.150	0.900
E1	0.750	0.600
e	0.800TYP.	
θ	7° REF.	



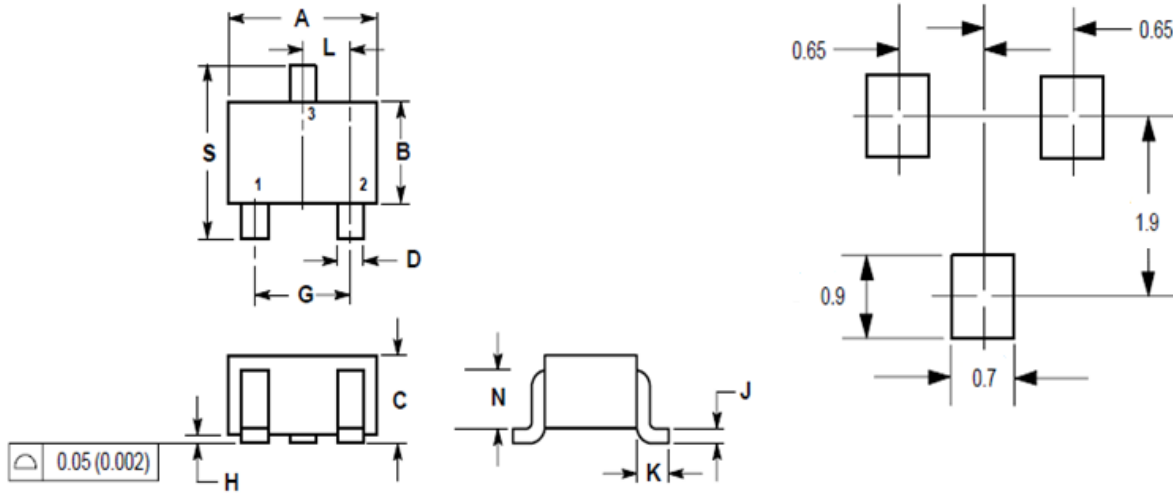
Dimension in SOT-523 (Unit: mm)



Symbol	MILLIMETERS	
	Min.	Max.
A	0.700	0.900
A1	0.000	0.100
A2	0.700	0.800
b1	0.150	0.250
b2	0.250	0.350
c	0.100	0.200
D	1.500	1.700
E	0.700	0.900
E1	1.450	1.750
e	0.500TYP	
e1	0.900	1.100
L	0.400REF	
L1	0.260	0.460
θ	0°	8°



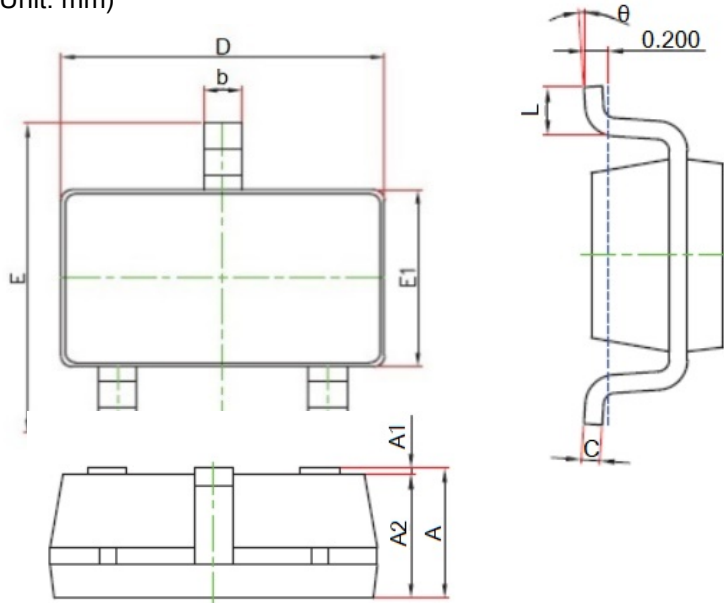
Dimension in SOT-323 Package (Unit: mm)



Symbol	Min.	Max.
A	1.800	2.200
B	1.150	1.350
C	0.800	1.000
D	0.300	0.400
G	1.200	1.400
H	0.000	0.100
J	0.100	0.250
K	0.425 REF	
L	0.650 BSC	
N	0.700 REF	
S	2.000	2.400



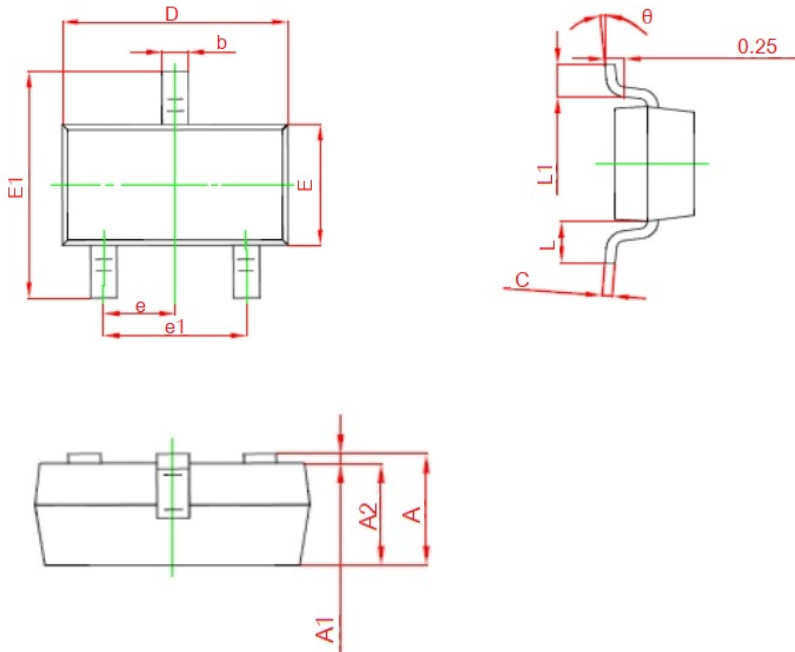
Dimension in SOT-23 (Unit: mm)



Symbol	MILLIMETERS	
	Min.	Max.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.820	3.020
E1	1.500	1.700
E	2.650	2.950
e	0.950(BSC)	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°



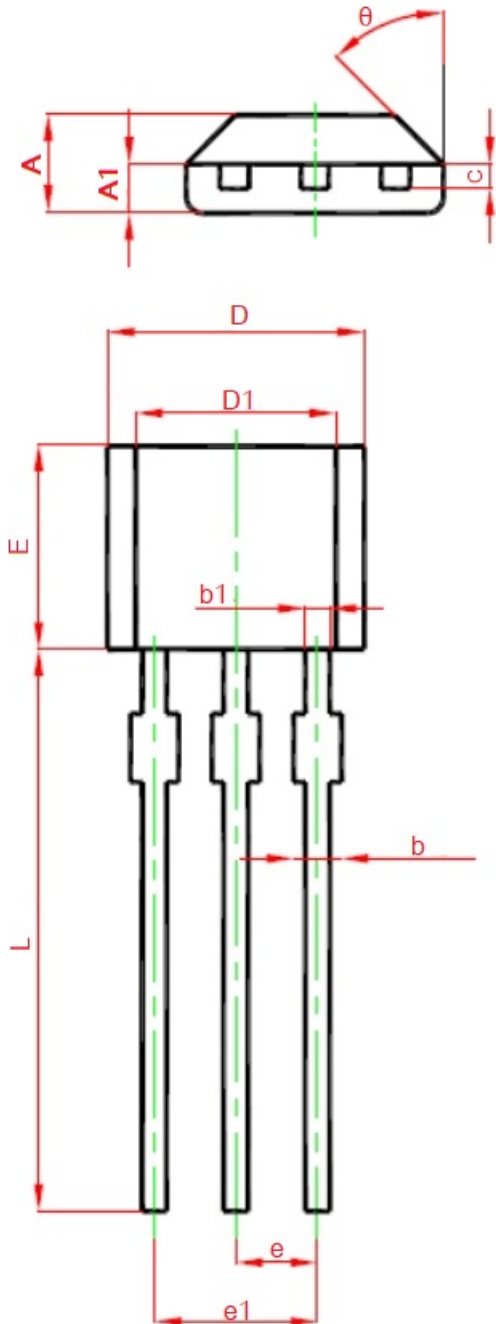
Dimension in SOT-23S (Unit: mm)



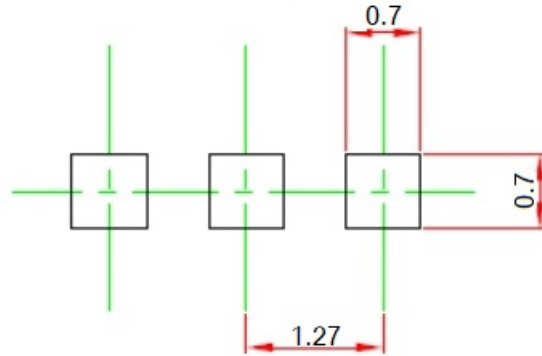
Symbol	MILLIMETERS	
	Min.	Max.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°



Dimension in TO-92S (Unit: mm)



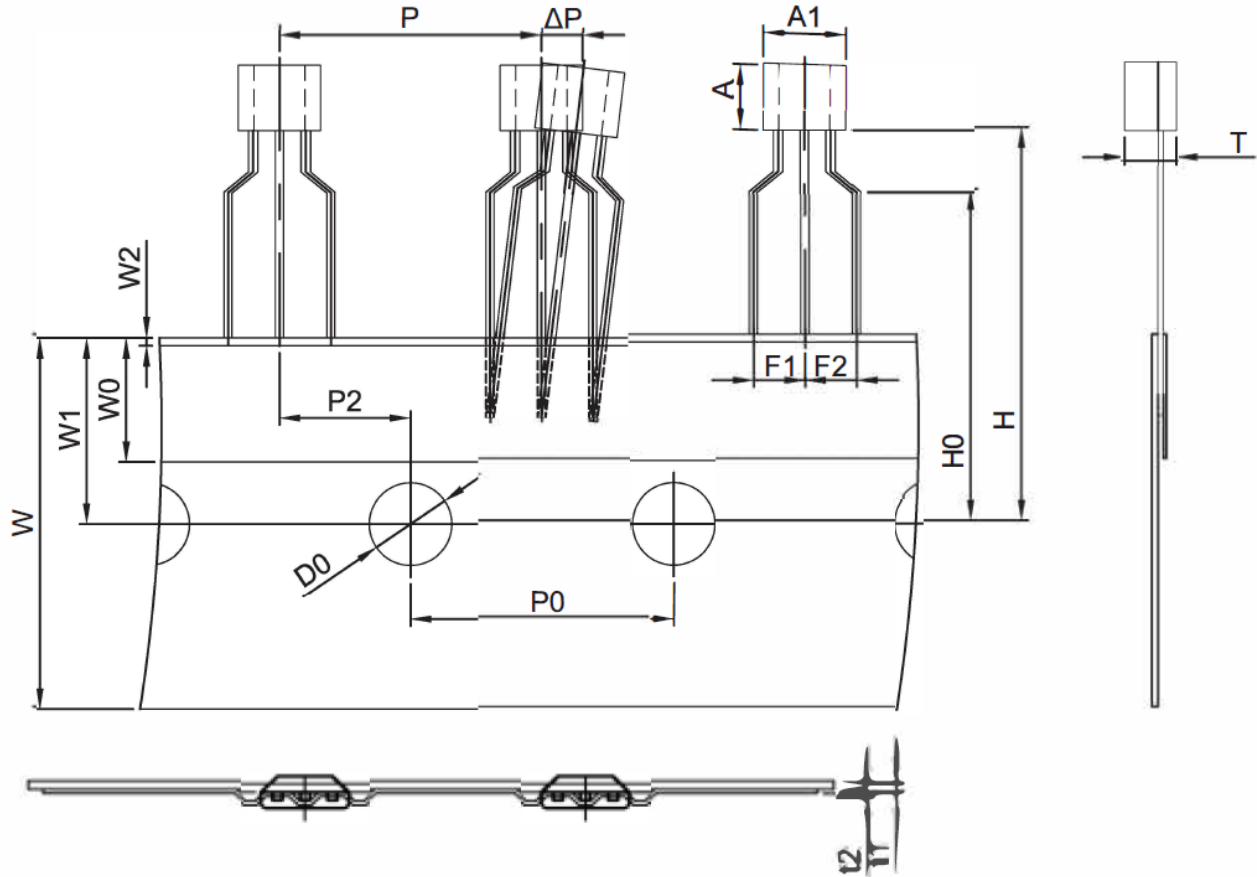
TO-92S Suggested Pad Layout



Symbol	MILLIMETERS	
	Min.	Max.
A	1.420	1.620
A1	0.660	0.860
b	0.330	0.480
b1	0.400	0.510
c	0.330	0.510
D	3.900	4.100
D1	2.280	2.680
E	3.050	3.250
e	1.270TYP	
e1	2.440	2.640
L	15.100	15.500
θ	45°TYP	



Dimension in TO-92S in Ammo Tape



MILLIMETERS								
A1	A2	T	P	P0	P2	F1	F2	W
4.0	3.15	1.52	12.7	12.7	6.34	2.5	2.5	18
W0	S1	S2	H	H0	D0	t1	t2	ΔP
6.0	9.0	1.0	19.0	16.0	4.0	0.4	0.2	0



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