Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

2N3906

SMALL SIGNAL PNP TRANSISTOR

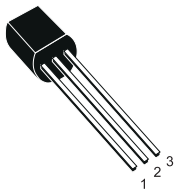
PRELIMINARY DATA

Ordering Code	Marking	Package / Shipment
2N3906	2N3906	TO-92 / Bulk
2N3906-AP	2N3906	TO-92 / Ammopack

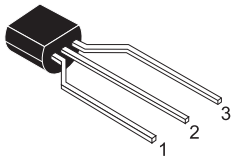
- SILICON EPITAXIAL PLANAR NPN TRANSISTOR
- TO-92 PACKAGE SUITABLE FOR THROUGH-HOLE PCB ASSEMBLY
- THE NPN COMPLEMENTARY TYPE IS 2N3904

APPLICATIONS

- WELL SUITABLE FOR TV AND HOME APPLIANCE EQUIPMENT
- SMALL LOAD SWITCH TRANSISTOR WITH HIGH GAIN AND LOW SATURATION VOLTAGE

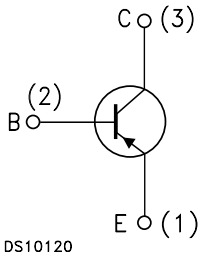


TO-92
Bulk



TO-92
Ammopack

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	-60	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	-40	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	-6	V
I_C	Collector Current	-200	mA
P_{tot}	Total Dissipation at T_C = 25 °C	625	mW
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

$R_{thj\text{-}amb}$ •	Thermal Resistance Junction-Ambient	Max	200	°C/W
$R_{thj\text{-}Case}$ •	Thermal Resistance Junction-Case	Max	83.3	°C/W

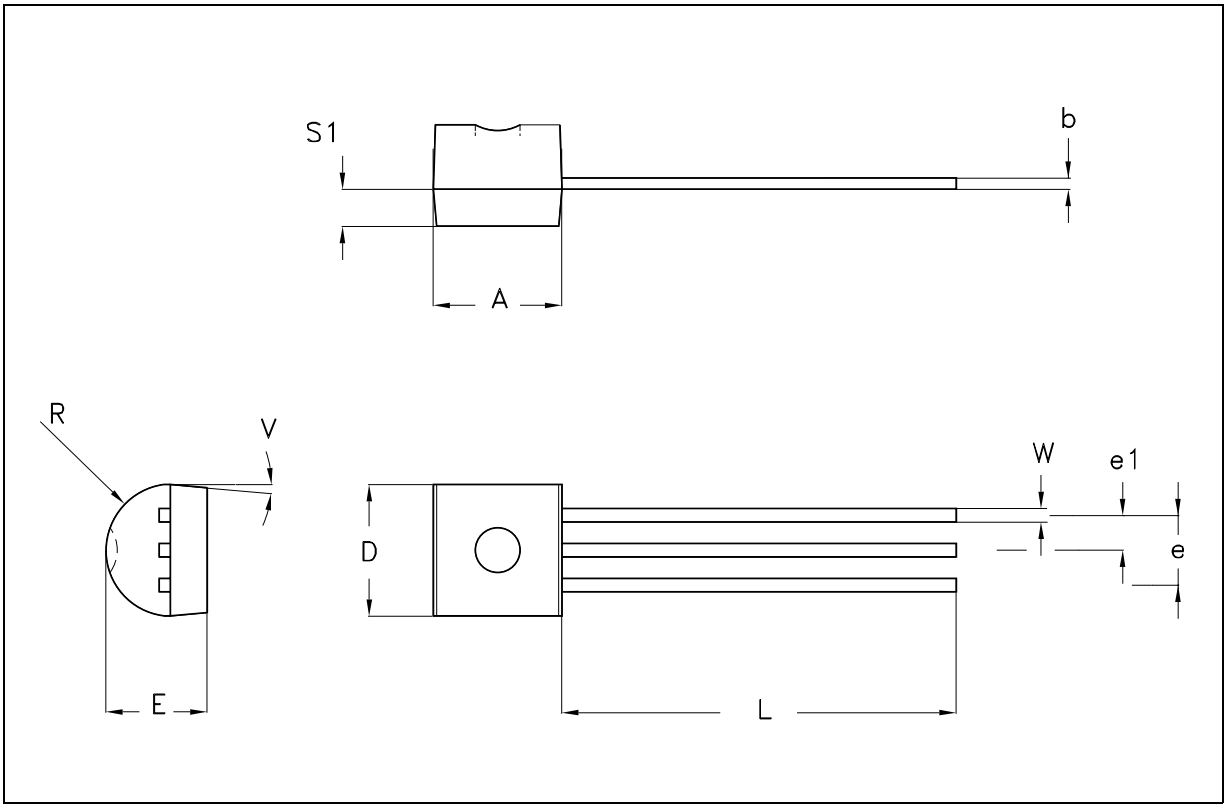
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Collector Cut-off Current (V_{BE} = 3 V)	V_{CE} = -30 V			-50	nA
I_{BEX}	Base Cut-off Current (V_{BE} = 3 V)	V_{CE} = -30 V			-50	nA
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = -1 mA	-40			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_E = 0)	I_C = -10 µA	-60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = -10 µA	-6			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = -10 mA I_B = -1 mA I_C = -50 mA I_B = -5 mA			-0.25 -0.4	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = -10 mA I_B = -1 mA I_C = -50 mA I_B = -5 mA	 -0.65		-0.85 -0.95	V V
h_{FE}*	DC Current Gain	I_C = -0.1 mA V_{CE} = -1 V I_C = -1 mA V_{CE} = -1 V I_C = -10 mA V_{CE} = -1 V I_C = -50 mA V_{CE} = -1 V I_C = -100 mA V_{CE} = -1 V	60 80 100 60 30		300	
f_T	Transition Frequency	I_C = -10mA V_{CE} = -20 V f = 100 MHz	250			MHz
NF	Noise Figure	V_{CE} = -5 V I_C = -0.1 mA f = 10 Hz to 15.7 KHz R_G = 1 KΩ		4		dB
C_{CBO}	Collector-Base Capacitance	I_E = 0 V_{CB} = -5 V f = 100 KHz		6		pF
C_{EBO}	Emitter-Base Capacitance	I_C = 0 V_{EB} = -0.5 V f = 100 KHz		25		pF
t_d	Delay Time	I_C = -10 mA I_B = -1 mA V_{CC} = -3V			35	ns
t_r	Rise Time				35	ns
t_s	Storage Time	I_C = -10 mA I_{B1} = -I_{B2} = -1 mA V_{CC} = -3V			225	ns
t_f	Fall Time				72	ns

∗ Pulsed: Pulse duration = 300 µs, duty cycle ≤ 2 %

TO-92 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.32		4.95	0.170		0.195
b	0.36		0.51	0.014		0.020
D	4.45		4.95	0.175		0.194
E	3.30		3.94	0.130		0.155
e	2.41		2.67	0.095		0.105
e1	1.14		1.40	0.045		0.055
L	12.70		15.49	0.500		0.609
R	2.16		2.41	0.085		0.094
S1	1.14		1.52	0.045		0.059
W	0.41		0.56	0.016		0.022
V	4 degree		6 degree	4 degree		6 degree



TO-92 AMMOPACK SHIPMENT (Suffix"-AP") MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A1			4.80			0.189
T			3.80			0.150
T1			1.60			0.063
T2			2.30			0.091
d			0.48			0.019
P0	12.50	12.70	12.90	0.492	0.500	0.508
P2	5.65	6.35	7.05	0.222	0.250	0.278
F1,F2	2.44	2.54	2.94	0.096	0.100	0.116
delta H	-2.00		2.00	-0.079		0.079
W	17.50	18.00	19.00	0.689	0.709	0.748
W0	5.70	6.00	6.30	0.224	0.236	0.248
W1	8.50	9.00	9.25	0.335	0.354	0.364
W2			0.50			0.020
H	18.50		20.50	0.728		0.807
H0	15.50	16.00	16.50	0.610	0.630	0.650
H1			25.00			0.984
D0	3.80	4.00	4.20	0.150	0.157	0.165
t			0.90			0.035
L			11.00			0.433
I1	3.00			0.118		
delta P	-1.00		1.00	-0.039		0.039