

## SMALL SIGNAL PNP TRANSISTOR

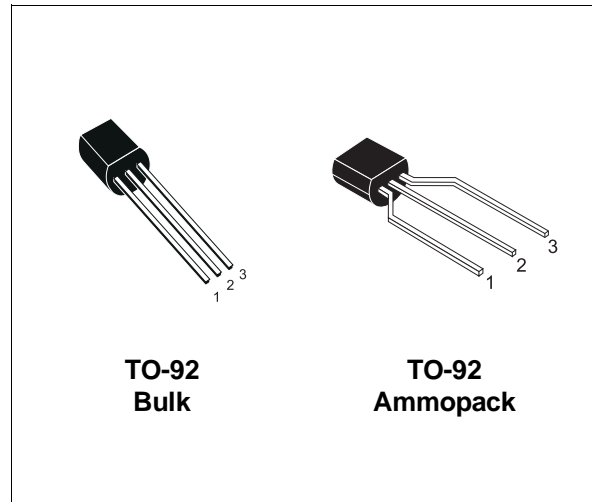
### PRELIMINARY DATA

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

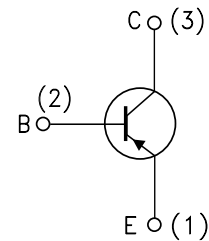
- SILICON EPITAXIAL PLANAR NPN TRANSISTOR
- TO-92 PACKAGE SUITABLE FOR THROUGH-HOLE PCB ASSEMBLY
- THE NPN COMPLEMENTARY TYPE IS 2N3904

### APPLICATIONS

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



### 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 $T_C = 25\text{ }^\circ\text{C}$	625	mW
$T_{stg}$	Storage Temperature	-65 to 150	$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	150	$^\circ\text{C}$

## THERMAL DATA

R <sub>thj-amb</sub> •	Thermal Resistance Junction-Ambient	Max	200	°C/W
R <sub>thj-Case</sub> •	Thermal Resistance Junction-Case	Max	83.3	°C/W

ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CEX</sub>	Collector Cut-off Current (V <sub>BE</sub> = 3 V)	V <sub>CE</sub> = -30 V			-50	nA
I <sub>BEX</sub>	Base Cut-off Current (V <sub>BE</sub> = 3 V)	V <sub>CE</sub> = -30 V			-50	nA
V <sub>(BR)CEO*</sub>	Collector-Emitter Breakdown Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = -1 mA	-40			V
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage (I <sub>E</sub> = 0)	I <sub>C</sub> = -10 μA	-60			V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = -10 μA	-6			V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -10 mA I <sub>B</sub> = -1 mA I <sub>C</sub> = -50 mA I <sub>B</sub> = -5 mA			-0.25 -0.4	V V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = -10 mA I <sub>B</sub> = -1 mA I <sub>C</sub> = -50 mA I <sub>B</sub> = -5 mA	-0.65		-0.85 -0.95	V V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = -0.1 mA V <sub>CE</sub> = -1 V I <sub>C</sub> = -1 mA V <sub>CE</sub> = -1 V I <sub>C</sub> = -10 mA V <sub>CE</sub> = -1 V I <sub>C</sub> = -50 mA V <sub>CE</sub> = -1 V I <sub>C</sub> = -100 mA V <sub>CE</sub> = -1 V	60 80 100 60 30		300	
f <sub>T</sub>	Transition Frequency	I <sub>C</sub> = -10mA V <sub>CE</sub> = -20 V f = 100 MHz	250			MHz
NF	Noise Figure	V <sub>CE</sub> = -5 V I <sub>C</sub> = -0.1 mA f = 10 Hz to 15.7 KHz R <sub>G</sub> = 1 KΩ		4		dB
C <sub>CBO</sub>	Collector-Base Capacitance	I <sub>E</sub> = 0 V <sub>CB</sub> = -5 V f = 100 KHz		6		pF
C <sub>EBO</sub>	Emitter-Base Capacitance	I <sub>C</sub> = 0 V <sub>EB</sub> = -0.5 V f = 100 KHz		25		pF
t <sub>d</sub>	Delay Time	I <sub>C</sub> = -10 mA I <sub>B</sub> = -1 mA			35	ns
t <sub>r</sub>	Rise Time	V <sub>CC</sub> = -3V			35	ns
t <sub>s</sub>	Storage Time	I <sub>C</sub> = -10 mA I <sub>B1</sub> = -I <sub>B2</sub> = -1 mA			225	ns
t <sub>f</sub>	Fall Time	V <sub>CC</sub> = -3V			72	ns

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