



PRODUCT NAME : 2N3906 PNP General Purpose Transistor (Pack of 5)

PRICE : Rs 25.00

SKU : RM2050



NOTE: THE PRODUCT MAY BE DIFFERENT FROM IMAGE SHOWN. Copyrights by Robomart.com

DESCRIPTION

Features

- Collector-Emitter Volt (V_{ce0}): 40V
- Collector-Base Volt (V_{cbo}): 40V
- Collector Current (I_c): 0.2A
- h_{fe} : 100-300 @ 10mA
- Power Dissipation (P_{tot}): 625mW
- Current-Gain-Bandwidth (f_{total}): 250MHz
- Type: NPN

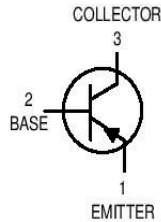
MOTOROLA
SEMICONDUCTOR TECHNICAL DATA

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General Purpose Transistors
PNP Silicon

2N3905
2N3906*

*Motorola Preferred Device



CASE 29-04, STYLE 1
 TO-92 (TO-226AA)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	40	Vdc
Collector-Base Voltage	V_{CBO}	40	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current — Continuous	I_C	200	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0	mW mW/ $^\circ\text{C}$
Total Power Dissipation @ $T_A = 60^\circ\text{C}$	P_D	250	mW
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS(1)

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (2) ($I_C = 1.0 \text{ mAdc}, I_B = 0$)	$V_{(BR)CEO}$	40	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 10 \mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	40	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10 \mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	5.0	—	Vdc
Base Cutoff Current ($V_{CE} = 30 \text{ Vdc}, V_{EB} = 3.0 \text{ Vdc}$)	I_{BL}	—	50	nAdc
Collector Cutoff Current ($V_{CE} = 30 \text{ Vdc}, V_{EB} = 3.0 \text{ Vdc}$)	I_{CEX}	—	50	nAdc

1. Indicates Data in addition to JEDEC Requirements.
2. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$; Duty Cycle $\leq 2.0\%$.

Preferred devices are Motorola recommended choices for future use and best overall value.

REV 2

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2N3905 2N3906

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS(1)				
DC Current Gain ($I_C = 0.1 \text{ mA}$, $V_{CE} = 1.0 \text{ Vdc}$)	2N3905 2N3906	30 60	— —	—
($I_C = 1.0 \text{ mA}$, $V_{CE} = 1.0 \text{ Vdc}$)	2N3905 2N3906	40 80	— —	—
($I_C = 10 \text{ mA}$, $V_{CE} = 1.0 \text{ Vdc}$)	2N3905 2N3906	50 100	150 300	—
($I_C = 50 \text{ mA}$, $V_{CE} = 1.0 \text{ Vdc}$)	2N3905 2N3906	30 60	— —	—
($I_C = 100 \text{ mA}$, $V_{CE} = 1.0 \text{ Vdc}$)	2N3905 2N3906	15 30	— —	—
Collector–Emitter Saturation Voltage ($I_C = 10 \text{ mA}$, $I_B = 1.0 \text{ mA}$) ($I_C = 50 \text{ mA}$, $I_B = 5.0 \text{ mA}$)	$V_{CE(sat)}$	— —	0.25 0.4	Vdc
Base–Emitter Saturation Voltage ($I_C = 10 \text{ mA}$, $I_B = 1.0 \text{ mA}$) ($I_C = 50 \text{ mA}$, $I_B = 5.0 \text{ mA}$)	$V_{BE(sat)}$	0.65 —	0.85 0.95	Vdc

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = 10 \text{ mA}$, $V_{CE} = 20 \text{ Vdc}$, $f = 100 \text{ MHz}$)	2N3905 2N3906	f_T 200 250	— —	MHz
Output Capacitance ($V_{CB} = 5.0 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$)		C_{obo}	— 4.5	pF
Input Capacitance ($V_{EB} = 0.5 \text{ Vdc}$, $I_C = 0$, $f = 1.0 \text{ MHz}$)		C_{ibo}	— 10.0	pF
Input Impedance ($I_C = 1.0 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	2N3905 2N3906	h_{ie} 0.5 2.0	8.0 12	k Ω
Voltage Feedback Ratio ($I_C = 1.0 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	2N3905 2N3906	h_{re} 0.1 0.1	5.0 10	$\times 10^{-4}$
Small–Signal Current Gain ($I_C = 1.0 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	2N3905 2N3906	h_{fe} 50 100	200 400	—
Output Admittance ($I_C = 1.0 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	2N3905 2N3906	h_{oe} 1.0 3.0	40 60	μmhos
Noise Figure ($I_C = 100 \mu\text{A}$, $V_{CE} = 5.0 \text{ Vdc}$, $R_S = 1.0 \text{ k } \Omega$, $f = 1.0 \text{ kHz}$)	2N3905 2N3906	NF — —	5.0 4.0	dB

SWITCHING CHARACTERISTICS

Delay Time	($V_{CC} = 3.0 \text{ Vdc}$, $V_{BE} = 0.5 \text{ Vdc}$, $I_C = 10 \text{ mA}$, $I_{B1} = 1.0 \text{ mA}$)	t_d	—	35	ns
Rise Time		t_r	—	35	ns
Storage Time	($V_{CC} = 3.0 \text{ Vdc}$, $I_C = 10 \text{ mA}$, $I_{B1} = I_{B2} = 1.0 \text{ mA}$)	t_s	—	200	ns
Fall Time			—	225	
	2N3905 2N3906	t_f	—	60	ns
			—	75	

1. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$; Duty Cycle $\leq 2.0\%$.

