



PNP 2N2906 – 2N2906A

GENERAL PURPOSE AMPLIFIERS TRANSISTORS

The 2N2906 and 2N2906A are PNP transistors mounted in TO-18 metal package. They are intended for high speed switching and general purpose applications. NPN complements are 2N2221 and 2N2221A .
Compliance to RoHS

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value		Unit
			2N2906	2N2906A	
V_{CEO}	Collector-Emitter Voltage ($I_B=0$)		-40	-60	V
V_{CBO}	Collector-Base Voltage ($I_E=0$)		-60		V
V_{EBO}	Emitter-Base Voltage ($I_C=0$)		-5		V
I_C	Collector Current		-600		mA
I_{CM}	Peak Collector Current		-800		mA
I_{BM}	Peak Base Current		-200		mA
P_D	Total Power Dissipation	$T_{amb} = 25^\circ$	0.4		W
		$T_{case} = 25^\circ$	1.2		W
T_J	Junction Temperature		200		$^\circ\text{C}$
T_{Stg}	Storage Temperature range		-65 to +150		$^\circ\text{C}$
T_{amb}	Operating Ambient Temperature		-65 to +150		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJ-a}	Thermal Resistance, Junction to ambient in free air	438	$^\circ\text{C/W}$
R_{thJ-c}	Thermal Resistance, Junction to case	146	$^\circ\text{C/W}$

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit	
I_{CBO}	Collector Cutoff Current	$V_{CB} = -50\text{ V}$ $I_E = 0$	$T_a = 25^\circ\text{C}$	2N2906A	-	-	-10	nA
				2N2906	-	-	-20	
I_{CBO}	Collector Cutoff Current		$T_a = 150^\circ\text{C}$	2N2906A	-	-	-10	μA
				2N2906	-	-	-20	
I_{EBO}	Emitter Cutoff Current (*)	$V_{EB} = -5\text{ V}, I_C = 0$		2N2906A	-	-	-50	nA
				2N2906	-	-	-	
V_{CEO}	Collector Emitter Breakdown Voltage	$I_C = -10\text{ mA}, I_B = 0$		2N2906A	-60	-	-	V
				2N2906	-40	-	-	
V_{CBO}	Collector Base Breakdown Voltage	$I_C = -10\text{ }\mu\text{A}, I_E = 0$		2N2906A	-60	-	-	V
				2N2906	-60	-	-	
V_{EBO}	Emitter Base Breakdown Voltage	$I_E = -10\text{ }\mu\text{A}, I_C = 0$		2N2906A	-5	-	-	V
				2N2906	-5	-	-	
h_{FE}	DC Current Gain		$I_C = -0.1\text{ mA}, V_{CE} = -10\text{ V}$	2N2906A	40	-	-	-
				2N2906	20	-	-	
			$I_C = -1\text{ mA}, V_{CE} = -10\text{ V}$	2N2906A	40	-	-	
				2N2906	25	-	-	
			$I_C = -10\text{ mA}, V_{CE} = -10\text{ V}$	2N2906A	40	-	-	
				2N2906	35	-	-	
			$I_C = -150\text{ mA}, V_{CE} = -10\text{ V}$	2N2906A	40	-	120	
				2N2906	40	-	-	
			$I_C = -500\text{ mA}, V_{CE} = -10\text{ V}$	2N2906A	40	-	-	
				2N2906	20	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)		$I_C = -150\text{ mA}, I_B = -15\text{ mA}$	2N2906A	-	-	-0.4	V
				2N2906	-	-	-1.6	
			$I_C = -500\text{ mA}, I_B = -50\text{ mA}$	2N2906A	-	-	-1.3	
				2N2906	-	-	-2.6	
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)		$I_C = -150\text{ mA}, I_B = -15\text{ mA}$	2N2906A	-	-	-1.3	
				2N2906	-	-	-2.6	
			$I_C = -500\text{ mA}, I_B = -50\text{ mA}$	2N2906A	-	-	-1.3	
				2N2906	-	-	-2.6	
f_T	Transition frequency	$I_C = -50\text{ mA}, V_{CE} = -20\text{ V}$ $f = 100\text{ MHz (*)}$		2N2906A	200	-	-	MHz
				2N2906	200	-	-	
t_d	Delay time	$I_C = -150\text{ mA}, I_B = -15\text{ mA}$ $-V_{CC} = -30\text{ V}$		2N2906A	-	-	10	ns
t_r	Rise time			2N2906	-	-	40	
C_c	Collector capacitance	$I_E = I_e = 0, V_{CB} = -10\text{ V}$ $f = 1\text{ MHz}$		2N2906A	-	-	8	pF
				2N2906	-	-	8	
C_e	Emitter capacitance	$I_C = I_c = 0, V_{EB} = -2\text{ V}$ $f = 1\text{ MHz}$		2N2906A	-	-	30	pF
				2N2906	-	-	30	

(*) Pulse conditions : $t_p < 300\text{ }\mu\text{s}$, $\delta = 2\%$

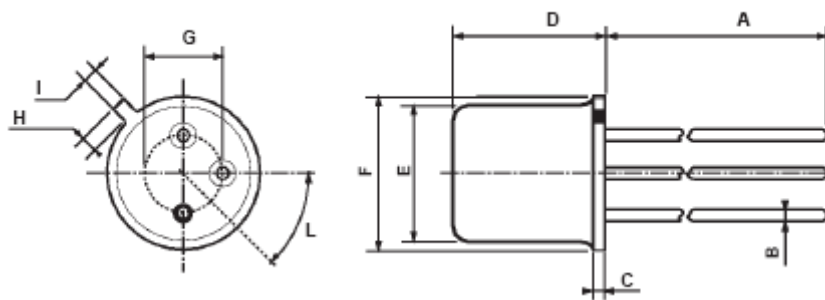
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SWITCHING TIME

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
t_{on}	Turn-on time	$I_{Con} = -150 \text{ mA}$ $I_{Bon} = -15 \text{ mA}$ $I_{Boff} = 15 \text{ mA}$	-	-	45	ns
t_d	Delay time		-	-	15	
t_r	Rise time		-	-	35	
t_{off}	Turn-off time		-	-	300	
T_s	Storage time		-	-	250	
T_f	Fall time		-	-	50	

ECHANICAL DATA CASE TO-18 (PNP)

DIMENSIONS (mm)		
	min	max
A	12.7	-
B	-	0.49
C	0.9	-
D	-	5.3
E	-	4.9
F	-	5.8
G	2.54	-
H	-	1.2
I	-	1.16
L	45°	-



Pin 1 :	emitter
Pin 2 :	base
Pin 3 :	Collector
Case :	Collector

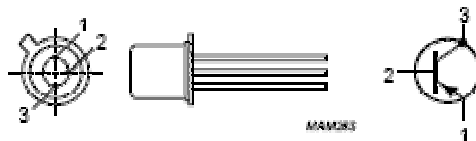


Fig.1 Simplified outline (TO-18) and symbol.

Revised August 2012

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