



## 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	$^\circ\text{C/W}$

## PNP 2N2906 – 2N2906A

### 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	$\mu\text{A}$
				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	$\mu\text{F}$
				2N2906	-	-	8	
$C_e$	Emitter capacitance	$I_C = I_c = 0, V_{EB} = -2\text{ V}$ $f = 1\text{ MHz}$		2N2906A	-	-	30	$\mu\text{F}$
				2N2906	-	-	30	

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

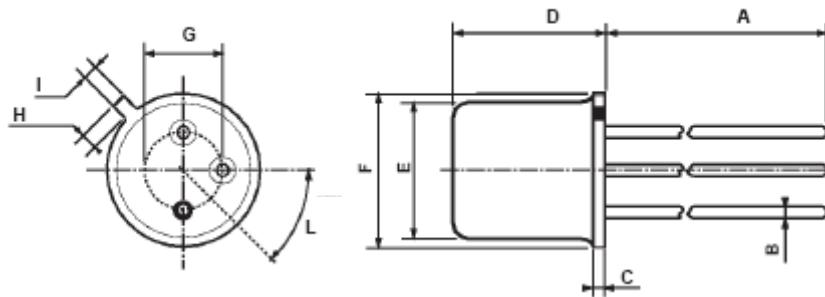
## PNP 2N2906 – 2N2906A

### 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

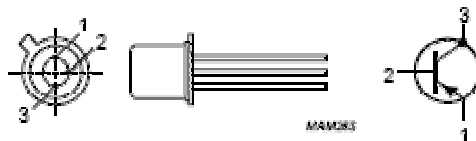


Fig.1 Simplified outline (TO-18) and symbol.

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