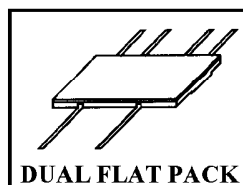


PNP SMALL SIGNAL TRANSISTOR- DUAL

- HIGH DC CURRENT GAIN
- HIGH CURRENT GAIN BANDWIDTH PRODUCT
- HIGH SPEED SWITCHING CIRCUITS
- DC TO VHF AMPLIFIER APPLICATIONS



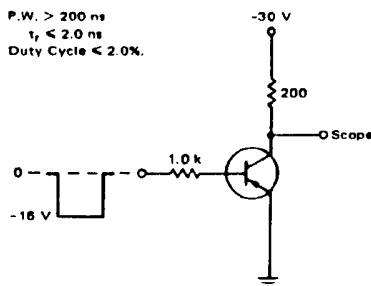
MAXIMUM RATINGS

Rating	Symbol	NFP2905	NFP2905A	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	Vdc
Collector-Base Voltage	V_{CB}	60		Vdc
Emitter-Base Voltage	V_{EB}	5.0		Vdc
Collector Current - Continuous	I_C	600		mA dc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$	P_D	400		mW
Derate above 25°C		2.28		mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	87.5	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	438	$^\circ\text{C/W}$

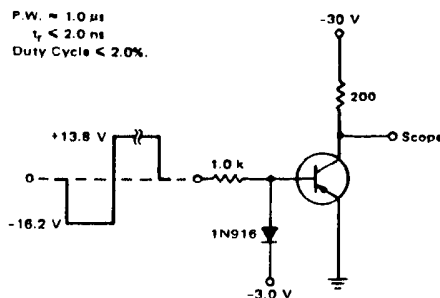
P.W. > 200 ns
 $t_f \leq 2.0$ ns
 Duty Cycle $\leq 2.0\%$



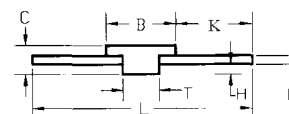
**DELAY AND RISE TIME
TEST CIRCUIT**

STORAGE AND FALL TIME TEST CIRCUIT

P.W. $\approx 1.0 \mu\text{s}$
 $t_f \leq 2.0$ ns
 Duty Cycle $\leq 2.0\%$

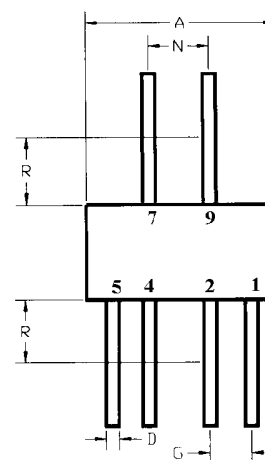


MECHANICAL OUTLINE



NOTES:

1. DIM "D", "G" AND "N" TO BE MEASURED IN ZONE "R".
2. LEADS WITHIN 0.13mm (0.005) TOTAL OF TRUE POSITION WITHIN "R" AT MAXIMUM MATERIAL CONDITION.



PIN: 1. BASE
 2. EMITTER
 4. EMITTER
 5. BASE
 7. COLLECTOR
 9. COLLECTOR

DIM	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	6.10	7.37	0.240	0.290
B	2.92	4.06	0.115	0.160
C	0.76	2.03	0.030	0.070
D	0.36	0.48	0.014	0.019
F	0.08	0.15	0.003	0.006
G	1.27BSC		0.050BSC	
H	0.13	0.89	0.005	0.035
K	3.81	-	0.150	-
L	10.54	-	0.415	-
N	2.54BSC		0.100BSC	
R	-	1.27	-	0.050
T	1.65	2.03	0.065	0.080



NES

NEW ENGLAND SEMICONDUCTOR

NFP2905 NFP2905A

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

Characteristics	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (1) $I_C = 10 \text{ mAdc}$, $I_B = 0$	NFP2905 NFP2905A	$V_{(BR)CEO}$	40 60		Vdc
Collector -Base Breakdown Voltage $I_C = 10 \mu\text{A}$, $I_E = 0$		$V_{(BR)CBO}$	60		Vdc
Emitter-Base Breakdown Voltage $I_E = 10 \mu\text{A}$, $I_C = 0$		$V_{(BR)EBO}$	5.0		Vdc
Collector Cutoff Current $V_{CB} = 50 \text{ Vdc}$, $I_E = 0$ $V_{CB} = 50 \text{ Vdc}$, $I_E = 0$, $T_A = 150^\circ\text{C}$		I_{CRO}		0.020 30	μA
Emitter Cutoff Current $V_{BE} = 3.0 \text{ Vdc}$, $I_C = 0$		I_{EBO}		30	nA

ON CHARACTERISTICS

DC Current Gain $I_C = 0.1 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$	NFP2905 NFP2905A	h_{FE}	35 75	70 150	-
$I_C = 1.0 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$	NFP2905 NFP2905A		50 100	100 175	
$I_C = 10 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$	NFP2905 NFP2905A		75 100	110 200	
$I_C = 150 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$	All Types		100	200	300
$I_C = 500 \text{ mA}$, $V_{CE} = 10 \text{ Vdc}$	NFP2905 NFP2905A		30 50	130 150	
Collector-Emitter Saturation Voltage $I_C = 150 \text{ mA}$, $I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}$, $I_B = 50 \text{ mA}$		$V_{CE(sat)}$		0.25 0.5	0.4 1.6 Vdc
Base-Emitter Saturation Voltage $I_C = 150 \text{ mA}$, $I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}$, $I_B = 50 \text{ mA}$		$V_{BE(sat)}$		0.88 1.0	1.3 2.6 Vdc

SMALL-SIGNAL CHARACTERISTICS

Current-Gain--Bandwidth Product (1) $I_C = 50 \text{ mA}$, $V_{CE} = 20 \text{ Vdc}$, $f = 100 \text{ MHz}$	f_T	200	320		MHz
Output Capacitance $V_{CB} = 10 \text{ Vdc}$, $I_C = 0$, $f = 100 \text{ kHz}$	C_{obo}		5.8	8.0	pF
Input Capacitance $V_{BE} = 2.0 \text{ Vdc}$, $I_C = 0$, $f = 100 \text{ kHz}$	C_{ibo}		16	30	pF

SWITCHING CHARACTERISTICS

Turn-On Time	$V_{CC} = 30 \text{ Vdc}$, $V_{BE} = 0.5 \text{ Vdc}$,	t_{on}		45	ns
Delay Time	$I_C = 150 \text{ mA}$,	t_d		12	ns
Rise Time	$I_{B1} = 15 \text{ mA}$	t_r		35	ns
Turn-Off Time	$V_{CC} = 30 \text{ Vdc}$,	t_{off}		130	ns
Storage Time	$I_C = 150 \text{ mA}$,	t_s		100	ns
Fall Time	$I_{B1} = I_{B2} = 15 \text{ mA}$	t_f		40	ns

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

NEW ENGLAND SEMICONDUCTOR

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