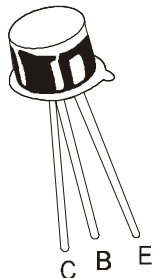


NPN SILICON PLANAR TRANSISTORS



2N930
2N930A

TO-18
Metal Can Package

Low Noise Transistors

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	2N930	2N930A	UNIT
Collector Emitter Voltage	V_{CEO}	45	60	V
Collector Base Voltage	V_{CBO}	45	60	V
Emitter Base Voltage	V_{EBO}	5	6	V
Collector Current Continuous	I_C	30		mA
Power Dissipation @ $T_a=25^\circ\text{C}$ Derate Above 25°C	P_D	300 1.72		mW mW/ $^\circ\text{C}$
Power Dissipation @ $T_c=25^\circ\text{C}$ Derate Above 25°C	P_D	600 3.42		mW mW/ $^\circ\text{C}$
Operating And Storage Junction Temperature Range	T_j, T_{stg}	- 65 to +200		$^\circ\text{C}$

THERMAL CHARACTERISTICS

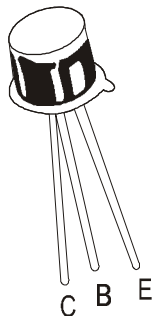
Junction to Ambient in free air	$R_{th(j-a)}$	583	$^\circ\text{C/W}$
Junction to Case	$R_{th(j-c)}$	292	$^\circ\text{C/W}$

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

DESCRIPTION	SYMBOL	TEST CONDITION	2N930	2N930A	UNIT
Collector Emitter Voltage	$*V_{CEO}$	$I_C=10\text{mA}, I_B=0$	>45	>60	V
Collector Base Voltage	V_{CBO}	$I_C=10\mu\text{A}, I_E=0$	>45	>60	V
Emitter Base Voltage	V_{EBO}	$I_E=10\mu\text{A}, I_C=0$	>5	>6	V
Collector Cut Off Current	I_{CBO}	$V_{CB}=45\text{V}, I_E=0$	<10	<2	nA
Collector Cut Off Current	I_{CEO}	$V_{CE}=5\text{V}, I_B=0$	<2	<2	nA
Emitter Cut Off Current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$	<10	<2	nA
Collector Cut Off Current	I_{CES}	$V_{CE}=45\text{V}, V_{BE}=0$	<10	<2	nA
		$V_{CE}=45\text{V}, V_{BE}=0, T_a=170^\circ\text{C}$	<10	<2	μA
Collector Emitter Saturation Voltage	$*V_{CE(sat)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$	<1.0	<0.5	V
Base Emitter Saturation Voltage	$*V_{BE(sat)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$	0.7 - 0.9	0.7 - 0.9	V
DC Current Gain	h_{FE}	$I_C=1\mu\text{A}, V_{CE}=5\text{V}$ $I_C=10\mu\text{A}, V_{CE}=5\text{V}$ $I_C=10\mu\text{A}, V_{CE}=5\text{V}, T_a=-55^\circ\text{C}$ $I_C=500\mu\text{A}, V_{CE}=5\text{V}$ $*I_C=10\text{mA}, V_{CE}=5\text{V}$	100-300 >20 >150 <600	>60 100-300 >30 <600	

*Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$

NPN SILICON PLANAR TRANSISTORS



2N930
2N930A

TO-18
Metal Can Package

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

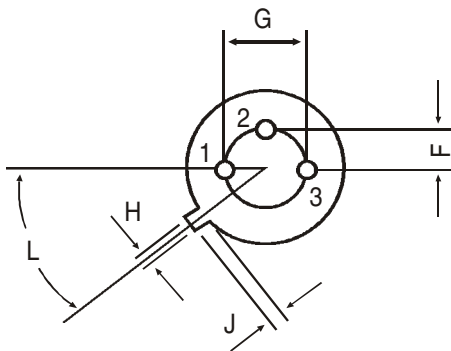
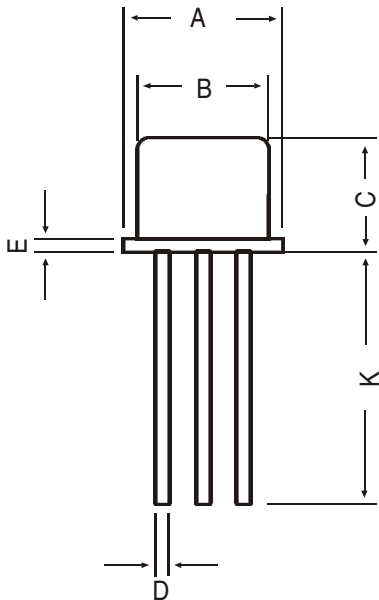
DYNAMIC CHARACTERISTICS

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Transition frequency	f_T	$I_C=500\mu\text{A}$, $V_{CE}=5\text{V}$, $f=30\text{MHz}$ 2N930 2N930A	30 45			MHz MHz
Output Capacitance	C_{ob}	$V_{CB}=5\text{V}$, $I_E=0$, $f=1\text{MHz}$ 2N930 2N930A			8 6	pF pF
Input Impedance	h_{ib}	$I_C=1\text{mA}$, $V_{CB}=5\text{V}$, $f=1\text{kHz}$	25		32	Ω
Voltage Feedback Ratio	h_{rb}	$I_C=1\text{mA}$, $V_{CB}=5\text{V}$, $f=1\text{kHz}$			600	$\times 10^{-6}$
Small Signal Current Gain	h_{fe}	$I_C=1\text{mA}$, $V_{CE}=5\text{V}$, $f=1\text{kHz}$	150		600	
Output Admittance	h_{ob}	$I_C=1\text{mA}$, $V_{CB}=5\text{V}$, $f=1\text{kHz}$			1	μS
Noise Figure	NF	$I_C=10\mu\text{A}$, $V_{CE}=5\text{V}$, $R_g=10\text{k}\Omega$, $f=10\text{Hz}$ to 15.7kHz			3	dB

2N930
2N930A

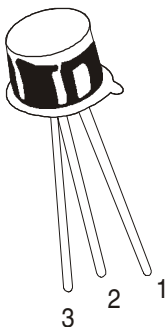
TO-18
Metal Can Package

TO-18 Metal Can Package



All dimensions in mm.

DIM	MIN	MAX
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.40	0.53
E	—	0.76
F	—	1.27
G	—	2.97
H	0.91	1.17
J	0.71	1.21
K	12.70	—
L	45 DEG	



PIN CONFIGURATION

1. EMITTER
2. BASE
3. COLLECTOR

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-18	1K/polybag	350 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	34 kgs

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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