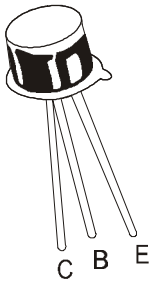
NPN SILICON PLANAR TRANSISTORS

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=25ºC	P_D	300		mW
Derate Above 25ºC		1.72		mW/ ºC
Power Dissipation @ T_c=25ºC	P_D	600		mW
Derate Above 25ºC		3.42		mW/ ºC
Operating And Storage Junction Temperature Range	T_j, T_{stg}	- 65 to +200		ºC

THERMAL CHARACTERISTICS

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

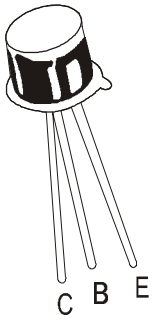
ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

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

***Pulse Test: Pulse width ≤300ms, Duty cycle≤ 2%**

NPN SILICON PLANAR TRANSISTORS

2N930
2N930A



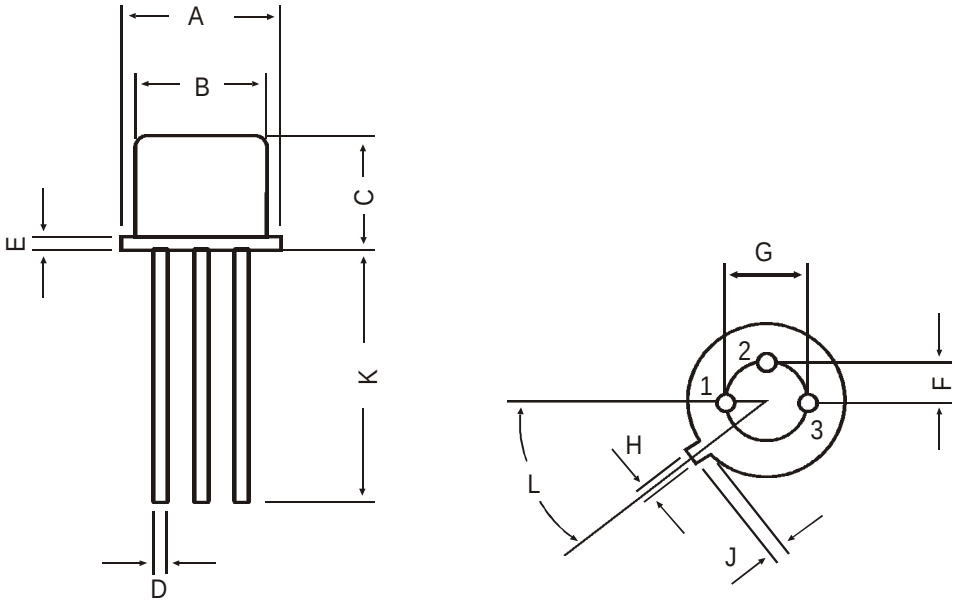
TO-18
Metal Can Package

ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

DYNAMIC CHARACTERISTICS

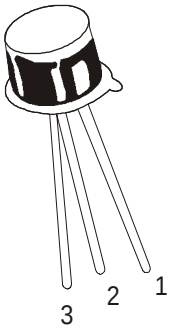
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Transition frequency	f_T	I_C=500μA,V_{CE}=5V, f=30MHz				
		2N930	30			MHz
		2N930A	45			MHz
Output Capacitance	C_{ob}	V_{CB}=5V, I_E=0, f=1MHz				
		2N930			8	pF
		2N930A			6	pF
Input Impedance	h_{ib}	I_C=1mA, V_{CB}=5V, f=1kHz	25		32	Ω
Voltage Feedback Ratio	h_{rb}	I_C=1mA, V_{CB}=5V, f=1kHz			600	$x10^{-6}$
Small Signal Current Gain	h_{fe}	I_C=1mA, V_{CE}=5V, f=1kHz	150		600	
Output Admittance	h_{ob}	I_C=1mA, V_{CB}=5V, f=1kHz			1	μS
Noise Figure	NF	I_C=10μA,V_{CE}=5V, Rg=10kΩ, f=10Hz to 15.7kHz			3	dB

TO-18 Metal Can Package



All diminsions 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

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