



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



NPN LOW POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/ 253

Devices

2N930

Qualified Level

JAN
JANTX
JANTXV

MAXIMUM RATINGS

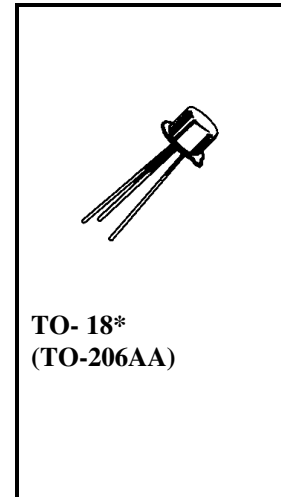
Ratings	Symbol	Value	Units
Collector-Emitter Voltage	V_{CEO}	45	Vdc
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage	V_{EBO}	6.0	Vdc
Collector Current	I_C	30	mAdc
Total Power Dissipation @ $T_A = +25^{\circ}\text{C}^{(1)}$ @ $T_C = +25^{\circ}\text{C}^{(2)}$	P_T	300 600	mW
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-55 to +200	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	97	$^{\circ}\text{C}/\text{W}$

1) Derate linearly 2.0 mW/ $^{\circ}\text{C}$ above $T_A = +25^{\circ}\text{C}$

2) Derate linearly 4.0 mW/ $^{\circ}\text{C}$ above $T_C = +25^{\circ}\text{C}$



*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 10 \text{ mAdc}$	$V_{(BR)CEO}$	45		Vdc
Collector-Base Cutoff Current $V_{CB} = 60 \text{ Vdc}$ $V_{CB} = 45 \text{ Vdc}$	I_{CBO}		10 10	μAdc ηAdc
Emitter-Base Cutoff Current $V_{EB} = 6.0 \text{ Vdc}$ $V_{EB} = 5.0 \text{ Vdc}$	I_{EBO}		10 5.0	μAdc ηAdc
Collector-Emitter Cutoff Current $V_{CE} = 45 \text{ Vdc}$	I_{CES}		2.0	ηAdc
Collector-Base Cutoff Current $V_{CE} = 5.0 \text{ Vdc}$	I_{CEO}		2.0	ηAdc

2N930, JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
DC CHARACTERISTICS ⁽³⁾				
Forward-Current Transfer Ratio I _C = 10 μAdc, V _{CE} = 5.0 Vdc I _C = 500 μAdc, V _{CE} = 5.0 Vdc I _C = 10 mAdc, V _{CE} = 5.0 Vdc	h _{FE}	100 150	300 600	
Collector-Emitter Saturation Voltage I _C = 10 mAdc, I _B = 0.5 mAdc	V _{CE(sat)}		1.0	Vdc
Base-Emitter Saturation Voltage I _C = 10 mAdc, I _B = 0.5 mAdc	V _{BE(sat)}	0.6	1.0	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = 500 μAdc, V _{CE} = 5.0 Vdc, f = 30 MHz	h _{fe}	1.5	6.0	
Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = 1.0 mAdc, V _{CE} = 5.0 Vdc, f = 1.0 kHz	h _{fe}	150	600	
Small-Signal Short-Circuit Input Impedance V _{CB} = 5.0 Vdc, I _E = 1.0 mAdc, f = 1.0 kHz	h _{ib}	25	32	Ω
Small-Signal Short-Circuit Output Admittance V _{CB} = 5.0 Vdc, I _E = 1.0 mAdc, f = 1.0 kHz	h _{ob}		1.0	μΩ
Output Capacitance V _{CB} = 5.0 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{obo}		8.0	pF
Noise Figure V _{CE} = 5 Vdc; I _C = 10 μAdc; R _g = 10kΩ Test 1: f = 100 Hz Test 2: f = 1.0 kHz Test 3: f = 10 kHz	NF		5 3 3	dB

(3) Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%.