



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!



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NPN LOW POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/182

Devices

2N720A

2N1893
2N1893S

Qualified Level

JAN
JANTX
JANTXV

MAXIMUM RATINGS

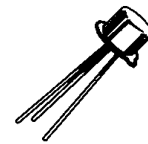
Ratings	Symbol	All Devices		Units	
Collector-Emitter Voltage	V_{CEO}	80		Vdc	
Collector-Base Voltage	V_{CBO}	120		Vdc	
Emitter-Base Voltage	V_{EBO}	7.0		Vdc	
Collector-Emitter Voltage ($R_{BE} = 10 \Omega$)	V_{CER}	100		Vdc	
Collector Current	I_C	500		mAdc	
		2N720A	2N1893, S		
Total Power Dissipation	@ $T_A = +25^\circ\text{C}$ ⁽¹⁾	P_T	0.5	0.8	W
	@ $T_C = +25^\circ\text{C}$ ⁽²⁾		1.8	3.0	
Operating & Storage Junction Temperature Range	T_J, T_{SRG}	-65 to +200		$^\circ\text{C}$	

THERMAL CHARACTERISTICS

Characteristics	Symbol	2N720A	2N1893, S	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	97	58	$^\circ\text{C/W}$

1) Derate linearly 2.86 mW/ $^\circ\text{C}$ for 2N720A, 4.57 mW/ $^\circ\text{C}$ for 2N1893, S $T_A > 25^\circ\text{C}$

2) Derate linearly 10.3 mW/ $^\circ\text{C}$ for 2N720A, 17.2 mW/ $^\circ\text{C}$ for 2N1893, S $T_C > 25^\circ\text{C}$



TO-18 (TO-206AA)*
2N720A



TO-5*
2N1893, 2N1893S

*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 30 \text{ mAdc}$	$V_{(BR)CEO}$	80		Vdc
Collector-Emitter Breakdown Voltage $I_C = 10 \text{ mAdc}, R_{BE} = 10 \Omega$	$V_{(BR)CER}$	100		Vdc
Collector-Base Cutoff Current $V_{CB} = 120 \text{ Vdc}$ $V_{CB} = 90 \text{ Vdc}$	I_{CBO}		10 10	μAdc ηAdc
Emitter-Base Cutoff Current $V_{EB} = 7.0 \text{ Vdc}$ $V_{EB} = 5.0 \text{ Vdc}$	I_{EBO}		10 10	μAdc ηAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS ⁽³⁾				
Forward-Current Transfer Ratio I _C = 0.1 mA _{dc} , V _{CE} = 10 V _{dc} I _C = 10 mA _{dc} , V _{CE} = 10 V _{dc} I _C = 150 mA _{dc} , V _{CE} = 10 V _{dc}	h _{FE}	20 35 40	120	
Collector-Emitter Saturation Voltage I _C = 150 mA _{dc} , I _B = 15 mA _{dc}	V _{CE(sat)}		5.0	V _{dc}
Base-Emitter Voltage I _C = 150 mA _{dc} , I _B = 15 mA _{dc}	V _{BE(sat)}		1.3	V _{dc}

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = 50 mA _{dc} , V _{CE} = 10 V _{dc} , f = 20 MHz	h _{fe}	3.0	10	
Small-Signal Short-Circuit Forward Current Transfer Ratio V _{CE} = 5.0 V _{dc} , I _C = 1.0 mA _{dc} V _{CE} = 10 V _{dc} , I _C = 5.0 mA _{dc} , f = 1.0 kHz	h _{fe}	35 45	100	
Small-Signal Short-Circuit Input Impedance V _{CB} = 10 V _{dc} , I _C = 5.0 mA _{dc}	h _{ib}	4.0	8.0	Ω
Small-Signal Short-Circuit Output Admittance V _{CB} = 10 V _{dc} , I _C = 5.0 mA _{dc}	h _{ob}		0.5	μΩ
Output Capacitance V _{CB} = 10 V _{dc} , I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{obo}	2	15	pF

SWITCHING CHARACTERISTICS

Turn-On Time + Turn-Off Time (See Figure 3 of MIL-PRF-19500/182)	t _{on} + t _{off}		30	ηs
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(3) Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%.