



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-19500/225

Devices

2N1711

2N1890

Qualified Level

JAN
JANTX

MAXIMUM RATINGS

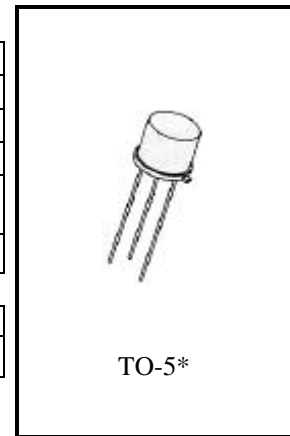
Ratings	Symbol	2N1711	2N1890	Unit
Collector-Base Voltage	V_{CBO}	75	100	Vdc
Emitter-Base Voltage	V_{EBO}	7.0		Vdc
Collector Current	I_C	500		mAdc
Total Power Dissipation	P_T	@ $T_A = +25^{\circ}C$ ⁽¹⁾	0.8	W
		@ $T_C = +25^{\circ}C$ ⁽²⁾	3.0	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^{\circ}C$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Impedance	$Z_{\theta JX}$	58	$^{\circ}C/W$

1) Derate linearly 4.57 mW/ $^{\circ}C$ for $T_A > 25^{\circ}C$

2) Derate linearly 17.2 mW/ $^{\circ}C$ for $T_C > 25^{\circ}C$



*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Base Breakdown Voltage $I_C = 100 \mu A_{dc}$	2N1711, S 2N1890, S	$V_{(BR)CBO}$	75 100	Vdc
Collector-Emitter Breakdown Voltage $R_{BE} = 10 \Omega, I_C = 100 mA_{dc}$	2N1711, S 2N1890, S	$V_{(BR)CER}$	50 80	Vdc
Collector-Emitter Breakdown Voltage $I_C = 30 mA_{dc}$	2N1711, S 2N1890, S	$V_{(BR)CEO}$	30 60	Vdc
Emitter-Base Breakdown Voltage $I_E = 100 \mu A_{dc}$		$V_{(BR)EBO}$	7.0	Vdc
Collector-Base Cutoff Current $V_{CB} = 60 V_{dc}$ $V_{CB} = 80 V_{dc}$	2N1711 2N1890	I_{CBO}		10 10 ηA_{dc}
Emitter-Base Cutoff Current $V_{EB} = 5.0 V_{dc}$		I_{EBO}		5.0 ηA_{dc}

2N1711, 2N1890 JAN SERIES

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS ⁽³⁾				
Forward-Current Transfer Ratio I _C = 10 μAdc, V _{CE} = 10 Vdc I _C = 150 mAdc, V _{CE} = 10 Vdc I _C = 500 mAdc, V _{CE} = 10 Vdc 2N1711, S	h _{FE}	20 100 50	300	
Collector-Emitter Saturation Voltage I _C = 150 mAdc, I _B = 15 mAdc 2N1711, S 2N1890, S I _C = 50 mAdc, I _B = 5.0 mAdc 2N1890, S	V _{CE(sat)}		1.5 5.0 1.2	Vdc
Base-Emitter Saturation Voltage I _C = 150 mAdc, I _B = 15 mAdc I _C = 50 mAdc, I _B = 5.0 mVdc 2N1890, S	V _{BE(sat)}		1.3 0.9	Vdc
DYNAMIC CHARACTERISTICS				
Small-Signal Short-Circuit Forward-Current Transfer Ratio I _C = 1.0 mAdc, V _{CE} = 5.0 Vdc I _C = 5.0 mAdc, V _{CE} = 10 Vdc	h _{fe}	80 90	200 270	
Magnitude of Common Emitter Small-Signal Short-Circuit Forward-Current Transfer Ratio I _C = 50 mAdc, V _{CE} = 10 Vdc; f = 20 MHz	h _{fe}	3.5	12	
Small-Signal Short-Circuit Input Impedance I _C = 5.0 mAdc, V _{CB} = 10 Vdc	h _{ib}	4.0	8.0	Ω
Small-Signal Short-Circuit Output Admittance I _C = 5.0 mAdc, V _{CB} = 10 Vdc 2N1711, S 2N1890, S	h _{ob}		1.0 .03	μΩ
Output Capacitance V _{CB} = 10 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz 2N1711, S 2N1890, S	C _{obo}	8.0 5.0	25 15	pF
SWITCHING CHARACTERISTICS				
Turn-On Time + Turn-Off Time (See figure 1 of MIL-PRF-19500/225)	t _{on} + t _{off}		30	ηs

(3) Pulse Test: Pulse Width 250 to 350μs, Duty Cycle ≤ 2.0%.

