

PNP SILICON DUAL TRANSISTOR

Qualified per MIL-PRF-19500/336

Devices

2N3810	2N3811
2N3810L	2N3811L
2N3810U	2N3811U

Qualified Level

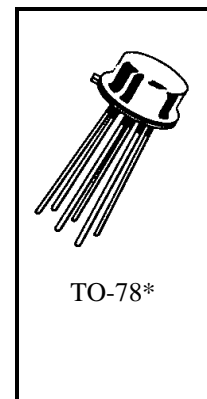
JAN
JANTX
JANTXV

MAXIMUM RATINGS

Ratings	Symbol	Value	Unit	
Collector-Emitter Voltage	V_{CEO}	60	Vdc	
Collector-Base Voltage	V_{CBO}	60	Vdc	
Emitter-Base Voltage	V_{EBO}	5.0	Vdc	
Collector Current	I_C	50	mAdc	
		One Section¹	Both Sections²	
Total Power Dissipation @ $T_A = +25^{\circ}C$	P_T	0.5	0.6	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^{\circ}C$

1) Derate linearly 2.86 mW/ $^{\circ}C$ for $T_A > +25^{\circ}C$

2) Derate linearly 3.43 mW/ $^{\circ}C$ for $T_A > +25^{\circ}C$



*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 $I_C = 10 \mu\text{Adc}$	$V_{(BR)CBO}$	60		Vdc
Collector-Emitter Breakdown Current $I_C = 10 \text{mAdc}$	$V_{(BR)CEO}$	60		Vdc
Emitter-Base Breakdown Voltage $I_E = 10 \mu\text{Adc}$	$V_{(BR)EBO}$	5.0		Vdc
Collector-Base Cutoff Current $V_{CB} = 50 \text{Vdc}$	I_{CBO}		10	ηAdc
Emitter-Base Cutoff Current $V_{EB} = 4.0 \text{Vdc}$	I_{EBO}		10	ηAdc

2N3810, 2N3810L, 2N3811, 2N3811L JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit	
ON CHARACTERISTICS (3)					
Forward-Current Transfer Ratio I _C = 10 μAdc, V _{CE} = 5.0 Vdc I _C = 100 μAdc, V _{CE} = 5.0 Vdc I _C = 500 μAdc, V _{CE} = 5.0 Vdc I _C = 1.0 mAdc, V _{CE} = 5.0 Vdc I _C = 10 mAdc, V _{CE} = 5.0 Vdc I _C = 1.0 μAdc, V _{CE} = 5.0Vdc I _C = 10 μAdc, V _{CE} = 5.0 Vdc I _C = 100 μAdc, V _{CE} = 5.0 Vdc I _C = 500 μAdc, V _{CE} = 5.0 Vdc I _C = 1.0 mAdc, V _{CE} = 5.0 Vdc I _C = 10 mAdc, V _{CE} = 5.0 Vdc	2N3810, 2N3810L 2N3811, 2N3811L	h _{FE}	100 150 150 150 125 75 225 300 300 300 250	450 450 450	
Collector-Emitter Saturation Voltage I _C = 100 μAdc, I _B = 10 μAdc I _C = 1.0 mAdc, I _B = 100 μAdc	V _{CE(sat)}		0.2 0.25	Vdc	
Base-Emitter Saturation Voltage I _C = 100 μAdc, I _B = 10 μAdc I _C = 1.0 mAdc, I _B = 100 μAdc	V _{BE(sat)}		0.7 0.8	Vdc	
Base-Emitter Non-Saturation Voltage V _{CE} = 5.0 Vdc, I _C = 100 μAdc	V _{BE}		0.7	Vdc	

DYNAMIC CHARACTERISTICS

Forward Current Transfer Ratio, Magnitude I _C = 500 μAdc, V _{CE} = 5.0 Vdc, f = 30 MHz I _C = 1.0 mAdc, V _{CE} = 5.0 Vdc, f = 100 MHz	h _{fe}	1.0 1.0	5.0	
Small-Signal Short Circuit Forward Current Transfer Ratio I _C = 1.0 mAdc, V _{CE} = 10 Vdc, f = 1.0 kHz 2N3810, L 2N3811, L	h _{fe}	150 300	600 900	
Small-Signal Short Circuit Input Impedance I _C = 1.0 mAdc, V _{CE} = 10 Vdc, f = 1.0 kHz 2N3810, L 2N3811, L	h _{je}	3.0 3.0	30 40	kΩ
Small-Signal Short Circuit Output Admittance I _C = 1.0 mAdc, V _{CE} = 10 Vdc, f = 1.0 kHz	h _{oe}	5.0	60	μmhos
Output Capacitance V _{CB} = 5.0 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{obo}		5.0	pF
Input Capacitance V _{EB} = 0.5 Vdc, I _C = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{ibo}		8.0	pF
Noise Figure 2N3810, L I _C = 100 μAdc, V _{CE} = 10 Vdc, f = 100 Hz, R _G = 3.0 kΩ I _C = 100 μAdc, V _{CE} = 10 Vdc, f = 1.0 kHz, R _G = 3.0 kΩ I _C = 100 μAdc, V _{CE} = 10 Vdc, f = 10 kHz, R _G = 3.0 kΩ I _C = 100 μAdc, V _{CE} = 10 Vdc, f = 10 Hz to 15.7 kHz, R _G = 3.0 kΩ 2N3811, L I _C = 100 μAdc, V _{CE} = 10 Vdc, f = 100 Hz, R _G = 3.0 kΩ I _C = 100 μAdc, V _{CE} = 10 Vdc, f = 1.0 kHz, R _G = 3.0 kΩ I _C = 100 μAdc, V _{CE} = 10 Vdc, f = 10 kHz, R _G = 3.0 kΩ I _C = 100 μAdc, V _{CE} = 10 Vdc, f = 10 Hz to 15.7 kHz, R _G = 3.0 kΩ	F ₁ F ₂ F ₃ F ₄ F ₁ F ₂ F ₃ F ₄	7.0 3.0 2.5 3.5 4.0 1.5 2.0 2.5	dB dB	

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