6 Lake Street, Lawrence, MA 01841
1-800-446-1158 / (978) 620-2600 / Fax: (978) 689-0803
Website: http: //www.microsemi.com

TECHNICAL DATA SHEET

PNP SILICON DUAL TRANSISTOR

Qualified per MIL-PRF-19500 /336

DEVICES

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

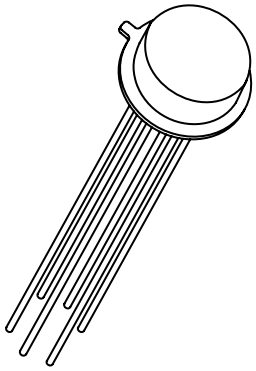
LEVELS

JAN
JANTX
JANTV
JANS

ABSOLUTE MAXIMUM RATINGS *(T_C = +25°C unless otherwise noted)*

Parameters / Test Conditions	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 Section [1]	Both Sections [2]	
Total Power Dissipation @ T_A = +25°C	P_T	200	350	mW
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		°C

Note:
1. Derate linearly 1.143mW/°C for T_A > +25°C (one section)
2. Derate linearly 2.00mW/°C for T_A > +25°C (both sections)



TO-78

ELECTRICAL CHARACTERISTICS *(T_A = +25°C, unless otherwise noted)*

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERTICS				
Collector-Emitter Breakdown Voltage I_C = 100μAdc	$V_{(BR)CEO}$	60		Vdc
Collector-Base Cutoff Current V_{CB} = 50Vdc V_{CB} = 60Vdc	I_{CBO}		10 10	ηAdc μAdc
Emitter-Base Cutoff Current V_{EB} = 4.0Vdc V_{EB} = 5.0Vdc	I_{EBO}		10 10	ηAdc μAdc

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ELECTRICAL CHARACTERISTICS (con't)

Parameters / Test Conditions		Symbol	Min.	Max.	Unit
ON CHARACTERTICS					
Forward-Current Transfer Ratio					
I_C = 10μAdc, V_{CE} = 5.0Vdc	2N3810, 2N3810L , 2N3810U	h_{FE}	100		
I_C = 100μAdc, V_{CE} = 5.0Vdc			150	450	
I_C = 1.0mAdc, V_{CE} = 5.0Vdc			150	450	
I_C = 10mAdc, V_{CE} = 5.0Vdc			125		
I_C = 1.0μAdc, V_{CE} = 5.0Vdc	2N3811, 2N3811L, 2N3811U	h_{FE}	75		
I_C = 10μAdc, V_{CE} = 5.0Vdc			225		
I_C = 100μAdc, V_{CE} = 5.0Vdc			300	900	
I_C = 1.0mAdc, V_{CE} = 5.0Vdc			300	900	
I_C = 10mAdc, V_{CE} = 5.0Vdc			250		
Collector-Emitter Saturation Voltage					
I_C = 100μAdc, I_B = 10μAdc		$V_{CE(sat)}$		0.2	Vdc
I_C = 1.0mAdc, I_B = 100μAdc				0.25	
Base-Emitter Saturation Voltage					
I_C = 100μAdc, I_B = 10μAdc		$V_{BE(sat)}$		0.7	Vdc
I_C = 1.0mAdc, I_B = 100μAdc				0.8	
Base-Emitter Non-Saturation Voltage					
V_{CE} = 5.0Adc, I_C = 100μAdc		V_{BE}		0.7	Vdc

DYNAMIC CHARACTERISTICS

Forward Current Transfer Ratio, Magnitude					
I_C = 500μAdc, V_{CE} = 5.0Vdc, f = 30MHz		$\|h_{fe}\|$	1.0		
I_C = 1.0mAdc, V_{CE} = 5.0Vdc, f = 100MHz			1.0	5.0	
Small-Signal Short Circuit Forward Current Transfer Ratio					
I_C = 1.0mAdc, V_{CE} = 10Vdc, f = 1.0kHz	2N3810, 2N3810L , 2N3810U	h_{fe}	150	600	
	2N3811, 2N3811L , 2N3811U		300	900	
Small-Signal Short Circuit Input Impedance					
I_C = 1.0mAdc, V_{CE} = 10Vdc, f = 1.0kHz	2N3810, 2N3810L , 2N3810U	h_{je}	3.0	30	kΩ
	2N3811, 2N3811L , 2N3811U		3.0	40	
Small-Signal Short Circuit Output Admittance					
I_C = 1.0mAdc, V_{CE} = 10Vdc, f = 1.0kHz	2N3810, 2N3810L , 2N3810U	h_{oe}	5.0	60	μmhos
	2N3811, 2N3811L , 2N3811U				
Output Capacitance					
V_{CB} = 5.0Vdc, I_E = 0, 100kHz ≤ f ≤ 1.0MHz		C_{obo}		5.0	pF
Input Capacitance					
V_{EB} = 5.0Vdc, I_C = 0, 100kHz ≤ f ≤ 1.0MHz		C_{lbo}		8.0	pF

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DYNAMIC CHARACTERISTICS (cont.)

Parameters / Test Conditions		Symbol	Min.	Max.	Unit
Noise Figure					
I_C = 100µAdc, V_{CE} = 10Vdc, f = 100Hz, R_G = 3.0kΩ	2N3810, L, U	F_1		7.0	
I_C = 100µAdc, V_{CE} = 10Vdc, f = 1.0kHz, R_G = 3.0kΩ	2N3810, L, U	F_2		3.0	dB
I_C = 100µAdc, V_{CE} = 10Vdc, f = 10kHz, R_G = 3.0kΩ	2N3810, L, U	F_3		2.5	
I_C = 100µAdc, V_{CE} = 10Vdc, f = 10Hz to 15.7kHz, R_G = 3.0kΩ	2N3810, L, U	F_4		3.5	
I_C = 100µAdc, V_{CE} = 10Vdc, f = 100Hz, R_G = 3.0kΩ	2N3811, L, U	F_1		4.0	
I_C = 100µAdc, V_{CE} = 10Vdc, f = 1.0kHz, R_G = 3.0kΩ	2N3811, L, U	F_2		1.5	
I_C = 100µAdc, V_{CE} = 10Vdc, f = 10kHz, R_G = 3.0kΩ	2N3811, L, U	F_3		2.0	dB
I_C = 100µAdc, V_{CE} = 10Vdc, f = 10Hz to 15.7kHz, R_G = 3.0kΩ	2N3811, L, U	F_4		2.5	

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