

## Description

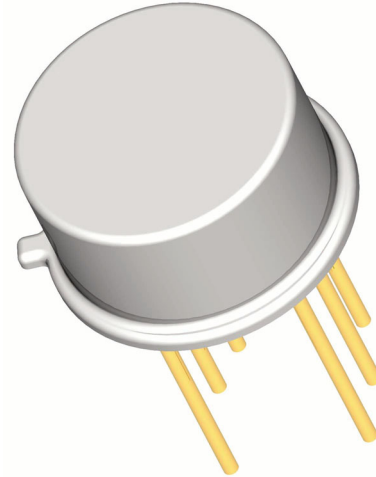
Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N3810J)
- JANTX level (2N3810JX)
- JANTXV level (2N3810JV)
- JANS level (2N3810JS)
- QCI to the applicable level
- 100% die visual inspection per MIL-STD-750 method 2072 for JANTXV and JANS
- Radiation testing (total dose) upon request

Please contact Semicoa for special configurations  
[www.SEMICOA.com](http://www.SEMICOA.com) or (714) 979-1900

## Applications

- General purpose
- Matched Dual transistors
- PNP silicon transistor



## Features

- Hermetically sealed TO-78 metal can
- Also available in chip configuration
- Chip geometry 0220
- Reference document:  
MIL-PRF-19500/336

## Benefits

- Qualification Levels: JAN, JANTX, JANTXV and JANS
- Radiation testing available

Absolute Maximum Ratings		T <sub>c</sub> = 25°C unless otherwise specified	
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	60	Volts
Collector-Base Voltage	V <sub>CBO</sub>	60	Volts
Emitter-Base Voltage	V <sub>EBO</sub>	5	Volts
Collector Current, Continuous	I <sub>C</sub>	50	mA
Power Dissipation, T <sub>A</sub> = 25°C	P <sub>T</sub>	300 one section	mW
Derate linearly above 25°C		600 both sections	
Operating Junction Temperature	T <sub>J</sub>	-65 to +200	°C
Storage Temperature	T <sub>STG</sub>	-65 to +200	°C

**ELECTRICAL CHARACTERISTICS**

characteristics specified at  $T_A = 25^\circ\text{C}$

<b>Off Characteristics</b>						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100 \mu\text{A}$	60			Volts
Collector-Base Cutoff Current	$I_{CBO1}$	$V_{CB} = 60 \text{ Volts}$			10	$\mu\text{A}$
	$I_{CBO2}$	$V_{CB} = 50 \text{ Volts}$			10	nA
	$I_{CBO3}$	$V_{CB} = 50 \text{ Volts}, T_A = 150^\circ\text{C}$			10	$\mu\text{A}$
Emitter-Base Cutoff Current	$I_{EBO1}$	$V_{EB} = 5 \text{ Volts}$			10	$\mu\text{A}$
	$I_{EBO2}$	$V_{EB} = 4 \text{ Volts}$			10	nA

<b>On Characteristics</b>		<b>Pulse Test: Pulse Width = 300 <math>\mu\text{s}</math>, Duty Cycle <math>\leq</math> 2.0%</b>				
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
DC Current Gain	$h_{FE2}$	$I_C = 10 \mu\text{A}, V_{CE} = 5 \text{ Volts}$	100			
	$h_{FE3}$	$I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ Volts}$	150		450	
	$h_{FE4}$	$I_C = 1 \text{ mA}, V_{CE} = 5 \text{ Volts}$	150		450	
	$h_{FE5}$	$I_C = 10 \text{ mA}, V_{CE} = 5 \text{ Volts}$	125			
	$h_{FE6}$	$I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ Volts}$	60			
		$h_{FE3-1}/h_{FE3-2}$	$T_A = -55^\circ\text{C}$ $I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ Volts}$	0.9		1.0
Base-Emitter Voltage	$V_{BE}$	$V_{CE} = 5 \text{ Volts}, I_C = 100 \mu\text{A}$			0.7	Volts
	$ V_{BE1}-V_{BE2} _1$	$V_{CE} = 5 \text{ Volts}, I_C = 10 \mu\text{A}$			5	mVolts
	$ V_{BE1}-V_{BE2} _2$	$V_{CE} = 5 \text{ Volts}, I_C = 100 \mu\text{A}$			3	mVolts
	$ V_{BE1}-V_{BE2} _3$	$V_{CE} = 5 \text{ Volts}, I_C = 10 \text{ mA}$			5	mVolts
Base-Emitter Saturation Voltage	$V_{BEsat1}$	$I_C = 100 \mu\text{A}, I_B = 10 \mu\text{A}$			0.7	Volts
	$V_{BEsat2}$	$I_C = 1 \text{ mA}, I_B = 100 \mu\text{A}$			0.8	Volts
Collector-Emitter Saturation Voltage	$V_{CEsat1}$	$I_C = 100 \mu\text{A}, I_B = 10 \mu\text{A}$			0.20	Volts
	$V_{CEsat2}$	$I_C = 1 \text{ mA}, I_B = 100 \mu\text{A}$			0.25	Volts

Dynamic Characteristics						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE1} $	$V_{CE} = 5 \text{ Volts}, I_C = 500 \mu\text{A}, f = 30 \text{ MHz}$	1			
	$ h_{FE2} $	$V_{CE} = 5 \text{ Volts}, I_C = 1 \text{ mA}, f = 100 \text{ MHz}$	1		5	
Small Signal Short Circuit Forward Current Transfer Ratio	$h_{FE}$	$V_{CE} = 10 \text{ Volts}, I_C = 1 \text{ mA}, f = 1 \text{ kHz}$	150		600	
Open Circuit Output Capacitance	$C_{OBO}$	$V_{CB} = 5 \text{ Volts}, I_E = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$			5	pF
Open Circuit Input Capacitance	$C_{IBO}$	$V_{EB} = 0.5 \text{ Volts}, I_C = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$			8	pF
Noise Figure	$NF_1$	$V_{CE} = 10 \text{ Volts}, I_C = 100 \mu\text{A}, R_g = 3 \text{ k}\Omega, f = 100 \text{ Hz}$			7	dB
	$NF_2$	$f = 1 \text{ kHz}$			3	
	$NF_3$	$f = 10 \text{ kHz}$			2.5	
Noise Figure (wideband)	NF	$V_{CE} = 10 \text{ Volts}, I_C = 100 \mu\text{A}, R_g = 3 \text{ k}\Omega, 10 \text{ Hz} < f < 15.7 \text{ kHz}$			3.5	dB
Short Circuit Input Impedance	$h_{ie}$	$V_{CB} = 10\text{V}, I_C = 1\text{mA}, f = 1\text{kHz}$	3		30	k $\Omega$
Open Circuit Output Admittance	$h_{oe}$	$V_{CB} = 10\text{V}, I_C = 1\text{mA}, f = 1\text{kHz}$	5		60	$\mu\Omega$
Open Circuit reverse Voltage Transfer Ratio	$h_{re}$	$V_{CB} = 10\text{V}, I_C = 100\mu\text{A}, f = 1\text{kHz}$			$25 \times 10^{-4}$	