

Description

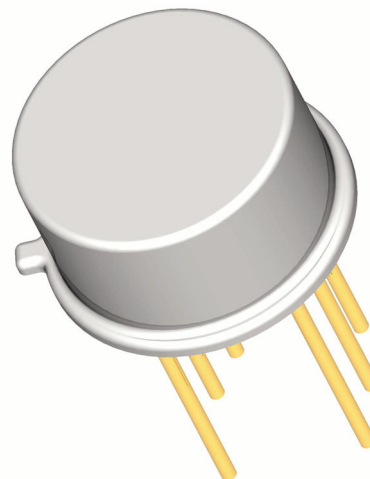
Semicoa Semiconductors offers:

- 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 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 _C = 25°C unless otherwise specified	
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V _{CEO}	60	Volts
Collector-Base Voltage	V _{CBO}	60	Volts
Emitter-Base Voltage	V _{EBO}	5	Volts
Collector Current, Continuous	I _C	50	mA
Power Dissipation, T _A = 25°C	P _T	300 one section 600 both sections	mW
Derate linearly above 25°C		1.71 one section 3.43 both sections	mW/°C
Operating Junction Temperature	T _J	-65 to +200	°C
Storage Temperature	T _{STG}	-65 to +200	°C

ELECTRICAL CHARACTERISTICS

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

Off Characteristics

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	μA
	I_{CBO2}	$V_{CB} = 50\ \text{Volts}$			10	nA
	I_{CBO3}	$V_{CB} = 50\ \text{Volts}, T_A = 150^\circ\text{C}$			10	μA
Emitter-Base Cutoff Current	I_{EBO1}	$V_{EB} = 5\ \text{Volts}$			10	μA
	I_{EBO2}	$V_{EB} = 4\ \text{Volts}$			10	nA

On Characteristics

Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$

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 Ω
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}	$V_{CB} = 10\text{V}, I_C = 100\mu\text{A}, f = 1\text{kHz}$			25×10^{-4}	