

Description

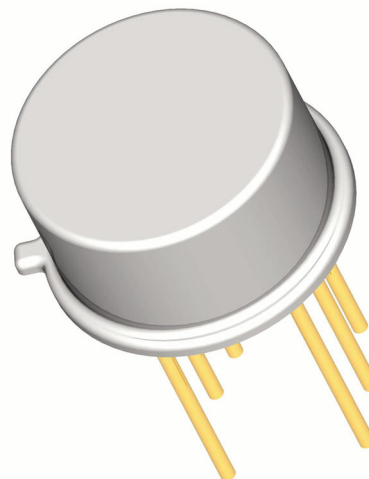
Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N2920J)
- JANTX level (2N2920JX)
- JANTXV level (2N2920JV)
- JANS level (2N2920JS)
- 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
- NPN silicon transistor



Features

- Hermetically sealed TO-78 metal can
- Also available in chip configuration
- Chip geometry 0307
- Reference document:
MIL-PRF-19500/355

Benefits

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

Absolute Maximum Ratings		$T_C = 25^\circ\text{C}$ unless otherwise specified	
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	60	Volts
Collector-Base Voltage	V_{CBO}	70	Volts
Emitter-Base Voltage	V_{EBO}	5	Volts
Collector Current, Continuous	I_C	50	mA
Power Dissipation, $T_A = 25^\circ\text{C}$	P_T	300 one section 600 both sections	mW
Derate linearly above 25°C		1.71 one section 3.43 both sections	mW/ $^\circ\text{C}$
Power Dissipation, $T_C = 25^\circ\text{C}$	P_T	750 one section 1.5 both sections	MW W
Derate linearly above 25°C		4.286 one section 7.14 both sections	mW/ $^\circ\text{C}$
Operating Junction Temperature	T_J	-65 to +200	$^\circ\text{C}$
Storage Temperature	T_{STG}		

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	$V_{(BR)CEO}$	$I_C = 10\text{ mA}$	60			Volts
Collector-Base Cutoff Current	I_{CBO1}	$V_{CB} = 70\text{ Volts}$			10	μA
	I_{CBO2}	$V_{CB} = 45\text{ Volts}$			2	nA
	I_{CBO3}	$V_{CB} = 45\text{ Volts}, T_A = 150^\circ\text{C}$			2.5	μA
Collector-Emitter Cutoff Current	I_{CEO}	$V_{CE} = 5\text{ Volts}$			2	nA
Emitter-Base Cutoff Current	I_{EBO1}	$V_{EB} = 6\text{ Volts}$			10	μA
	I_{EBO2}	$V_{EB} = 5\text{ Volts}$			2	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_{FE1}	$I_C = 10\text{ }\mu\text{A}, V_{CE} = 5\text{ Volts}$	175		600	
	h_{FE2}	$I_C = 100\text{ }\mu\text{A}, V_{CE} = 5\text{ Volts}$	235		800	
	h_{FE3}	$I_C = 1\text{ mA}, V_{CE} = 5\text{ Volts}$	300		1,000	
	h_{FE4}	$I_C = 10\text{ }\mu\text{A}, V_{CE} = 5\text{ Volts}$ $T_A = -55^\circ\text{C}$	50			
	h_{FE2-1}/h_{FE2-2}	$I_C = 100\text{ }\mu\text{A}, V_{CE} = 5\text{ Volts}$	0.9		1.0	
Base-Emitter Voltage differential	$ V_{BE1}-V_{BE2} _1$	$V_{CE} = 5\text{ Volts}, I_C = 10\text{ }\mu\text{A}$			5	mVolts
	$ V_{BE1}-V_{BE2} _2$	$V_{CE} = 5\text{ Volts}, I_C = 100\text{ }\mu\text{A}$			3	
	$ V_{BE1}-V_{BE2} _3$	$V_{CE} = 5\text{ Volts}, I_C = 1\text{ mA}$			5	
Base-Emitter Voltage differential at temperature	$ V_{BE1}-V_{BE2} _1$	$V_{CE} = 5\text{ Volts}, I_C = 100\text{ }\mu\text{A}$ $T_A = 25^\circ\text{C}$ and -55°C			0.8	mVolts
	$ V_{BE1}-V_{BE2} _2$	$T_A = 25^\circ\text{C}$ and $+125^\circ\text{C}$			1	
Base-Emitter Saturation Voltage	V_{BEsat1}	$I_C = 1\text{ mA}, I_B = 100\text{ }\mu\text{A}$	0.5		1.0	Volts
Collector-Emitter Saturation Voltage	V_{CEsat1}	$I_C = 1\text{ mA}, I_B = 100\text{ }\mu\text{A}$			0.3	Volts

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE1} $	$V_{CE} = 5\text{ Volts}, I_C = 500\text{ }\mu\text{A}, f = 20\text{ MHz}$	3		20	
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
Noise Figure	NF_1 NF_2 NF_3	$V_{CE} = 5\text{ Volts}, I_C = 10\text{ }\mu\text{A}, R_g = 10\text{ k}\Omega$ $f = 100\text{ Hz}$			5	dB
		$f = 1\text{ kHz}$			3	
		$f = 10\text{ kHz}$			3	
Short Circuit Input Impedance	h_{ie}	$V_{CB} = 5\text{ V}, I_C = 1\text{ mA}, f = 1\text{ kHz}$	3		30	$\text{k}\Omega$
Open Circuit Output Admittance	h_{oe}	$V_{CB} = 5\text{ V}, I_C = 1\text{ mA}, f = 1\text{ kHz}$			60	μmhos
Open Circuit reverse Voltage Transfer Ratio	h_{re}	$V_{CB} = 5\text{ V}, I_C = 100\text{ }\mu\text{A}, f = 1\text{ kHz}$			1×10^{-3}	