2N2920

Silicon NPN Transistor

Data Sheet

Description

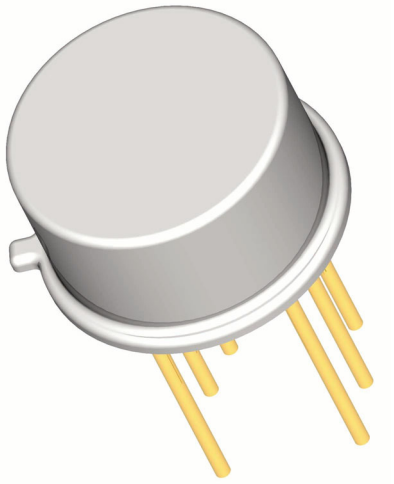
Semicoa Semiconductors offers:

- 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°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°C Derate linearly above 25°C	P_T	300 one section 600 both sections 1.71one section 3.43 both sections	mW mW/°C
Power Dissipation, T_C = 25°C Derate linearly above 25°C	P_T	750 one section 1.5 both sections 4.286 one section 7.14 both sections	MW W mW/°C
Operating Junction Temperature Storage Temperature	T_J T_{STG}	-65 to +200	°C

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ELECTRICAL CHARACTERISTICS

characteristics specified at T_A = 25°C

Off Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10 mA	60			Volts
Collector-Base Cutoff Current	I_{CBO1} I_{CBO2} I_{CBO3}	V_{CB} = 70 Volts V_{CB} = 45 Volts V_{CB} = 45 Volts, T_A = 150°C			10 2 2.5	µA nA µA
Collector-Emitter Cutoff Current	I_{CEO}	V_{CE} = 5 Volts			2	nA
Emitter-Base Cutoff Current	I_{EBO1} I_{EBO2}	V_{EB} = 6 Volts V_{EB} = 5 Volts			10 2	µA nA

On Characteristics

Pulse Test: Pulse Width = 300 µs, Duty Cycle ≤ 2.0%

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
DC Current Gain	h_{FE1} h_{FE2} h_{FE3} h_{FE4} h_{FE2-1}/h_{FE2-2}	I_C = 10 µA, V_{CE} = 5 Volts I_C = 100 µA, V_{CE} = 5 Volts I_C = 1 mA, V_{CE} = 5 Volts I_C = 10 µA, V_{CE} = 5 Volts T_A = -55°C I_C = 100 µA, V_{CE} = 5 Volts	175 235 300 50 0.9		600 800 1,000 1.0	
Base-Emitter Voltage differential	$\|V_{BE1}-V_{BE2}\|_1$ $\|V_{BE1}-V_{BE2}\|_2$ $\|V_{BE1}-V_{BE2}\|_3$	V_{CE} = 5 Volts, I_C = 10 µA V_{CE} = 5 Volts, I_C = 100 µA V_{CE} = 5 Volts, I_C = 1 mA			5 3 5	mVolts
Base-Emitter Voltage differential at temperature	$\|V_{BE1}-V_{BE2}\|_1$ $\|V_{BE1}-V_{BE2}\|_2$	V_{CE} = 5 Volts, I_C = 100 µA T_A = 25 °C and -55°C T_A = 25 °C and +125°C			0.8 1	mVolts
Base-Emitter Saturation Voltage	V_{BEsat1}	I_C = 1 mA, I_B = 100 µA	0.5		1.0	Volts
Collector-Emitter Saturation Voltage	V_{CEsat1}	I_C = 1 mA, I_B = 100 µA			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 Volts, I_C = 500 µA, f = 20 MHz	3		20	
Small Signal Short Circuit Forward Current Transfer Ratio	h_{FE}	V_{CE} = 10 Volts, I_C = 1 mA, f = 1 kHz	150		600	
Open Circuit Output Capacitance	C_{OBO}	V_{CB} = 5 Volts, I_E = 0 mA, 100 kHZ < f < 1 MHz			5	pF
Noise Figure	NF_1 NF_2 NF_3	V_{CE} = 5 Volts, I_C = 10 µA, R_g = 10 kΩ f = 100 Hz f = 1 kHz f = 10 kHz			5 3 3	dB
Short Circuit Input Impedance	h_{ie}	V_{CB} =5V, I_C =1mA, f =1kHz	3		30	kΩ
Open Circuit Output Admittance	h_{oe}	V_{CB} =5V, I_C =1mA, f =1kHz			60	µmhos
Open Circuit reverse Voltage Transfer Ratio	h_{re}	V_{CB} =5V, I_C=100µA, f=1kHz			$1x10^{-3}$	

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