



2N918

Silicon NPN Transistor

Data Sheet

Description

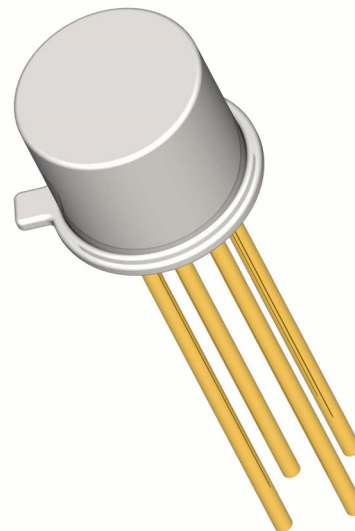
SEMICOA Corporation offers:

- Screening and processing per MIL-PRF-19500
- JAN level (2N918J)
- JANTX level (2N918JX)
- JANTXV level (2N918JV)
- JANTXV level (2N918JV)
- JANS level (2N918JS)
- JANSR level (2N918JSR)
- JANSF level (2N918JSF)
- QCI to the applicable level
- 100% die visual inspection per MIL-STD-750 method 2072 for JANTXV
- Radiation testing (total dose) upon request

Please contact SEMICOA for special configurations
www.SEMICOA.com or (714) 979-1900

Applications

- Ultra-high frequency transistor
- Low power
- NPN silicon transistor



Features

- Hermetically sealed TO-72 metal can
- Also available in chip configuration
- Chip geometry 0003
- Reference document: MIL-PRF-19500/301

Benefits

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

Absolute Maximum Ratings		T _c = 25°C unless otherwise specified	
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V _{CEO}	15	Volts
Collector-Base Voltage	V _{CB0}	30	Volts
Emitter-Base Voltage	V _{EBO}	3	Volts
Collector Current, Continuous	I _C	50	mA
Power Dissipation, T _A = 25°C Derate linearly above 25°C	P _T	200 1.14	mW mW/°C
Operating Junction Temperature Storage Temperature	T _J 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	$V_{(BR)CEO}$	$I_C = 3 \text{ mA}$	15			Volts
Collector-Base Cutoff Current	I_{CBO1}	$V_{CB} = 25 \text{ Volts}$			10	nA
	I_{CBO2}	$V_{CB} = 30 \text{ Volts}$			1	μA
	I_{CBO3}	$V_{CB} = 25 \text{ Volts}, T_A = 150^\circ\text{C}$			1	μA
Emitter-Base Cutoff Current	I_{EBO1}	$V_{EB} = 2.5 \text{ Volts}$			10	nA
	I_{EBO2}	$V_{EB} = 3 \text{ Volts}$			10	μA

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}	$I_C = 0.5 \text{ mA}, V_{CE} = 10 \text{ Volts}$	10		200	
	h_{FE2}	$I_C = 3 \text{ mA}, V_{CE} = 1 \text{ Volts}$	20			
	h_{FE3}	$I_C = 10 \text{ mA}, V_{CE} = 10 \text{ Volts}$	20			
	h_{FE4}	$I_C = 3 \text{ mA}, V_{CE} = 1 \text{ Volts}$ $T_A = -55^\circ\text{C}$	10			
Base-Emitter Saturation Voltage	V_{BEsat}	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$			1.0	Volts
Collector-Emitter Saturation Voltage	V_{CEsat}	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$			0.4	Volts

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE} $	$V_{CE} = 10 \text{ Volts}, I_C = 4 \text{ mA}, f = 100 \text{ MHz}$	6		18	
Open Circuit Output Capacitance	C_{OBO}	$V_{CB} = 10 \text{ Volts}, I_E = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$			1.7	pF
Noise Figure	NF	$V_{CE} = 6 \text{ Volts}, I_C = 1 \text{ mA}, f = 60 \text{ MHz}, R_g = 2.5 \text{ M}\Omega$			6	dB
Power Gain	G_{pe}	$V_{CB} = 12 \text{ Volts}, I_C = 6 \text{ mA}, f = 200 \text{ MHz}$	15			dB
Collector Base time constant	$r_b' C_C$	$V_{CB} = 10 \text{ Volts}, I_E = -4 \text{ mA}, f = 79.8 \text{ MHz}$			25	ps
Collector efficiency	η	$V_{CB} = 15 \text{ Volts}, I_C = 8 \text{ mA}, f = 500 \text{ MHz}$	30			mW
Oscillator Power Output	P_O	$V_{CB} = 15 \text{ Volts}, I_C = 8 \text{ mA}, f = 500 \text{ MHz}$			25	%