2N918JAN, JTX, JTXV, JANS
Processed per MIL-S-19500/301
NPN Silicon
Small-Signal Transistor

designed for ultra-high frequency amplifier applications.

CRYSTALONICS
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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	15	Vdc
Collector-Base Voltage	V_{CBO}	30	Vdc
Emitter-Base Voltage	V_{EBO}	3.0	Vdc
Collector Current — Continuous	I_C	50	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C @ T_C = 25°C Derate above 25°C	P_T	200 1.14 300 1.71	mW mW/°C mW mW/°C
Operating Junction and Storage Temperature Range	T_J, T_{stg}	−65 to 200	°C

CASE 20-03, STYLE 10
TO-206AF (TO-72)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage[1] (I_C = 3.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	15	—	Vdc
Collector-Base Breakdown Voltage (I_C = 1.0 μAdc, I_E = 0)	$V_{(BR)CBO}$	30	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)	$V_{(BR)EBO}$	3.0	—	Vdc
Collector Cutoff Current (V_{CB} = 25 Vdc, I_E = 0) (V_{CB} = 25 Vdc, I_E = 0, T_A = 150°C)	I_{CBO}	— —	10 1.0	nAdc μAdc
Emitter Cutoff Current (V_{EB} = 2.5 Vdc)	I_{EBO}	—	10	nAdc

(continued)

ELECTRICAL CHARACTERISTICS — continued (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Gain (I_C = 500 μAdc, V_{CE} = 10 Vdc) (I_C = 3.0 mAdc, V_{CE} = 1.0 Vdc) (I_C = 10 mAdc, V_{CE} = 10 Vdc) (I_C = 3.0 mAdc, V_{CE} = 1.0 Vdc, T_A = −55°C)	h_{FE}	 10 20 20 10	 — 200 — —	—
Collector-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)	$V_{CE(sat)}$	—	0.4	Vdc
Base-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)	$V_{BE(sat)}$	—	1.0	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 0.1 to 1.0 MHz) (V_{CB} = 0 Vdc, I_E = 0, f = 0.1 to 1.0 MHz)	C_{obo}	 — —	 1.7 3.0	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 0.1 to 1.0 MHz)	C_{ibo}	—	2.0	pF
Small-Signal Current Transfer Ratio, Magnitude (I_C = 4.0 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	$\lvert h_{fe} \rvert$	6.0	18	—
Noise Figure (See figure) (V_{CE} = 6.0 Vdc, I_C = 1.0 mAdc, f = 60 MHz g_s = 7.5 mmhos)	NF	6.0	—	dB
OUTPUT CHARACTERISTICS (See Figure 25) (V_{CB} = 12 Vdc, I_C = 6.0 mAdc, f = 200 MHz) Adjust V_{CC} and V_{EE} for specified test conditions.				
Power Gain (V_{CB} = 12 Vdc, I_C = 6.0 mAdc, f = 200 MHz)	G_{pe}	15	—	dB
Power Output (V_{CB} = 15 Vdc, I_C = 8.0 mAdc, f ≥ 500 MHz)	P_o	30	—	mW
Efficiency (V_{CB} = 15 Vdc, I_C = 8.0 mAdc, f ≥ 500 MHz)	η	25	—	%
Collector-Base Time Constant (V_{CB} = 10 Vdc, I_C = −4.0 mAdc, f = 79.8 MHz)	$r_b'C_c$	—	25	ps

ASSURANCE TESTING (Pre/Post Burn-In)
Burn-In Conditions: T_A = 25 ±3°C, V_{CB} = 10 Vdc
P_T = 200 mW

Characteristics Tested	Symbol	Initial and End Point Limits		Unit
		Min	Max	
Collector Cutoff Current (V_{CB} = 25 Vdc)	I_{CBO}	—	10	nAdc
DC Current Gain (I_C = 3.0 mAdc, V_{CE} = 1.0 Vdc)	h_{FE}	20	200	—

Delta from Pre-Burn-In Measured Values		Min	Max	
Delta Collector Cutoff Current	ΔI_{CBO}	—	±100 or ±5.0 whichever is greater	% of Initial Value nAdc
Delta DC Current Gain	Δh_{FE}	—	±20	% of Initial Value