

2N2906JAN, JTX, JTXV
2N2906AJAN, JTX, JTXV
2N2907JAN, JTX, JTXV
2N2907AJAN, JTX, JTXV, JANS
Processed per MIL-S-19500/291
PNP Silicon
Small-Signal Transistors

CRYSTALONCS
2805 Veterans Highway
Suite 14
Ronkonkoma, N.Y. 11770

...designed for high-speed switching and DC to VHF amplifier applications.

MAXIMUM RATINGS				
Rating	Symbol	2N2906 2N2907	2N2906A 2N2907A	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	Vdc
Collector-Base Voltage	V_{CBO}	60		Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Collector Current — Continuous	I_C	600		mA dc
Total Device Dissipation	P_T			Watts
@ $T_A = 25^\circ\text{C}$		0.4		mW/°C
Derate above 25°C		2.28		Watts
@ $T_C = 25^\circ\text{C}$		1.8		mW/°C
Derate above 25°C		10.3		
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-65 to 200		°C



ELECTRICAL CHARACTERISTICS <small>($T_A = 25^\circ\text{C}$ unless otherwise noted.)</small>					
Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage ⁽¹⁾ ($I_C = 10\text{ mA dc}, I_E = 0$)	$V_{(BR)CEO}$	40 60	—	Vdc	
Collector-Base Breakdown Voltage ($I_E = 10\text{ }\mu\text{A dc}$)	$V_{(BR)CBO}$	60	—	Vdc	
Emitter-Base Breakdown Voltage ($I_C = 10\text{ }\mu\text{A dc}$)	$V_{(BR)EBO}$	5.0	—	Vdc	
Collector Cutoff Current ($V_{CB} = 50\text{ Vdc}$)	I_{CBO}	—	0.02 0.01	$\mu\text{A dc}$	
($V_{CB} = 50\text{ Vdc}, T_A = 150^\circ\text{C}$)		—	20 10		
Emitter Cutoff Current ($V_{EB} = 3.5\text{ Vdc}, I_C = 0$)	I_{EBO}	—	0.05	$\mu\text{A dc}$	

(1) Pulsed Pulse Width 250 to 350 μs , Duty Cycle 1:9 to 2:01.

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ELECTRICAL CHARACTERISTICS — continued (T _A = 25°C unless otherwise noted)					
Characteristic		Symbol	Min	Max	Unit
ON CHARACTERISTICS					
DC Current Gain ⁽¹⁾					
(I _C = 0.1 mA _{dc} , V _{CE} = 10 V _{dc})	2N2906	h _{FE}	20	—	—
	2N2907		35	—	—
	2N2906A		40	—	—
	2N2907A		75	—	—
(I _C = 1.0 mA _{dc} , V _{CE} = 10 V _{dc})	2N2906	h _{FE}	25	175	—
	2N2907		50	450	—
	2N2906A		40	175	—
	2N2907A		100	450	—
(I _C = 10 mA _{dc} , V _{CE} = 10 V _{dc})	2N2906	h _{FE}	35	—	—
	2N2907		75	—	—
	2N2906A		40	—	—
	2N2907A		100	—	—
(I _C = 150 mA _{dc} , V _{CE} = 10 V _{dc})	2N2906, 2N2906A	h _{FE}	40	120	—
	2N2907, 2N2907A		100	300	—
(I _C = 500 mA _{dc} , V _{CE} = 10 V _{dc})	2N2906	h _{FE}	20	—	—
	2N2907		30	—	—
	2N2906A		40	—	—
	2N2907A		50	—	—
(I _C = 1.0 mA _{dc} , V _{CE} = 10 V _{dc} , T _A = -55°C)	2N2906	h _{FE}	15	—	—
	2N2907		30	—	—
	2N2906A		20	—	—
	2N2907A		50	—	—
Collector-Emitter Saturation Voltage ⁽¹⁾ (I _C = 150 mA _{dc} , I _B = 15 mA _{dc}) (I _C = 500 mA _{dc} , I _B = 50 mA _{dc})		V _{CE(sat)}	—	0.4 1.6	V _{dc}
Base-Emitter Saturation Voltage ⁽¹⁾ (I _C = 150 mA _{dc} , I _B = 15 mA _{dc}) (I _C = 500 mA _{dc} , I _B = 50 mA _{dc})		V _{BE(sat)}	—	1.3 2.6	V _{dc}
SMALL-SIGNAL CHARACTERISTICS					
Output Capacitance (V _{CB} = 10 V _{dc} , f = 0.1 to 1.0 MHz)		C _{obo}	—	8.0	pF
Input Capacitance (V _{EB} = 2.0 V _{dc} , f = 0.1 to 1.0 MHz)		C _{ibo}	—	30	pF
Current Gain					
(I _C = 1.0 mA _{dc} , V _{CE} = 10 V _{dc} , f = 1.0 kHz)	2N2906	h _{fe}	25	—	—
	2N2907		50	—	—
	2N2906A		40	—	—
	2N2907A		100	—	—
Small-Signal Current Transfer Ratio, Magnitude (I _C = 50 mA _{dc} , V _{CE} = 20 V _{dc} , f = 100 MHz)		h _{fe}	2.0	—	—
SWITCHING CHARACTERISTICS (See Figure 31)					
Turn-On Time		t _{d(on)}	—	45	ns
Turn-Off Time		t _{d(off)}	—	300	ns

⁽¹⁾ Pulsed. Pulse Width 250 to 350 μs. Duty Cycle 1.0 to 2.0%.

ASSURANCE TESTING (Pre-Post Burn-In)

Burn-In Conditions: T_A = 25 ± 3°C, V_{CB} = 30 V_{dc}, 10 V_{dc} for JANS
P_T = 400 mW

Characteristics Tested	Symbol	Initial and End Point Limits		Unit
		Min	Max	
Collector Cutoff Current (V _{CB} = 50 V _{dc})	I _{CBO}	—	0.02	μA _{dc}
2N2906, 2N2907 2N2906A, 2N2907A		—	0.01	
DC Current Gain ⁽¹⁾ (I _C = 150 mA _{dc} , V _{CE} = 10 V _{dc})	h _{FE}	40	120	—
2N2906, 2N2907 2N2906A, 2N2907A		100	300	

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 nA _{dc}
Delta DC Current Gain ⁽¹⁾	Δh _{FE}	—	±15	% of Initial Value