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TECHNICAL DATA SHEET

NPN LOW POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/301

DEVICES

2N918 2N918UB

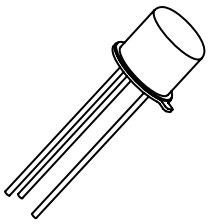
LEVELS

JAN
JANTX
JANTXV

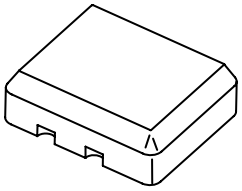
ABSOLUTE MAXIMUM RATINGS *(T_C = +25°C unless otherwise noted)*

Parameters / Test Conditions	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	I_C	50	mAdc
Total Power Dissipation @ T_A = +25°C (1)	P_T	200	mW
Operating & Storage Junction Temperature Range	T_{op} & T_{stg}	-65 to +200	°C

Note: 1) Derate linearly 1.14mW/°C above T_A > 25°C



TO-72
2N918



3 PIN
2N918UB

ELECTRICAL CHARACTERISTICS *(T_A = +25°C, unless otherwise noted)*

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERTICS				
Collector-Emitter Breakdown Voltage I_C = 3mAdc	$V_{(BR)CEO}$	15		Vdc
Collector-Base Cutoff Current V_{CB} = 30Vdc V_{CB} = 25Vdc V_{CB} = 25Vdc; T_A = +150°C	I_{CBO}		1.0 10 1.0	µAdc ηAdc µAdc
Emitter-Base Cutoff Current V_{EB} = 3.0Vdc V_{EB} = 2.5Vdc	I_{EBO}		10 10	µAdc ηAdc
Forward-Current Transfer Ratio I_C = 0.5mAdc, V_{CE} = 10Vdc I_C = 3.0mAdc, V_{CE} = 1.0Vdc I_C = 10mAdc, V_{CE} = 10Vdc I_C = 3.0mAdc, V_{CE} = 1.0Vdc; T_A = -55°C	h_{FE}	 10 20 20 10	 200 	
Collector-Emitter Saturation Voltage I_C = 10mAdc, I_B = 1.0mAdc	$V_{CE(sat)}$		0.4	Vdc
Base-Emitter Voltage I_C = 10mAdc, I_B = 1.0mAdc	$V_{BE(sat)}$		1.0	Vdc

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DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Magnitude of Small-Signal Short-Circuit - Forward Current Transfer Ratio I_C = 4mAdc, V_{CE} = 10Vdc, f = 100MHz	$\|h_{fe}\|$	6.0	18	
Output Capacitance V_{CB} = 0Vdc, I_E = 0, 100kHz ≤ f ≤ 1.0MHz V_{CB} = 10Vdc, I_E = 0, 100kHz ≤ f ≤ 1.0MHz	C_{obo1} C_{obo2}		3.0 1.7	pF
Input Capacitance V_{EB} = 0.5Vdc, I_C = 0, 100kHz ≤ f ≤ 1.0MHz	C_{ibo}		2.0	pF
Noise Figure (1) V_{CE} = 6V, I_C = 1.0mA, f = 60MHz g_s = 2.5mmho	NF		6.0	dB
Small-Signal Power Gain (1) V_{CB} = 12V, I_C = 6.0mA, f = 200MHz	G_{pe}	15		dB
Collector-Base Time Constant (1) V_{CB} = 10V, I_E = -4.0mA, f = 79.8MHz	$R_{b'CC}$		25	ps
Oscillator Power Output (1) V_{CB} = 1.5V, I_C = 8.0mA, f ≥ 500MHz	P_o	30		mW
Collector Efficiency V_{CB} = 15V, I_C = 8.0mA, f > 500MHz	n	25		%

NOTES:

(1) For more detail see MIL-PRF-19500/301

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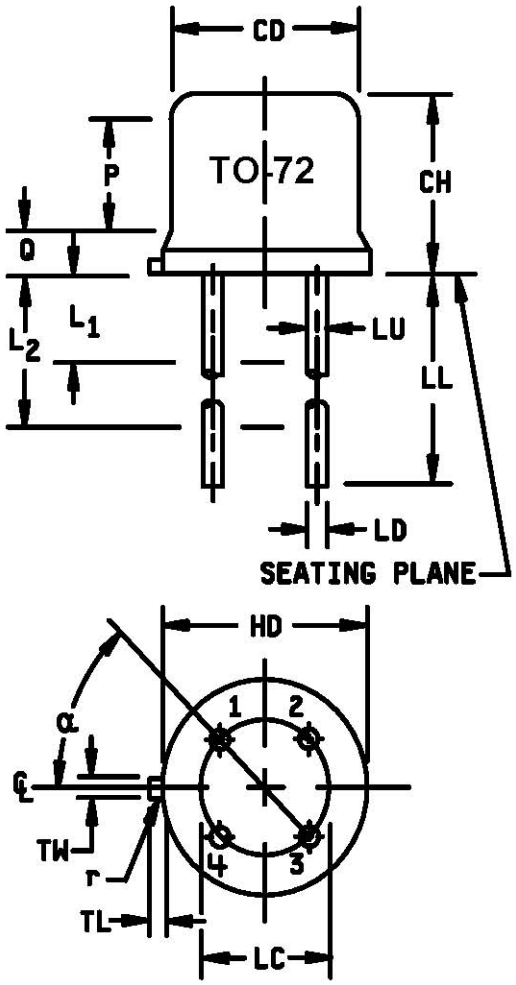
PACKAGE DIMENSIONS



Symbol	Dimensions				Note
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.178	.195	4.52	4.95	5
CH	.170	.210	4.32	5.33	
HD	.209	.230	5.31	5.84	5
LC	.100 TP		2.54 TP		7,8
LD	.016	.021	.406	.533	7,8
LL	.500	.750	12.70	19.05	7,8
LU	.016	.019	.406	.483	
L1		.050		1 .27	
L2	.250		6.35		
P	.100		2.54		
Q		.040		1.02	5
TL	.028	.048	.71	1.22	
TW	.036	.046	.91	1.17	
r		.007		.18	
α	45° TP				

NOTES:

1. Dimension are in inches.
2. Millimeters are given for general information only.
3. Beyond r (radius) maximum, TH shall be held for a minimum length of .011 inch (0.28 mm).
4. Dimension TL measured from maximum HD.
5. Body contour optional within zone defined by HD, CD, and Q.
6. Leads at gauge plane .054 +.001 -.000 inch (1.37 +0.025 -0.00 mm) below seating plane shall be within .007 inch (0.18mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC.
7. Dimension LU applies between L1 and L2. Dimension LD applies between L2 and LL minimum. Diameter is uncontrolled in L1 and beyond LL minimum.
8. All four leads.
9. Dimension r (radius) applies to both inside corners of tab.
10. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.
11. Lead 1 = emitter, lead 2 = base, lead 3 = collector, lead 4 = case (electrically connected).

FIGURE 1. Physical dimensions for 2N918 (TO-72).

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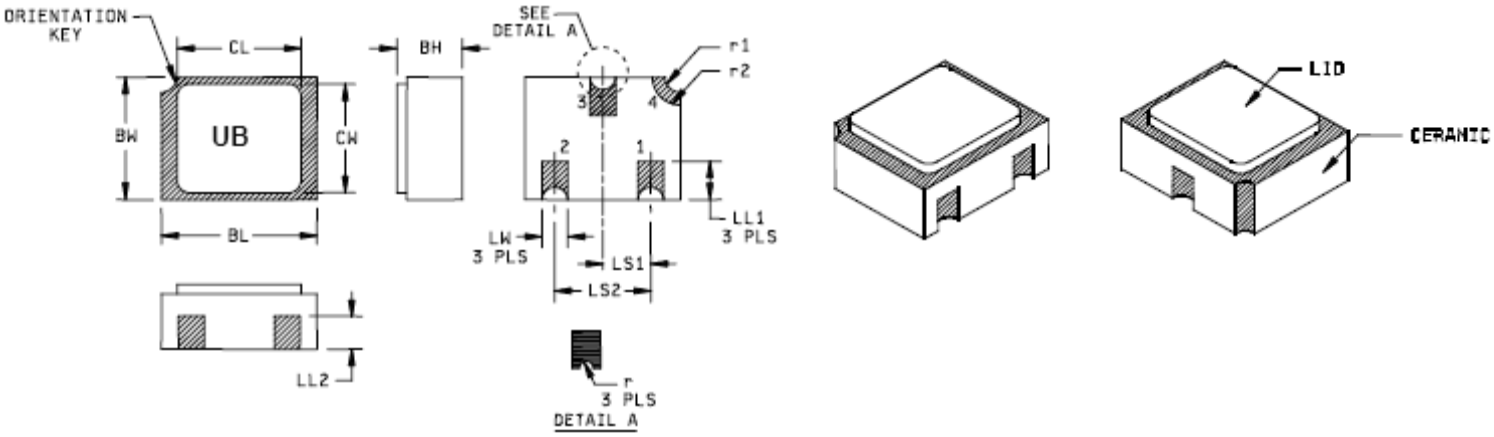
PACKAGE DIMENSIONS



Symbol	Dimensions				Note
	Inches		Millimeters		
	Min	Max	Min	Max	
BH	.046	.056	1.17	1.42	
BL	.115	.128	2.92	3.25	
BW	.085	.108	2.16	2.74	
CL		.128		3.25	
CW		.108		2.74	
LL_1	.022	.038	0.56	0.97	
LL_2	.017	.035	0.4.	0.89	

Symbol	Dimensions				Note
	Inches		Millimeters		
	Min	Max	Min	Max	
LS_1	.036	.040	0.91	1.02	
LS_2	.071	.079	1.80	2.01	
LW	.016	.024	0.41	0.61	
r		.008		.203	
r1		.012		.305	
r2		.022		.559	

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Hatched areas on package denote metallized areas.
4. Lid material: Kovar.
5. Pad 1 = Base, Pad 2 = Emitter, Pad 3 = Collector, Pad 4 = Shielding connected to the lid.
6. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

FIGURE 2. Physical dimensions for 2N918UB, surface mount.