



## PNP Small Signal Silicon Transistor

Qualified per MIL-PRF-19500/511

Qualified Levels:  
JAN, JANTX, JANTXV  
and JANS

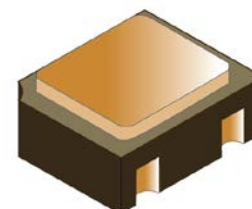
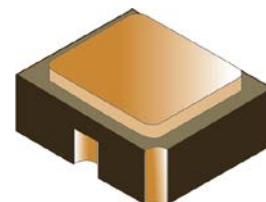
### DESCRIPTION

This 2N4261UB small signal transistor features ceramic bodied construction with a metal lid for military grade products per MIL-PRF-19500/511. It is also available with a ceramic lid in the UBC package or in a hermetically sealed metal TO-72 package.

**Important:** For the latest information, visit our website <http://www.microsemi.com>.

### FEATURES

- Surface mount equivalent of popular JEDEC registered 2N4261 number
- JAN, JANTX, JANTXV and JANS qualification is available per MIL-PRF-19500/511 (See [part nomenclature](#) for all available options.)
- RoHS compliant



**UB Package**

### APPLICATIONS / BENEFITS

- Low-profile ceramic bodied surface mount package (see package illustration)
- Lightweight
- Military and other high-reliability applications

Also available in:

**UBC package**  
(Ceramic Lid surface mount)  
 [2N4261UBC](#)

**TO-72 package**  
(leaded)  
 [2N4261](#)

### MAXIMUM RATINGS @ T<sub>A</sub> = 25 °C

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	T <sub>J</sub> & T <sub>STG</sub>	-65 to +200	°C
Thermal Resistance Junction-to-Ambient <sup>(1)</sup>	R <sub>θJA</sub>	0.860	°C/W
Collector – Emitter Voltage	V <sub>CEO</sub>	-15	V
Collector – Base Voltage	V <sub>CB0</sub>	-15	V
Emitter - Base Voltage	V <sub>EBO</sub>	-4.5	V
Total Power Dissipation <sup>(1)</sup>	P <sub>T</sub>	@ T <sub>A</sub> = +25 °C <sup>(1)</sup>	W
		@ T <sub>C</sub> = +25 °C <sup>(2)</sup>	
Collector Current	I <sub>C</sub>	-30	mA

**NOTES:** 1. Derate linearly 1.14 mW/°C above T<sub>A</sub> = +25°C

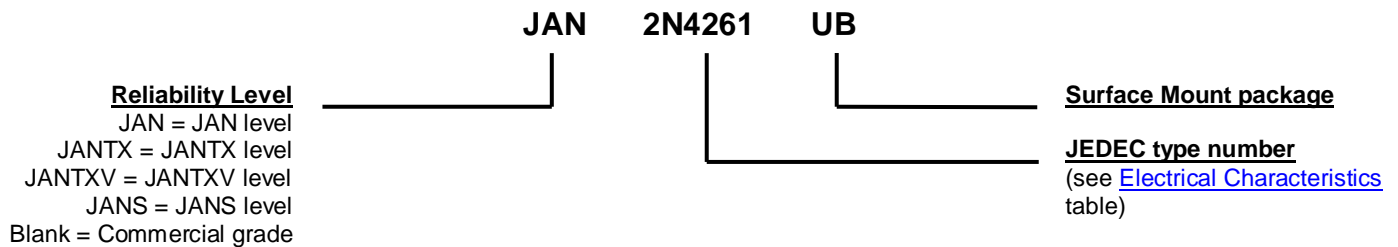
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**MECHANICAL and PACKAGING**

- CASE: Ceramic
- TERMINALS: Gold plating over nickel under plate
- MARKING: Part number, date code, manufacturer's ID
- TAPE & REEL option: Standard per EIA-418D. Consult factory for quantities.
- WEIGHT: Less than 0.04 grams
- See [Package Dimensions](#) on last page.

**PART NOMENCLATURE**

**SYMBOLS & DEFINITIONS**

Symbol	Definition
$I_B$	Base current: The value of the dc current into the base terminal.
$I_C$	Collector current: The value of the dc current into the collector terminal.
$V_{CB}$	Collector-base voltage: The dc voltage between the collector and the base.
$V_{CBO}$	Collector-base voltage, base open: The voltage between the collector and base terminals when the emitter terminal is open-circuited.
$V_{CE}$	Collector-emitter voltage: The dc voltage between the collector and the emitter.
$V_{CEO}$	Collector-emitter voltage, base open: The voltage between the collector and the emitter terminals when the base terminal is open-circuited.
$V_{CC}$	Collector-supply voltage: The supply voltage applied to a circuit connected to the collector.
$V_{EBO}$	Emitter-base voltage, collector open: The voltage between the emitter and base terminals with the collector terminal open-circuited.
$V_{EB}$	Emitter-base voltage: The dc voltage between the emitter and the base

**ELECTRICAL CHARACTERISTICS @ 25 °C unless otherwise noted**

Parameters / Test Conditions	Symbol	Min	Max	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Breakdown Voltage $I_C = -10 \text{ mA}$	$V_{(BR)CEO}$	-15		V
Collector-Base Cutoff Current $V_{CB} = -15 \text{ V}$	$I_{CBO}$		-10	$\mu\text{A}$
Emitter-Base Cutoff Current $V_{EB} = -4.5 \text{ V}$	$I_{EBO}$		-10	$\mu\text{A}$
Collector-Emitter Cutoff Current $V_{CE} = -10 \text{ V}, V_{BE} = -0.4 \text{ V}$ $V_{CE} = -10 \text{ V}, V_{BE} = -2.0 \text{ V}$	$I_{CEX}$		-50 -5	nA nA

**ON CHARACTERISTICS <sup>(1)</sup>**

Forward-Current Transfer Ratio $I_C = -1.0 \text{ mA}, V_{CE} = -1.0 \text{ V}$ $I_C = -10 \text{ mA}, V_{CE} = -1.0 \text{ V}$ $I_C = -30 \text{ mA}, V_{CE} = -1.0 \text{ V}$	$h_{FE}$	25 30 20	150	
Collector-Emitter Saturation Voltage $I_C = -1.0 \text{ mA}, I_B = -0.1 \text{ mA}$ $I_C = -10 \text{ mA}, I_B = -1.0 \text{ mA}$	$V_{CE(sat)}$		-0.15 -0.35	V
Base-Emitter Saturation Voltage (Non-Saturated) $V_{CE} = -1.0 \text{ V}, I_C = -1.0 \text{ mA}$ $V_{CE} = -1.0 \text{ V}, I_C = -10 \text{ mA}$	$V_{BE}$		-0.8 -1.0	V

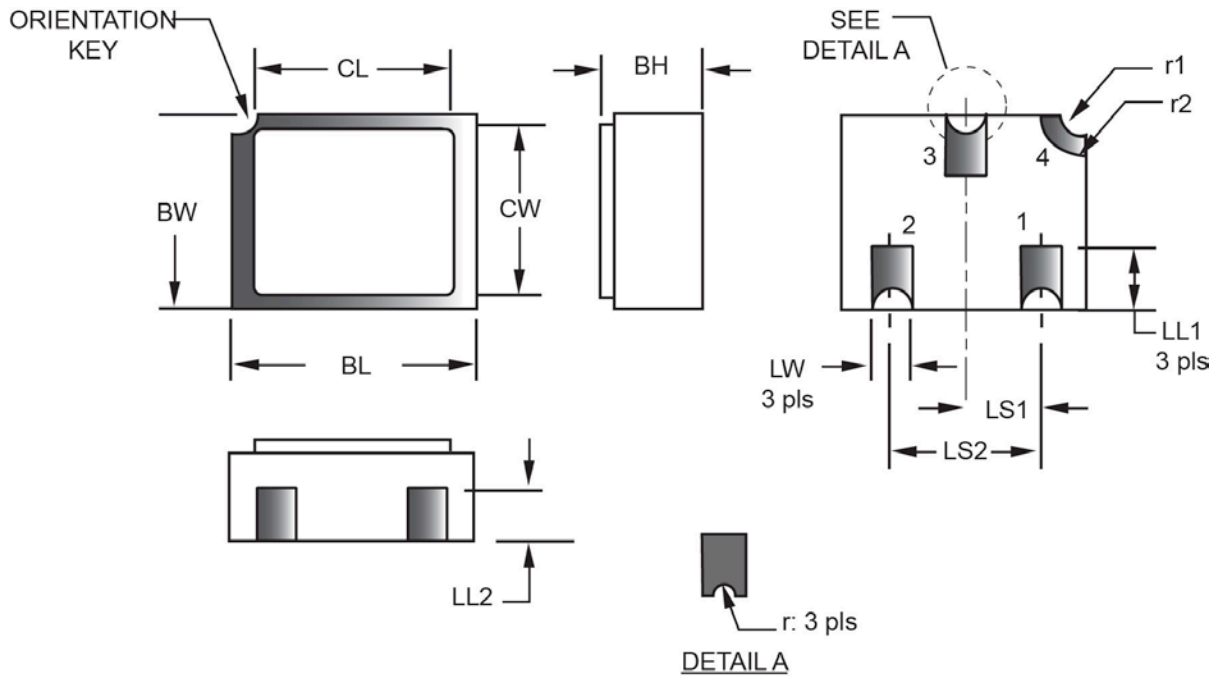
**DYNAMIC CHARACTERISTICS**

Parameters / Test Conditions	Symbol	Min	Max	Unit
Magnitude of Small-Signal Forward Current Transfer Ratio $I_C = -5.0 \text{ mA}, V_{CE} = 4.0 \text{ V}, f = 100 \text{ MHz}$ $I_C = -10 \text{ mA}, V_{CE} = 10 \text{ V}, f = 100 \text{ MHz}$	$ h_{fe} $	15 20		
Output Capacitance $V_{CB} = -4 \text{ V}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{obo}$		2.5	pF
Input Capacitance $V_{EB} = -0.5 \text{ V}, I_C = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{ibo}$		2.5	pF

**SWITCHING CHARACTERISTICS**

Parameters / Test Conditions	Symbol	Min	Max	Unit
Turn-On Time $V_{CC} = -17 \text{ V}; I_C = -10 \text{ mA}$	$t_{on}$		2.5	ns
Turn-Off Time $V_{CC} = -17 \text{ V}; I_C = -10 \text{ mA}$	$t_{off}$		3.5	ns

(1) Pulse Test: pulse width = 300  $\mu\text{s}$ , duty cycle  $\leq 2.0\%$

**PACKAGE DIMENSIONS**


Symbol	Dimensions				Note	Symbol	Dimensions				Note
	inch		millimeters				inch		millimeters		
	Min	Max	Min	Max			Min	Max	Min	Max	
<b>BH</b>	0.046	.056	1.17	1.42		<b>LS1</b>	0.035	0.039	0.89	0.99	
<b>BL</b>	0.115	0.128	2.92	3.25		<b>LS2</b>	0.071	0.079	1.80	2.01	
<b>BW</b>	0.085	0.108	2.16	2.74		<b>LW</b>	0.016	0.024	0.41	0.61	
<b>CL</b>	-	0.128	-	3.25		<b>r</b>	-	0.008	-	0.20	
<b>CW</b>	-	0.108	-	2.74		<b>r1</b>	-	0.012	-	0.31	
<b>LL1</b>	0.022	0.038	0.56	0.97		<b>r2</b>	-	0.022	-	.056	
<b>LL2</b>	0.017	0.035	0.43	0.89							

**NOTES:**

1. Dimensions are in inches. Millimeters are given for information only.
2. Ceramic package only.
3. Hatched areas on package denote metallized areas.
4. Pad 1 = Base, Pad 2 = Emitter, Pad 3 = Collector, Pad 4 = Shielding connected to the lid.
5. In accordance with ASME Y14.5M, diameters are equivalent to  $\Phi$ x symbology.