



## PNP Small Signal Silicon Transistor

Qualified per MIL-PRF-19500/511

*Qualified Levels:*  
JAN, JANTX, JANTXV  
and JANS

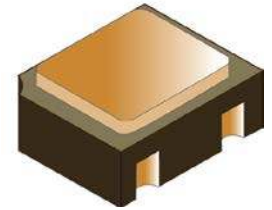
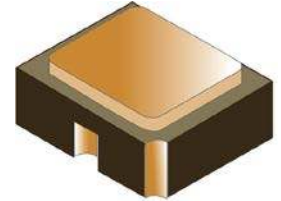
### DESCRIPTION

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**

Also available in:

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

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

### APPLICATIONS / BENEFITS

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

### 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>CBO</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

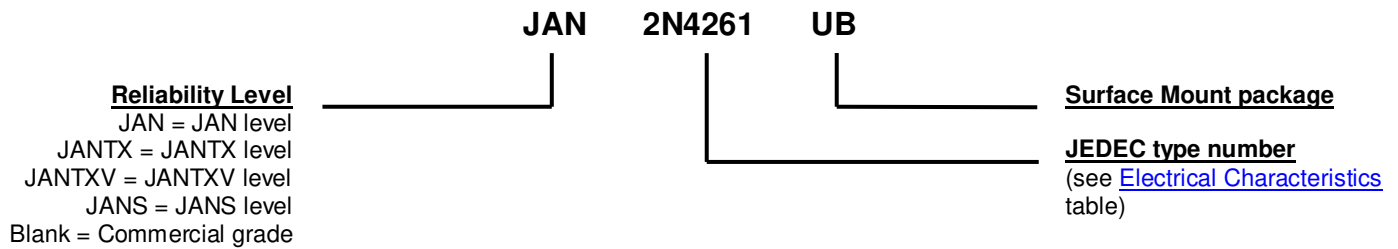
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**MECHANICAL and PACKAGING**

- 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

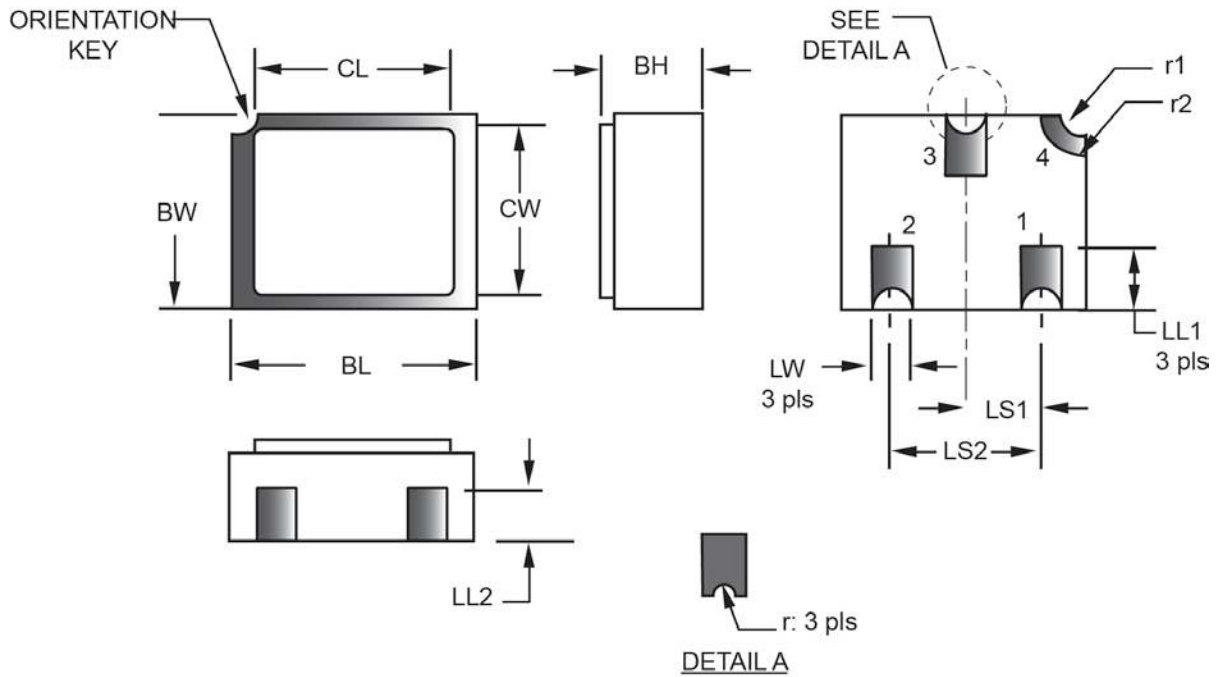
**DYNAMIC CHARACTERISTICS**

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	
BH	0.046	.056	1.17	1.42		LS1	0.035	0.039	0.89	0.99	
BL	0.115	0.128	2.92	3.25		LS2	0.071	0.079	1.80	2.01	
BW	0.085	0.108	2.16	2.74		LW	0.016	0.024	0.41	0.61	
CL	-	0.128	-	3.25		r	-	0.008	-	0.20	
CW	-	0.108	-	2.74		r1	-	0.012	-	0.31	
LL1	0.022	0.038	0.56	0.97		r2	-	0.022	-	.056	
LL2	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.