



## PNP Small Signal Silicon Transistor

Qualified per MIL-PRF-19500/511

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

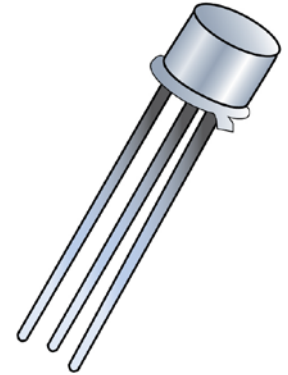
### DESCRIPTION

This 2N4261 small signal transistor comes in a hermetically sealed metal TO-72 package and is military qualified for high-reliability applications. It is also available in a low-profile UB surface mount package or with a ceramic lid in the UBC package.

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

### FEATURES

- 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 version available



### TO-72 Package

Also available in:

**UB package**  
(surface mount)

 [2N4261UB](#)

**UBC package**

(Ceramic Lid surface mount)

 [2N4261UBC](#)

### APPLICATIONS / BENEFITS

- Leaded, hermetically sealed TO-72 package
- 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>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

#### MSC – Lawrence

6 Lake Street,  
Lawrence, MA 01841  
Tel: 1-800-446-1158 or  
(978) 620-2600  
Fax: (978) 689-0803

#### MSC – Ireland

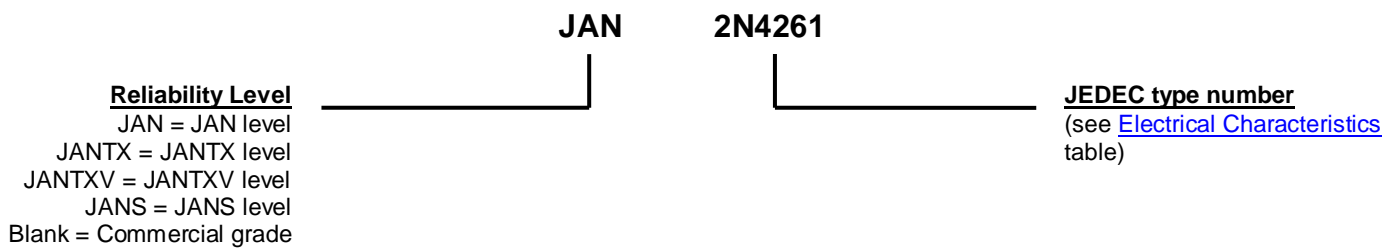
Gort Road Business Park,  
Ennis, Co. Clare, Ireland  
Tel: +353 (0) 65 6840044  
Fax: +353 (0) 65 6822298

**Website:**

[www.microsemi.com](http://www.microsemi.com)

**MECHANICAL and PACKAGING**

- CASE: Ni plated kovar, Ni cap
- TERMINALS: Gold over nickel plated kovar leads, solder dipped. RoHS compliant are available without solder dip on commercial grade only.
- MARKING: Manufacturer's ID, date code, part number
- POLARITY: PNP, see case outline on last page
- WEIGHT: Approximately 0.322 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

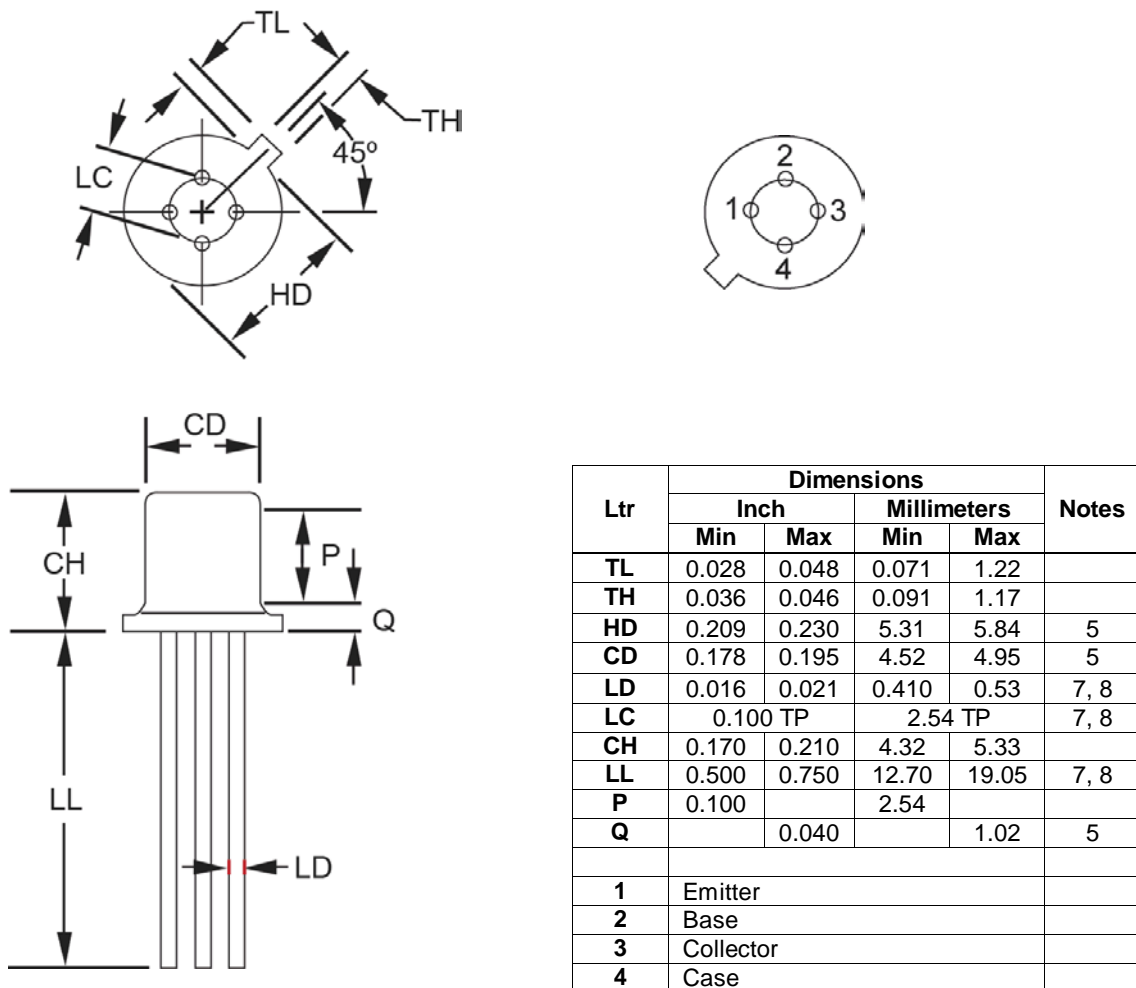
**DYNAMIC CHARACTERISTICS**

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**

**NOTES:**

- Dimensions are in inches.
- Millimeters are given for information only.
- Beyond r (radius) maximum, TH shall be held for a minimum length of 0.011 (0.28 mm).
- Dimension TL measured from maximum HD.
- Body contour optional within zone defined by HD, CD, and Q.
- Leads at gauge plane 0.054 +0.001 -0.000 inch (1.37 +0.03 -0.00 mm) below seating plane shall be within 0.007 inch (0.18mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC. The device may be measured by direct methods.
- Dimension LU applies between L1 and L2. Dimension LD applies between L2 and LL minimum. Diameter is uncontrolled in L1 and beyond LL minimum.
- All four leads.
- Dimension r (radius) applies to both inside corners of tab.
- In accordance with ASME Y14.5M, diameters are equivalent to  $\Phi$ x symbology.
- Lead 1 = emitter, lead 2 = base, lead 3 = collector, lead 4 = case (electrically connected).

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