

### FEATURES

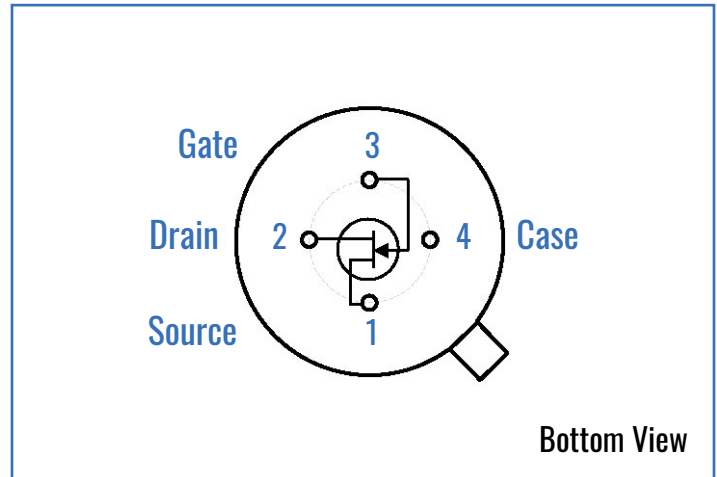
- LOW NOISE: 4 NV/√HZ TYPICAL
- LOW LEAKAGE: 10PA TYPICAL

### DESCRIPTION

The -30V 2N4416 and 2N4416A are targeted for sensitive mixer and VHF amplifier designs. Gate leakages are typically less than 10pA at room temperatures. The "A" variant has a higher breakdown Voltage of -35V.

The TO-72 package is hermetically sealed and suitable for military applications.

TX, TXV, and S-Level Screening Available - Consult Factory.

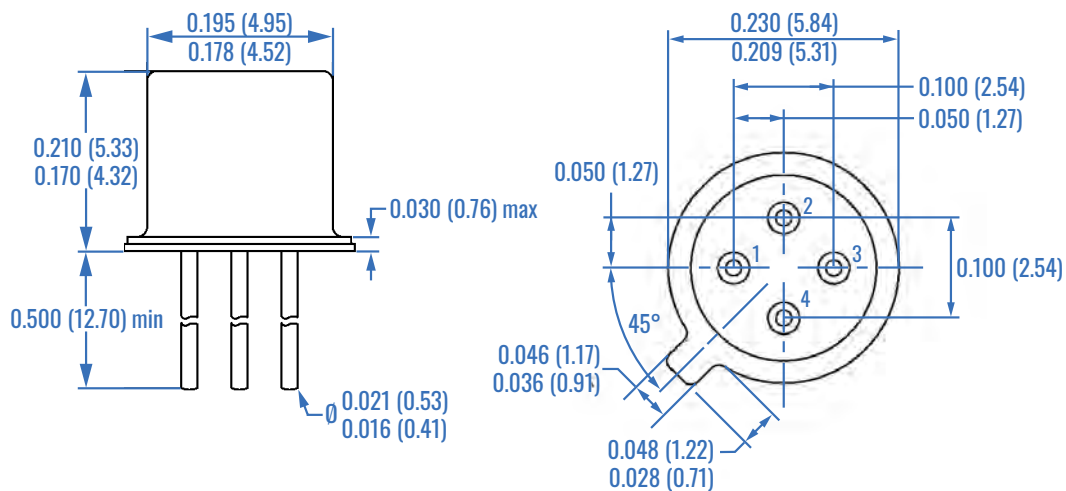


### ORDERING GUIDE

<b>Part Number</b>	2N4416 or 2N4416A
<b>Description</b>	-30V or -35V N-Channel JFET

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Reverse Gate Source and Gate Drain Voltage	$V_{RGS}$	2N4416	-30
		2N4416A	-35
Continuous Forward Gate Current	$I_{FG}$	10	mA
Continuous Device Power Dissipation	$P_D$	300	mW
Power Derating	P	2	mW/°C
Operating Junction Temperature	$T_J$	-55 to 125	°C
Storage Temperature	$T_{STG}$	-65 to 150	°C



**STATIC CHARACTERISTICS**

Typical @ 25°C unless otherwise noted

Parameter	Symbol	2N4416		2N4416A		Unit	
		Min.	Max.	Min.	Max.		
Gate to Source Breakdown Voltage	$V_{DS} = 0V, I_G = -1\mu A$	$V_{(BR)GS}$	-30		-35		V
Gate to Source Reverse Current	$V_{GS} = -20V, V_{DS} = 0V, T_A = 25^\circ C$	$I_{GS}$		-0.1		-0.1	nA
	$V_{GS} = -20V, V_{DS} = 0V, T_A = 150^\circ C$			-0.1		-0.1	$\mu A$
Gate to Source Cutoff Voltage	$V_{DS} = 15V, I_D = 1nA$	$V_{GS(OFF)}$		-6	-2.5	-6	V
Drain to Source Saturation Current	$V_{GS} = 0V, V_{DS} = 15V$ (Pulsed)	$I_{DSS}$	5	15	5	15	mA

**DYNAMIC CHARACTERISTICS**

Typical @ 25°C unless otherwise noted

Parameter	Symbol	2N4416		2N4416A		Unit	
		Min.	Max.	Min.	Max.		
Forward Transconductance	$V_{DS} = 15V, V_{GS} = 0V, f = 1kHz$	$G_{FS}$	4500	7500	4500	7500	$\mu S$
	$V_{DS} = 15V, V_{GS} = 0V, f = 400MHz$		4000		4000		
Output Conductance	$V_{DS} = 15V, V_{GS} = 0V, f = 1kHz$	$G_{DS}$		50		50	$\mu S$
	$V_{DS} = 15V, V_{GS} = 0V, f = 100MHz$			75		75	
	$V_{DS} = 15V, V_{GS} = 0V, f = 400MHz$			100		100	
Input Capacitance	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$	$C_{iss}$		4		4	pF
Output Capacitance		$C_{oss}$		2		2	pF
Reverse Transfer Capacitance		$C_{rss}$		0.8		0.8	pF
Input Conductance	$V_{DS} = 15V, V_{GS} = 0V, f = 100MHz$	$G_{is}$		100		100	$\mu S$
	$V_{DS} = 15V, V_{GS} = 0V, f = 400MHz$			1000		1000	
Input Susceptance	$V_{DS} = 15V, V_{GS} = 0V, f = 100MHz$	$b_{is}$		2500		2500	$\mu S$
	$V_{DS} = 15V, V_{GS} = 0V, f = 400MHz$			10000		10000	
Output Susceptance	$V_{DS} = 15V, V_{GS} = 0V, f = 100MHz$	$b_{os}$		1000		1000	$\mu S$
	$V_{DS} = 15V, V_{GS} = 0V, f = 400MHz$			4000		4000	
Power Gain	$V_{DS} = 15V, I_D = 5mA, f = 100MHz$	$G_{ps}$	18		18		dB
	$V_{DS} = 15V, I_D = 5mA, f = 400MHz$		10		10		
Noise Figure	$V_{DS} = 15V, V_{GS} = 0V, f = 100MHz, R_G = 1k\Omega$	NF		2		2	dB
	$V_{DS} = 15V, V_{GS} = 0V, f = 400MHz, R_G = 1k\Omega$			4		4	