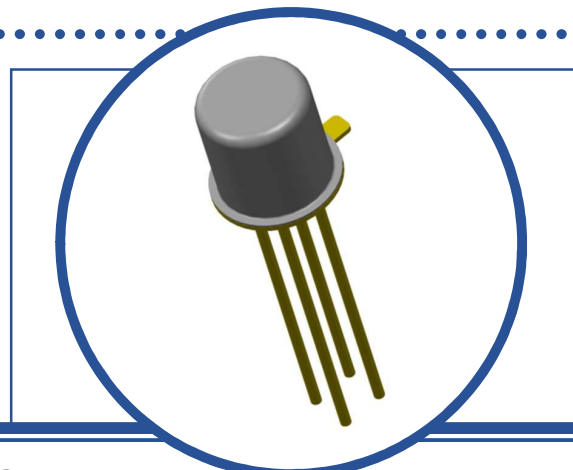


SILICON SMALL SIGNAL N-CHANNEL JFET

2N4416/ 2N4416A

- Low Noise, High Gain.
- Hermetic 4 Pin TO-72 Package.
- Designed For VHF/UHF Amplifiers, Oscillators And Mixers.
- Screening Options Available.



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

		2N4416	2N4416A
V _{DS}	Drain – Source Voltage	30V	35V
V _{GS}	Gate – Source Voltage	-30V	-35V
V _{GD}	Gate – Drain Voltage	-30V	-35V
I _G	Gate Current	10mA	
P _D	Total Power Dissipation at T _A = 25°C Derate Above 25°C	300mW	2.4mW/°C
T _J	Junction Temperature Range	-65 to +150°C	
T _{stg}	Storage Temperature Range	-65 to +200°C	

THERMAL PROPERTIES (Each Device)

Symbols	Parameters	Max.	Units
R _{θJA}	Thermal Resistance, Junction To Ambient	417	°C/W

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

SILICON SMALL SIGNAL N-CHANNEL JFET 2N4416 / 2N4416A

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions		Min.	Typ	Max.	Units
$V_{(BR)GSS}$	Gate – Source Breakdown Voltage	$V_{DS} = 0$ $I_G = -1.0\mu\text{A}$	2N4416	-30			V
			2N4416A	-35			
$V_{GS(off)}$	Gate – Source Cut-off Voltage	$V_{DS} = 15\text{V}$ $I_D = 1.0\text{nA}$	2N4416			-6	V
			2N4416A	-2.5		-6	
V_{GS}	Gate – Source Voltage	$V_{DS} = 15\text{V}$	$I_D = 0.5\mu\text{A}$	-1.0		-5.5	
$I_{DSS}^{(1)}$	Saturation Drain Current	$V_{DS} = 15\text{V}$	$V_{GS} = 0$	5		15	mA
I_{GSS}	Gate Reverse Current	$V_{DS} = 0$	$V_{GS} = -20\text{V}$			-100	pA
			$T_A = 150^\circ\text{C}$			-100	nA
I_G	Gate Operating Current	$V_{DG} = 10\text{V}$	$I_D = 1.0\text{mA}$		-20		pA
$I_{D(off)}$	Drain Cut-off Current	$V_{DS} = 10\text{V}$	$V_{GS} = -10\text{V}$		2		
$V_{GS(F)}$	Gate – Source Forward Voltage	$V_{DS} = 0$	$I_G = 1.0\text{mA}$		0.7	1.0	V
$R_{DS(on)}$	Drain – Source On Resistance	$V_{GS} = 0$	$I_D = 1.0\text{mA}$		150		Ω

DYNAMIC CHARACTERISTICS

$g_{fs}^{(1)}$	Common – Source Forward Transconductance	$V_{DS} = 15\text{V}$ $f = 1.0\text{kHz}$	$V_{GS} = 0$	4.5		7.5	mS
$g_{os}^{(1)}$	Common – Source Output Transconductance						50
C_{iss}	Common – Source Input Capacitance	$V_{DS} = 15\text{V}$ $f = 1.0\text{MHz}$	$V_{GS} = 0$			4	pF
C_{oss}	Common – Source Output Capacitance					2	
C_{rss}	Common – Source Reverse Transfer Capacitance					1.2	
$\bar{e}_n^{(2)}$	Equivalent Input Noise Voltage	$V_{DS} = 10\text{V}$ $f = 1.0\text{kHz}$	$V_{GS} = 0$		6		$\frac{\text{nV}}{\sqrt{\text{Hz}}}$

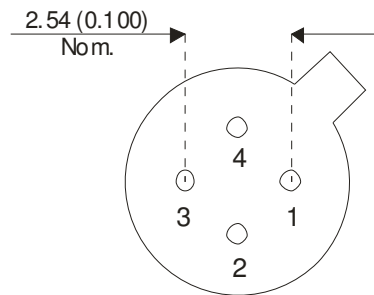
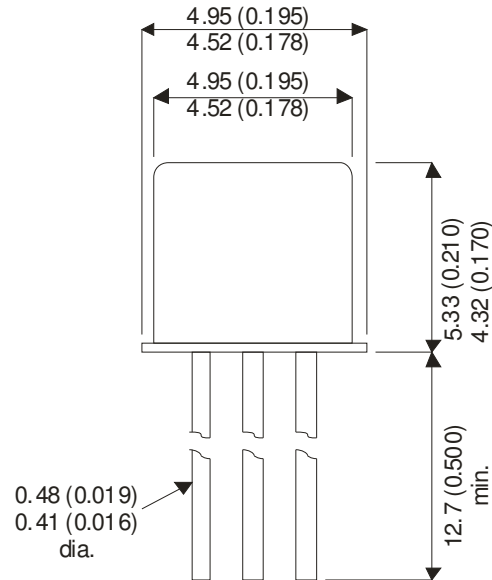
Notes

- (1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$
(2) By design only, not a production test.

SILICON SMALL SIGNAL N-CHANNEL JFET 2N4416 / 2N4416A

MECHANICAL DATA

Dimensions in mm (inches)



TO-72 (TO-206AF)

PIN 1 – CASE

PIN 2 – GATE

PIN 3 – DRAIN

PIN 4 – SOURCE