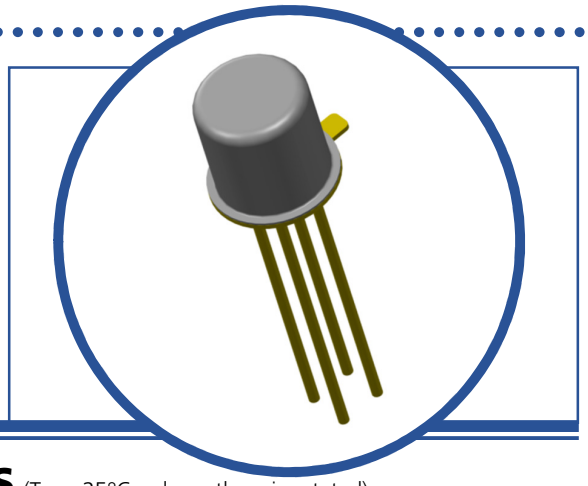
SILICON SMALL SIGNAL N-CHANNEL JFET

TT electronics
Semelab Limited

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	300mW	
		Derate Above 25°C	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
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	417	°C/W

SEMELAB
A subsidiary of TT electronics plc.

Semelab Limited Coventry Road, Lutterworth, Leicestershire, LE17 4JB
Telephone +44 (0) 1455 556565 Fax +44 (0) 1455 552612 Email: sales@semelab-tt.com Website: http://www.semelab-tt.com

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

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

DYNAMIC CHARACTERISTICS

g_{fs} (1)	Common – Source Forward Transconductance	V_{DS} = 15V f = 1.0kHz	V_{GS} = 0	4.5		7.5	mS
g_{os} (1)	Common – Source Output Transconductance					50	µS
C_{iss}	Common – Source Input Capacitance	V_{DS} = 15V f = 1.0MHz	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} = 10V f = 1.0kHz	V_{GS} = 0		6		$\frac{nV}{\sqrt{Hz}}$

Notes
(1) Pulse Width ≤ 380us, δ ≤ 2%
(2) By design only, not a production test.

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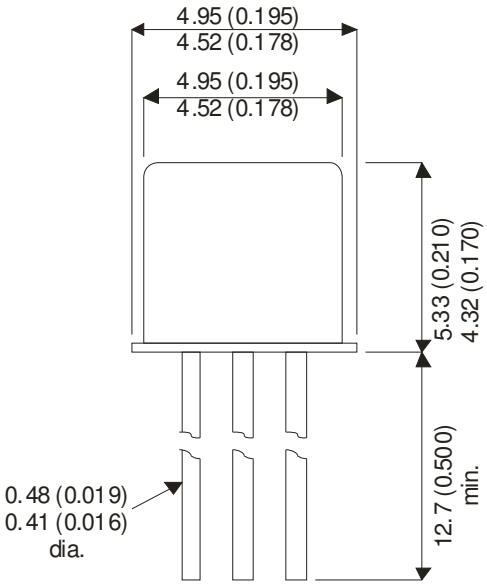
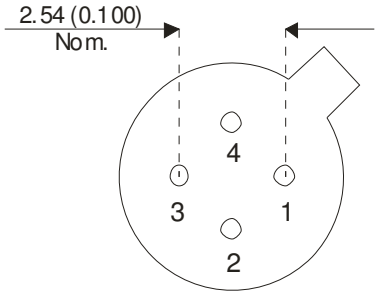
MECHANICAL DATA

Dimensions in mm (inches)





TO-72 (TO-206AF)

PIN 1 – CASE **PIN 2 – GATE** **PIN 3 – DRAIN** **PIN 4 – SOURCE**