T-31-25

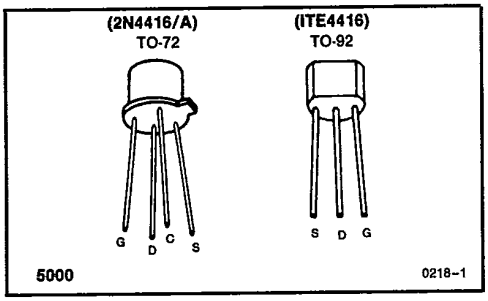
INTERSIL

2N4416/A, ITE4416

2N4416/A, ITE4416
N-Channel JFET
High Frequency Amplifier

FEATURES
- Low Noise
- Low Feedback Capacitance
- Low Output Capacitance
- High Transconductance
- High Power Gain

PIN CONFIGURATIONS



ORDERING INFORMATION

TO-92	TO-72
ITE 4416	2N4416
—	2N4416A

ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise noted)

Gate-Source or Gate-Drain Voltage
- 2N4416, ITE4416 ..... −30V
- 2N4416A ..... −35V

Gate Current 10mA

Storage Temperature Range
- 2N4416/2N4416A ..... −65°C to +200°C
- ITE4416 ..... −55°C +150°C

Operating Temperature Range
- 2N4416/2N4416A ..... −65°C to +200°C
- ITE4416 ..... −55°C to +135°C

Lead Temperature (Soldering, 10sec) ..... +300°C

Power Dissipation 300mW
- Derate above 25°C .....
- 2N4416/2N4416A ..... 1.7mW/°C
- ITE4416 ..... 2.7mW/°C

NOTE: *Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.*

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

Symbol	Parameter		Test Conditions		Min	Max	Units
I_{GSS}	Gate Reverse Current		V_{GS} = −20V, V_{DS} = 0			−0.1	nA
				T_A = 150°C		−0.1	μA
BV_{GSS}	Gate-Source Breakdown Voltage	2N4416/ITE4416	I_G = −1μA, V_{DS} = 0		−30		V
		2N4416A			−35		
$V_{GS(off)}$	Gate-Source Cutoff Voltage	2N4416/ITE4416	V_{DS} = 15V, I_D = 1nA			−6	
		2N4416A			−2.5	−6	
$V_{GS(f)}$	Gate-Source Forward Voltage		I_G = 1mA, V_{DS} = 0			1	V
I_{DSS}	Drain Current at Zero Gate Voltage		V_{DS} = 15V, V_{GS} = 0	f = 1kHz	5	15	mA
g_{fs}	Common-Source Forward Transconductance				4500	7500	μS
g_{os}	Common-Source Output Conductance					50	μs
C_{rss}	Common-Source Reverse Transfer Capacitance (Note 1)			f = 1MHz		0.8	pF
C_{iss}	Common-Source Input Capacitance (Note 1)					4	pF
C_{oss}	Common-Source Output Capacitance (Note 1)					2	

INTERSIL'S SOLE AND EXCLUSIVE WARRANTY OBLIGATION WITH RESPECT TO THIS PRODUCT SHALL BE THAT STATED IN THE WARRANTY ARTICLE OF THE CONDITION OF SALE. THE WARRANTY SHALL BE EXCLUSIVE AND SHALL BE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE.

NOTE: All typical values have been characterized but are not tested.

2N4416/A, ITE4416

INTERSIL

T-31-25

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified) (Continued)

Symbol	Parameter	Test Conditions	100MHz		400MHz		Units
			Min	Max	Min	Max	
g_{iss}	Common-Source Input Conductance	V_{DS}=15V, V_{GS}=0 (Note 1)		100		1000	µS
b_{iss}	Common-Source Input Susceptance			2500		10,000	
g_{oss}	Common-Source Output Conductance			75		100	
b_{oss}	Common-Source Output Susceptance			1000		4000	
g_{fs}	Common-Source Forward Transconductance				4000		
G_{ps}	Common-Source Power Gain	V_{DS}=15V, I_D=5mA (Note 1)	18		10		dB
NF	Noise Figure (Note 1)	V_{DS}=15V, I_D=5mA, R_G=1kΩ		2		4	

NOTE 1: For design reference only, not 100% tested.

10

INTERSIL'S SOLE AND EXCLUSIVE WARRANTY OBLIGATION WITH RESPECT TO THIS PRODUCT SHALL BE THAT STATED IN THE WARRANTY ARTICLE OF THE CONDITION OF SALE. THE WARRANTY SHALL BE EXCLUSIVE AND SHALL BE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE.

NOTE: All typical values have been characterized but are not tested.