INTERSIL

ITE4416, 2N4416/A
N-Channel JFET

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FEATURES

- Silicon Planar Epitaxial Construction
- Low Noise - NF = 2.0 dB max. @ 100 MHz
  NF = 4.0 dB max. @ 400 MHz
- Low Feedback Capacitancef- C_{rss} = 0.8 pF max.
- Low Output Capacitance - C_{oss} = 2.0 pF max.
- High Transconductance - g_{fs} = 4000 μmho min.
- High Power Gain - G_{ps} = 18 dB min. @ 100 MHz
  G_{ps} = 10 dB min. @ 400 MHz

ABSOLUTE MAXIMUM RATINGS

@ 25°C (unless otherwise noted)

Maximum Temperatures

Storage Temperature TO72	−65°C to +200°C
TO92	−55°C to 125°C
Operating Junction Temperature TO72	+200°C
TO92	+125°C
Lead Temperature (Soldering, 10 sec time limit)	+300°C

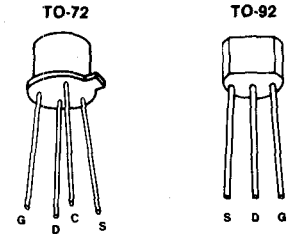
Maximum Power Dissipation

Device Dissipation @ Free Air Temperature	300 mW
Linear Derating TO 72	1.7 mW/°C
TO 92	3.0 mW/°C

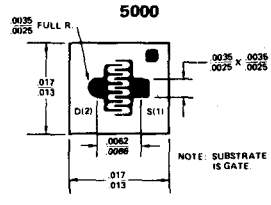
Maximum Voltages & Current

	2N4416 (ITE 4116)	2N4416A
V_{GS} Gate to Source Voltage	−30V	−35V
V_{GD} Drain to Drain Voltage	−30 V	−35V
I_G Gate Current	10 V	10 mA

PIN CONFIGURATIONS



CHIP TOPOGRAPHY



ORDERING INFORMATION

TO-92	TO-72	WAFER	DICE
ITE 4416	2N4416	2N4416/W	2N4416/D
	2N4416A	2N4416A/W	2N4416A/D

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER		MIN	MAX	UNIT	TEST CONDITIONS	
I_{GSS}	Gate Reverse Current		−0.1	nA	V_{GS} = −20 V, V_{DS} = 0	
			−0.1	μA		150°C
BV_{GSS}	Gate-Source Breakdown Voltage	−30		V	I_G = −1 μA, V_{DS} = 0	2N4416,ITE
		−35				2N4416A
$V_{GS(off)}$	Gate-Source Cutoff Voltage		−6	V	V_{DS} = 15 V, I_D = 1 nA	2N4416,ITE
		−2.5	−6			2N4416A
I_{DSS}	Drain Current at Zero Gate Voltage	5	15	mA	V_{DS} = 15 V, V_{GS} = 0	f = 1 kHz
g_{fs}	Common-Source Forward Transconductance	4500	7500	μmho		
g_{os}	Common-Source Output Conductance		50	μmho		
C_{rss}	Common-Source Reverse Transfer Capacitance		0.8	pF		f = 1 MHz
C_{iss}	Common-Source Input Capacitance		4	pF		
C_{oss}	Common-Source Output Capacitance		2			

PARAMETER		100 MHz MIN	100 MHz MAX	400 MHz MIN	400 MHz MAX	UNIT	TEST CONDITIONS
g_{iss}	Common-Source Input Conductance		100		1000	μmho	V_{DS} = 15 V, V_{GS} = 0
b_{iss}	Common-Source Input Susceptance		2500		10,000	μmho	
g_{oss}	Common-Source Output Conductance		75		100	μmho	
b_{oss}	Common-Source Output Susceptance		1000		4000	μmho	
g_{fs}	Common-Source Forward Transconductance			4000		μmho	
G_{ps}	Common-Source Power Gain	18		10		dB	V_{DS} = 15 V, I_D = 5 mA
NF	Noise Figure		2		4	dB	V_{DS} = 15 V, I_D = 5 mA, R_G = 1 KΩ