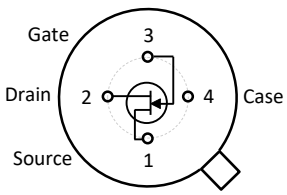
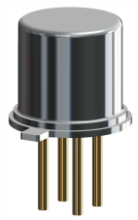
2N5397, 2N5398 N-Channel JFET

Features

- InterFET N0026L Geometry
- Low Noise: 3 nV/√Hz Typical
- Low Ciss: 5.0pF Typical
- Low Leakage: 10pA Typical
- RoHS Compliant
- SMT, TH, and Bare Die Package options.

TO-72 Bottom View

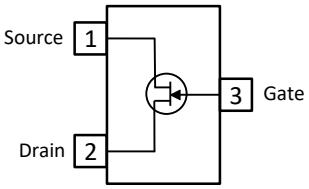


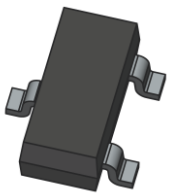


Applications

- Low Noise
- High Power Gain
- High Transconductance
- Mixers
- Oscillators
- VHF Amplifiers

SOT23 Top View

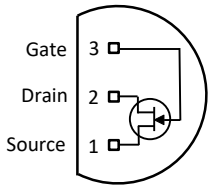


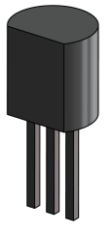


Description

The -25V InterFET 2N5397 and 2N5398 are targeted for low noise amplifier stages as well as mixer and oscillator designs. Gate leakages are typically less than 10pA at room temperatures. The TO-72 package is hermetically sealed and suitable for military applications.

TO-92 Bottom View





Product Summary

Parameters		2N5397 Min	2N5398 Min	Unit
BV_{GSS}	Gate to Source Breakdown Voltage	-25	-25	V
I_{DSS}	Drain to Source Saturation Current	10	5	mA
$V_{GS(off)}$	Gate to Source Cutoff Voltage	-1	-1	V
G_{FS}	Forward Transconductance	5.5	5	mS

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
2N5397; 2N5398	Through-Hole	TO-72	Bulk
PN5397; PN5398	Through-Hole	TO-92	Bulk
SMP5397; SMP5398	Surface Mount	SOT23	Bulk
SMP5397TR; SMP5398TR	7" Tape and Reel: Max 3,000 Pieces 13" Tape and Reel: Max 9,000 Pieces	SOT23	Minimum 1,000 Pieces Tape and Reel
2N5397COT; 2N5398COT	Chip Orientated Tray (COT Waffle Pack)	COT	400/Waffle Pack
2N5397CFT; 2N5398CFT	Chip Face-up Tray (CFT Waffle Pack)	CFT	400/Waffle Pack

Electrical Characteristics

Maximum Ratings (@ T_A = 25°C, Unless otherwise specified)

Parameters		Value	Unit
V_{RGS}	Reverse Gate Source and Gate Drain Voltage	-25	V
I_{FG}	Continuous Forward Gate Current	10	mA
P_D	Continuous Device Power Dissipation	300	mW
P	Power Derating	1.7	mW/°C
T_J	Operating Junction Temperature	-55 to 125	°C
T_{STG}	Storage Temperature	-65 to 150	°C

Static Characteristics (@ TA = 25°C, Unless otherwise specified)

Parameters		Conditions	2N5397		2N5398		Unit
			Min	Max	Min	Max	
$V_{(BR)GSS}$	Gate to Source Breakdown Voltage	V_{DS} = 0V, I_G = -1µA	-25		-25		V
I_{GSS}	Gate to Source Reverse Current	V_{GS} = -15V, V_{DS} = 0V, T_A = 25°C V_{GS} = -15V, V_{DS} = 0V, T_A = 150°C		-0.1 -0.1		-0.1 -0.1	nA µA
$V_{GS(F)}$	Gate to Source Forward Voltage	V_{DS} = 0V, I_G = 1mA		1		1	V
$V_{GS(OFF)}$	Gate to Source Cutoff Voltage	V_{DS} = 10V, I_D = 1nA	-1	6	-1	-6	V
I_{DSS}	Drain to Source Saturation Current	V_{GS} = 0V, V_{DS} = 10V (Pulsed)	10	30	5	40	mA

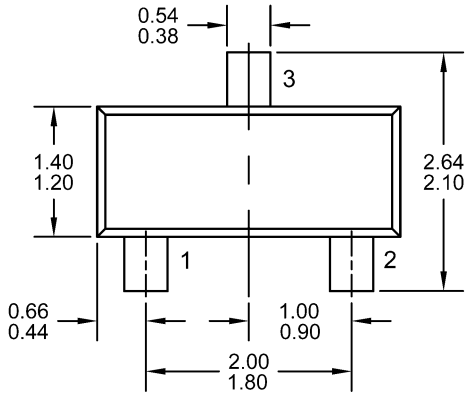
Dynamic Characteristics (@ TA = 25°C, Unless otherwise specified)

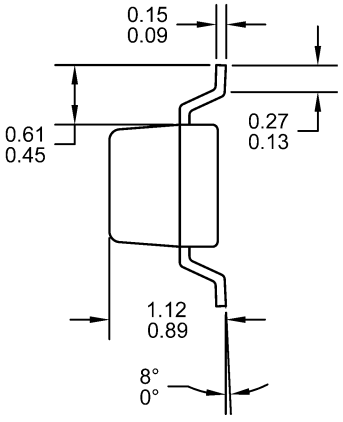
Parameters		Conditions	2N5397		2N5398		Unit
			Min	Max	Min	Max	
G_{FS}	Forward Transconductance	V_{DS} = 10V, I_D = 10mA, f = 450MHz	5.5	9	5	10	mS
G_{OS}	Output Conductance	V_{DS} = 10V, I_D = 10mA, f = 450MHz		0.4		0.5	mS
G_{IS}	Input Conductance	V_{DS} = 10V, I_D = 10mA, f = 450MHz		2		3	mS
C_{iss}	Input Capacitance	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		5		5.5	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		1.2		1.3	pF

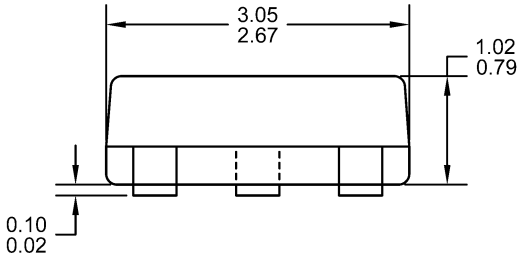
RF Parameters guaranteed, but not 100% tested.

SOT23 (TO-236AB) Mechanical and Layout Data

Package Outline Data

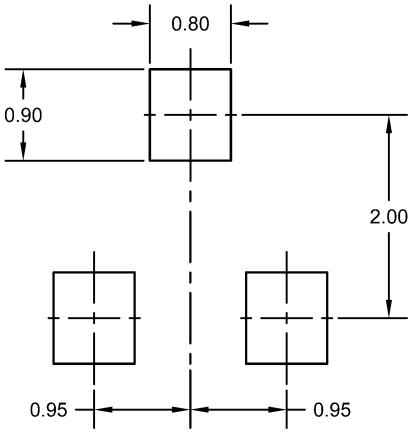






1. All linear dimensions are in millimeters.
2. Package weight approximately 0.12 grams
3. Molded plastic case UL 94V-0 rated
4. For Tape and Reel specifications refer to InterFET CTC-021 Tape and Reel Specification, Document number: IF39002
5. Bulk product is shipped in standard ESD shipping material
6. Refer to JEDEC standards for additional information.

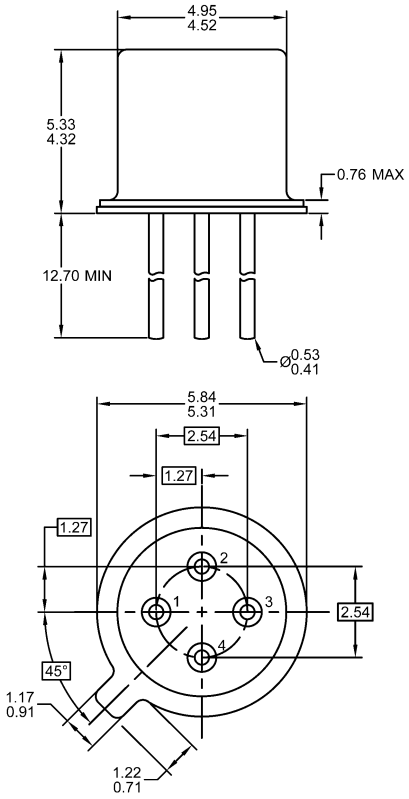
Suggested Pad Layout



1. All linear dimensions are in millimeters.
2. The suggested land pattern dimensions have been provided for reference only. A more robust pattern may be desired for wave soldering.

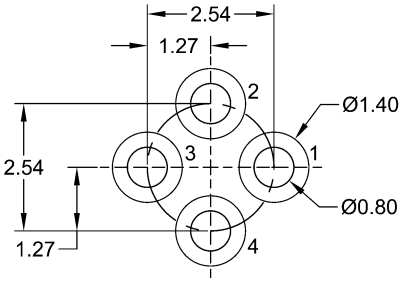
TO-72 Mechanical and Layout Data

Package Outline Data



1. All linear dimensions are in millimeters.
2. Four leaded device. Not all leads are shown in drawing views.
3. Package weight approximately 0.31 grams
4. Bulk product is shipped in standard ESD shipping material
5. Refer to JEDEC standards for additional information.

Suggested Through-Hole Layout



1. All linear dimensions are in millimeters.
2. The suggested land pattern dimensions have been provided as a straight lead reference only. A more robust pattern may be desired for wave soldering and/or bent lead configurations.