







## **IF4500 N-Channel JFET**

#### **Features**

• InterFET NO450L Geometry

Low Noise: 0.9 nV/vHz TypicalHigh Gain: 70mS Typical

- Replacement for IF4510,11
- RoHS Compliant
- SMT, TH, and Bare Die Package options.

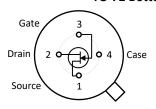
### **Applications**

· Low-Noise, High Gain Amplifiers

### Description

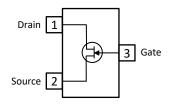
The -20V InterFET IF4500 JFET is targeted for low noise high gain amplifier designs. The IF4500 has a cutoff voltage of less than 1.5V ideal for low voltage applications. The TO-72 package is hermetically sealed and suitable for military applications.

#### **TO-72 Bottom View**





#### **SOT23 Top View**





**Product Summary** 

	Parameters	IF4500 Min	Unit	
BV <sub>GSS</sub>	Gate to Source Breakdown Voltage	-20	V	
I <sub>DSS</sub>	Drain to Source Saturation Current	5	mA	
V <sub>GS(off)</sub>	Gate to Source Cutoff Voltage	-0.35	V	
GFS	Forward Transconductance	15	mS	

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
IF4500T72	Through-Hole	TO-72	Bulk
IF4500ST3	Surface Mount	SOT23	Bulk
	7" Tape and Reel: Max 3,000 Pieces		Minimum 1,000 Pieces
IF4500ST3TR	13" Tape and Reel: Max 9,000 Pieces	SOT23	Tape and Reel
IF4500COT	Chip Orientated Tray (COT Waffle Pack)	СОТ	400/Waffle Pack
IF4500CFT	Chip Face-up Tray (CFT Waffle Pack)	CFT	400/Waffle Pack



**Disclaimer:** It is the Buyers responsibility for designing, validating and testing the end application under all field use cases and extreme use conditions. Guaranteeing the application meets required standards, regulatory compliance, and all safety and security requirements is the responsibility of the Buyer. These resources are subject to change without notice.









## **Electrical Characteristics**

Maximum Ratings (@ T<sub>A</sub> = 25°C, Unless otherwise specified)

	Parameters	Value	Unit
$V_{\text{RGS}}$	Reverse Gate Source and Gate Drain Voltage	-20	V
I <sub>FG</sub>	Continuous Forward Gate Current	10	mA
PD	Continuous Device Power Dissipation	225	mW
Р	Power Derating	1.8	mW/°C
Tı	Operating Junction Temperature	-55 to 125	°C
T <sub>STG</sub>	Storage Temperature	-65 to 200	°C

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

	Parameters	Conditions	Min	Тур	Max	Unit
V <sub>(BR)GSS</sub>	Gate to Source Breakdown Voltage	$V_{DS} = 0V$ , $I_{G} = -1\mu A$	-20			V
I <sub>GSS</sub>	Gate to Source Reverse Current	V <sub>GS</sub> = -20V, V <sub>DS</sub> = 0V			-0.1	nA
V <sub>GS(OFF)</sub>	Gate to Source Cutoff Voltage	$V_{DS} = 15V, I_D = 0.5nA$	-0.35		-1.5	V
I <sub>DSS</sub>	Drain to Source Saturation Current	$V_{GS} = 0V$ , $V_{DS} = 15V$ (Pulsed)	5	30		mA

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

	Parameters	Conditions	Min	Тур	Max	Unit
GFS	Forward Transconductance	V <sub>DS</sub> = 15V, I <sub>D</sub> = 5mA, f = 1kHz	15	70		mS
Ciss	Input Capacitance	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz			35	рF
Crss	Reverse Transfer Capacitance	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz			8	pF
e <sub>n</sub>	Equivalent Circuit Input Noise Voltage	$V_{DS} = 4V$ , $I_{D} = 5mA$ , $f = 1kHz$		0.9		nV/√Hz

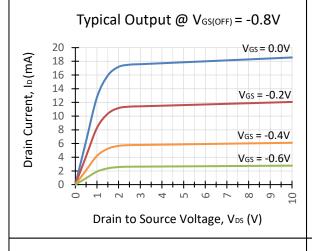


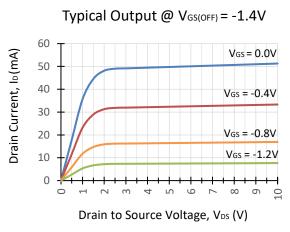


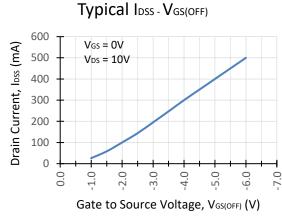


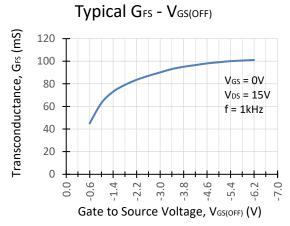


# **Typical IF4500 Characteristics**









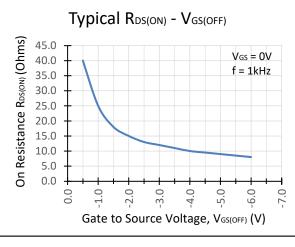


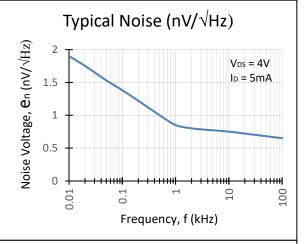


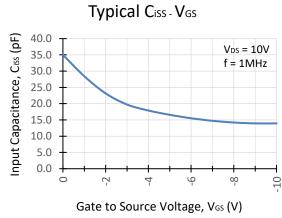


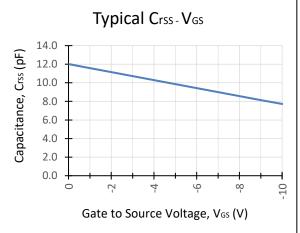


# **Typical IF4500 Characteristics (Continued)**











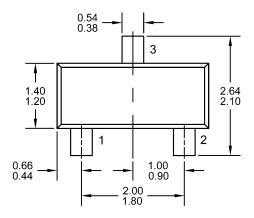


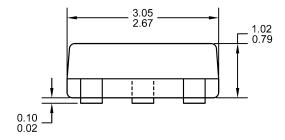


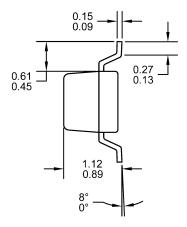


# SOT23 (TO-236AB) Mechanical and Layout Data

## **Package Outline Data**

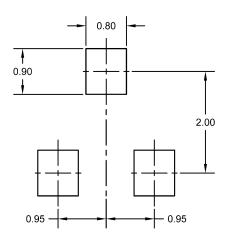






- 1. All linear dimensions are in millimeters.
- 2. Package weight approximately 0.12 grams
- 3. Molded plastic case UL 94V-0 rated
- For Tape and Reel specifications refer to InterFET CTC-021 Tape and Reel Specification, Document number: IF39002
- Bulk product is shipped in standard ESD shipping material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

### **Suggested Pad Layout**



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