



# Low Noise JFET

## 564103

### DESCRIPTION

The 564103 is an N-channel Low Noise Junction Field Effect Transistor for low frequency and audio applications and in PIR sensor applications. The device can be offered as an un-sawn wafer, a sawn wafer or as die mounted in a customer specified package such as a T092 or a SOT package.

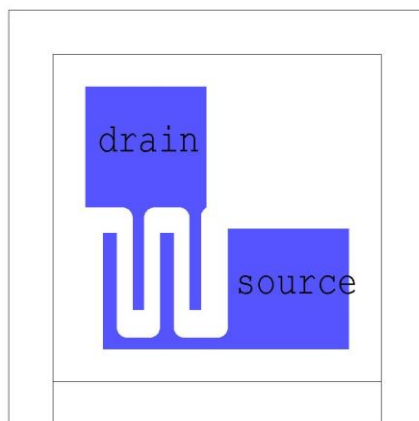
### FEATURES

- Low Noise.
- Low Leakage.
- Low frequency.
- Low power consumption.

### APPLICATIONS

- Low noise amplifier.
- Charge Sensitive amplifier.
- Audio frequency amplifier
- P.I.R. Sensors
- Microphones
- Hearing aids

## 1.0 Pad Assignment



This view is with the major flat at the bottom.



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## 1.0 ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNITS
Drain Supply voltage	25	V
Drain Supply current	5	mA
Operating Temperature, $T_O$	0 to 85	°C
Storage Temperature, $T_S$	-40 - +105	°C

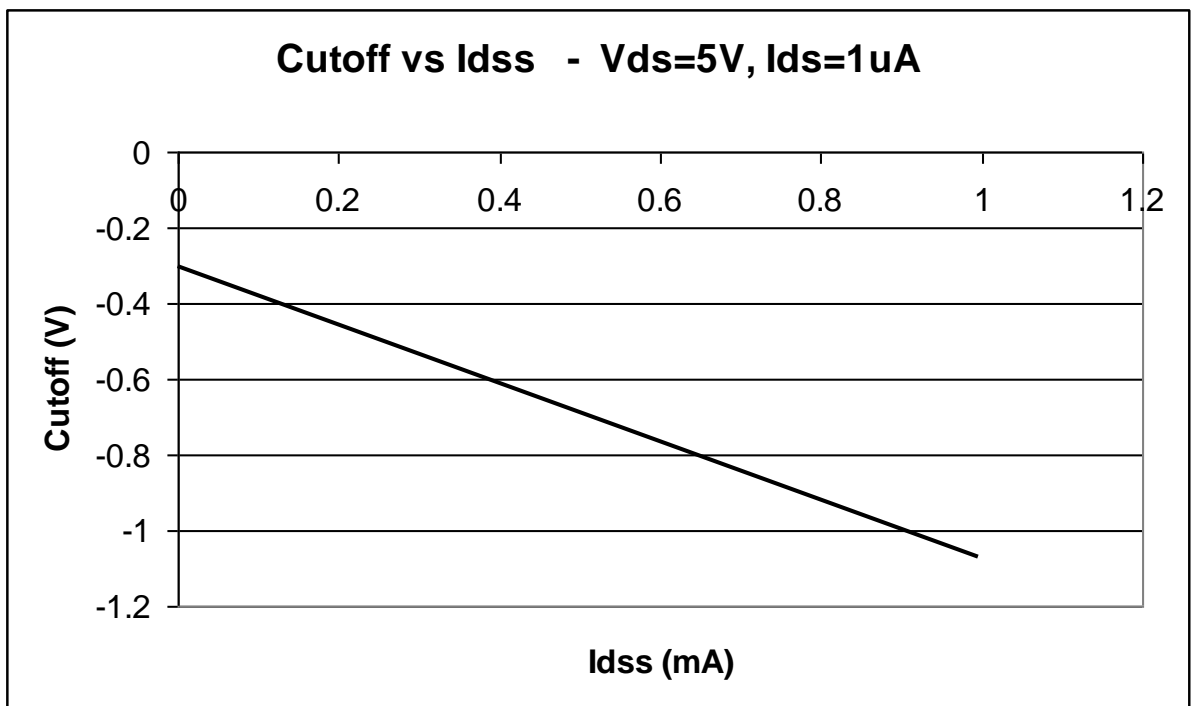
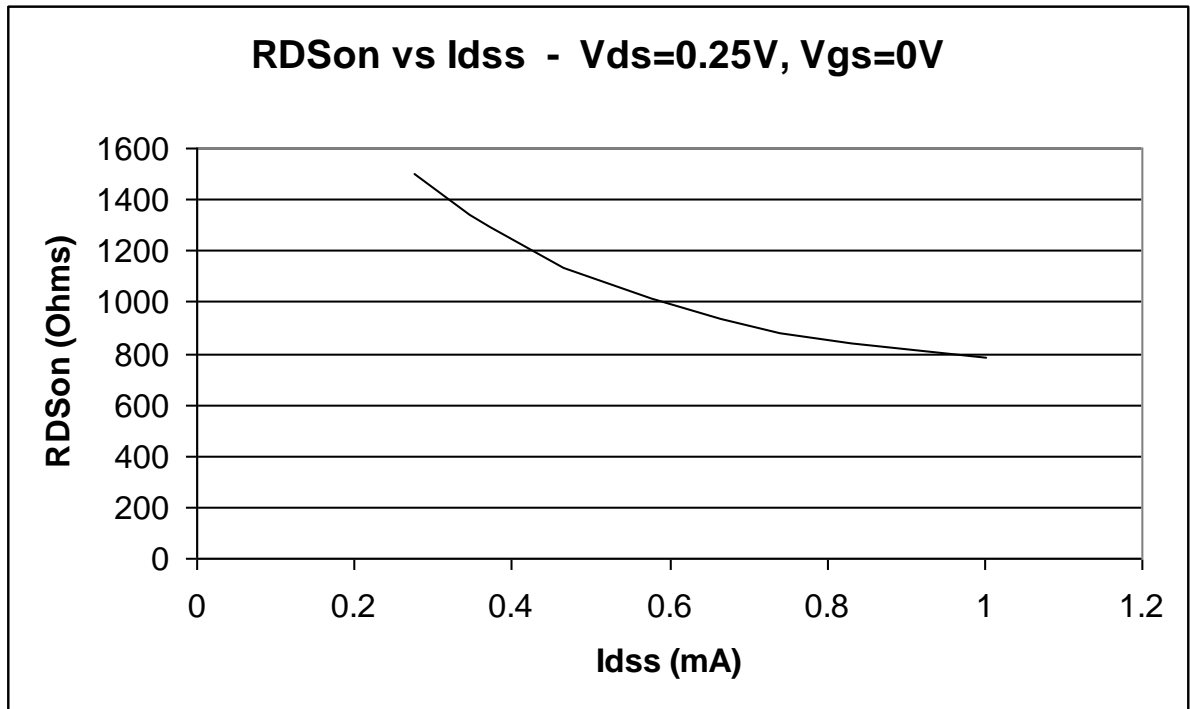
## 2.0 MECHANICAL SPECIFICATION

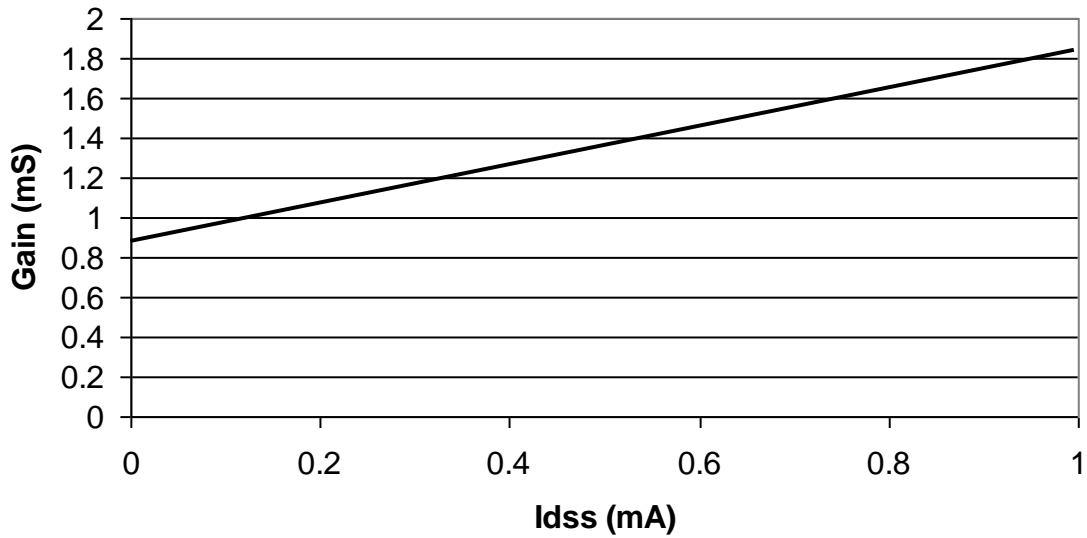
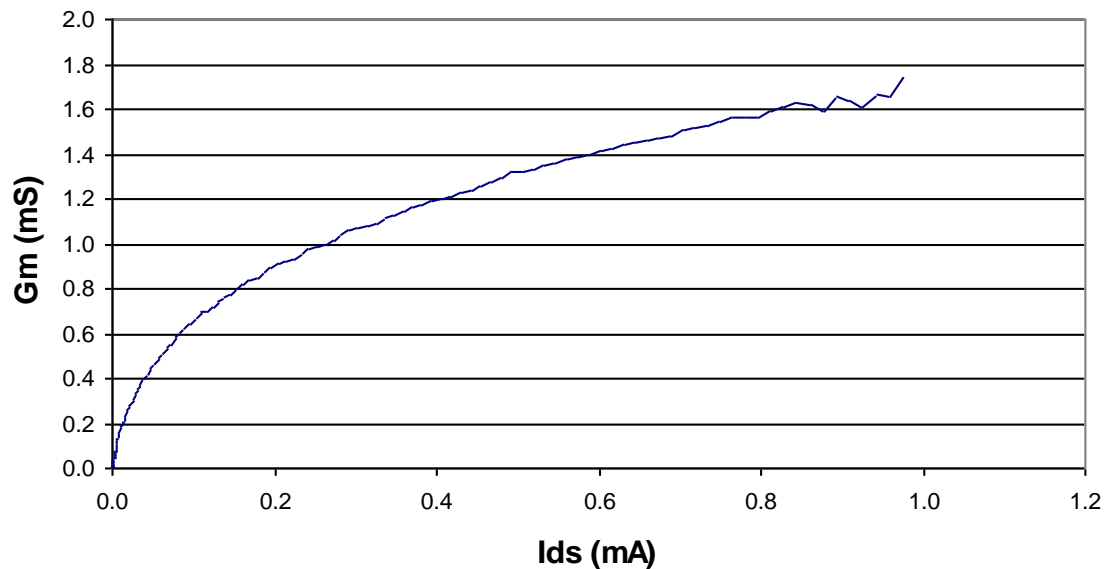
PARAMETER	RATING	UNITS
Chip size (+/- 0.02mm) LxBxH	14x14x12	mils
Chip off	$\leq 0.05$ mm (LxBxH), $\leq 0.1$ mm (corners)	
Linearity of edge (Din 7184)	0.005	mm
Gate contact	On back-side	
Bond pad size	4x4	mils
Ink dot size	Customer Specified	
Ink dot appearance	Opaque, black matt	

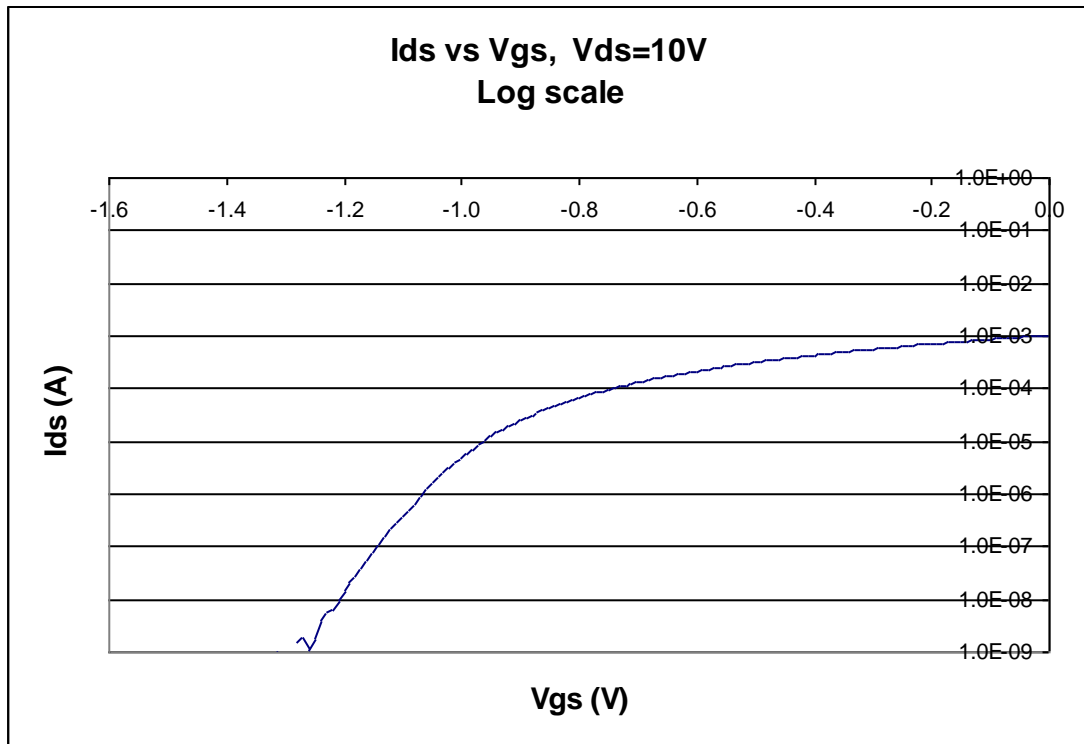
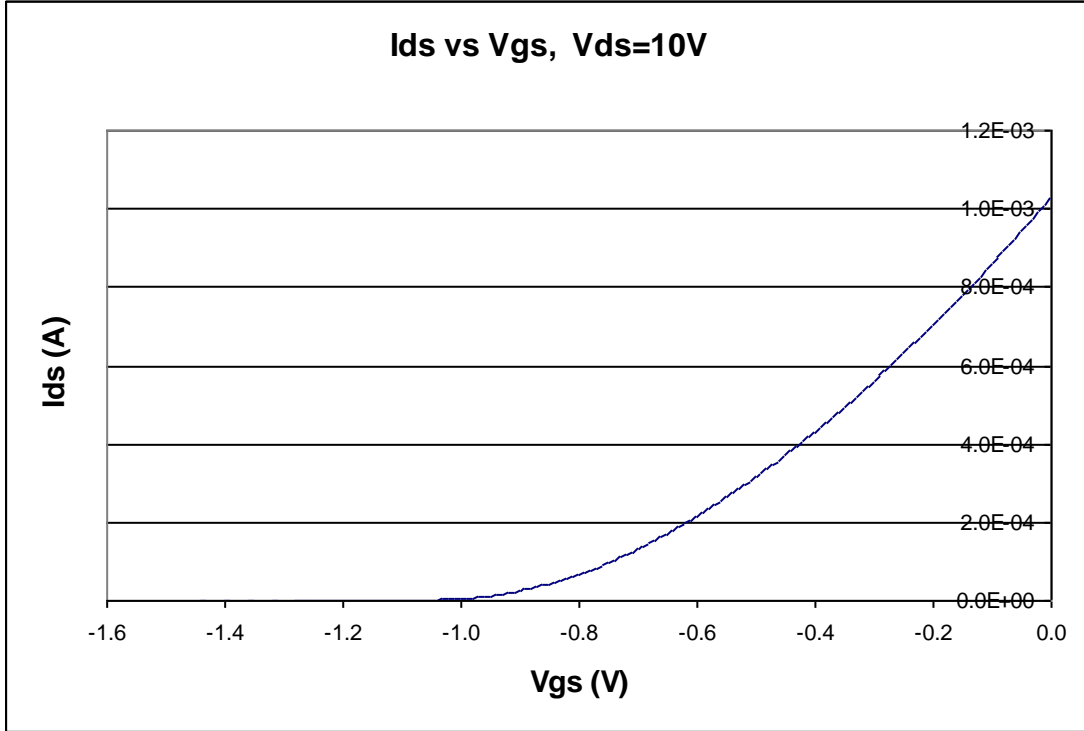
## 3.0 ELECTRICAL SPECIFICATION

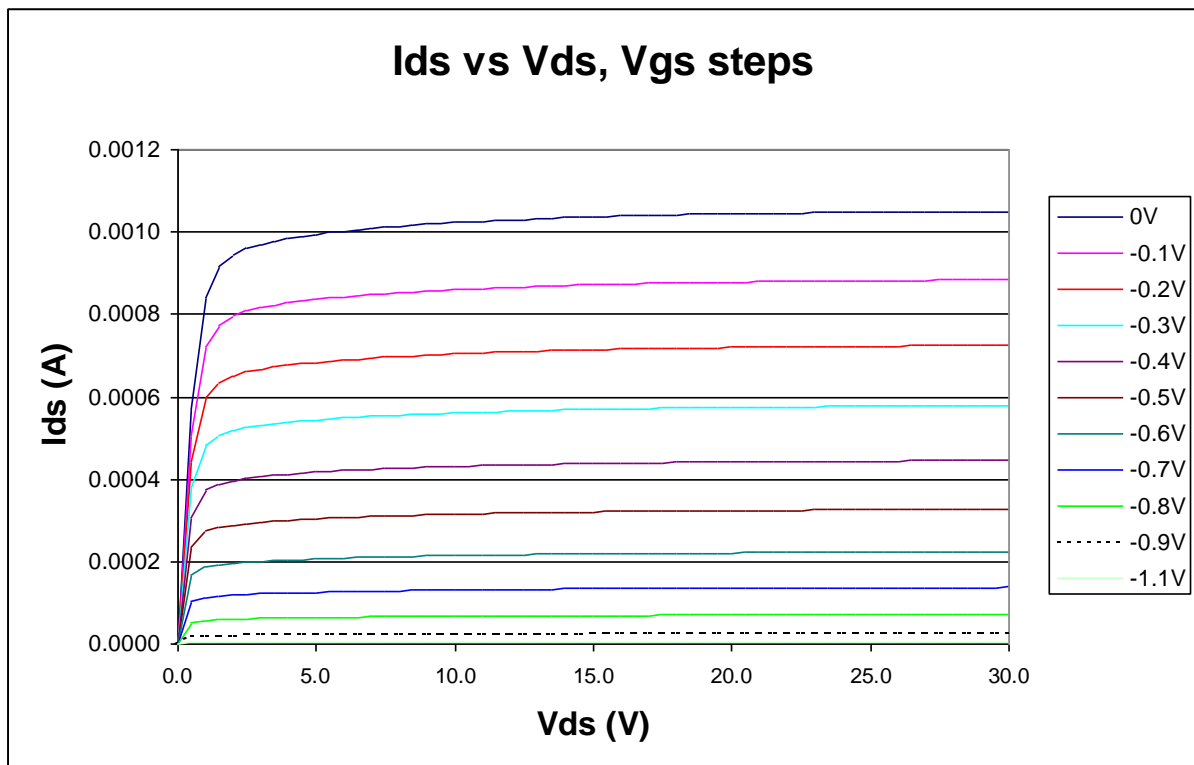
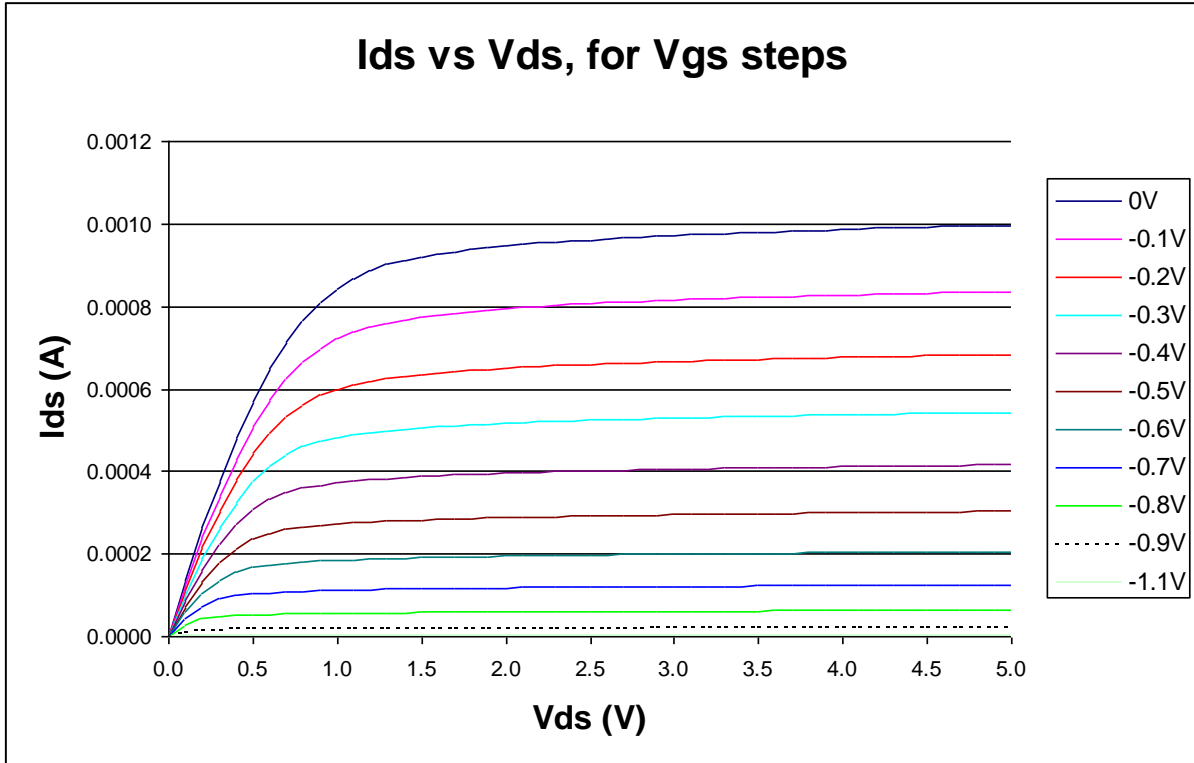
PARAMETER	SYMBOL	TEST CONDITIONS	SPEC	UNIT
Common-source forward trans-conductance.	gfs	$V_{gs} = 0V$ , $V_{ds} = 5$	> 1	mS
Gate-source cut-off voltage	Vcutoff	$V_{ds} = 5V$ $I_{ds} = 1\mu A$	-0.5 to -1.0	V
Drain Current	$I_{dss}$	$V_{ds} = 5V$ $V_{gs} = 0V$	0.25 to 1.2	mA
Drain source resistance	$R_{ds(on)}$	$V_{ds} = 0.25V$ , $V_{gs} = 0V$	500 - 1600	$\Omega$
Gate input resistance	$R_{in}$	$V_{gs} = -15V$ $V_{ds} = 0$	1,000 to 80,000	Gig- $\Omega$

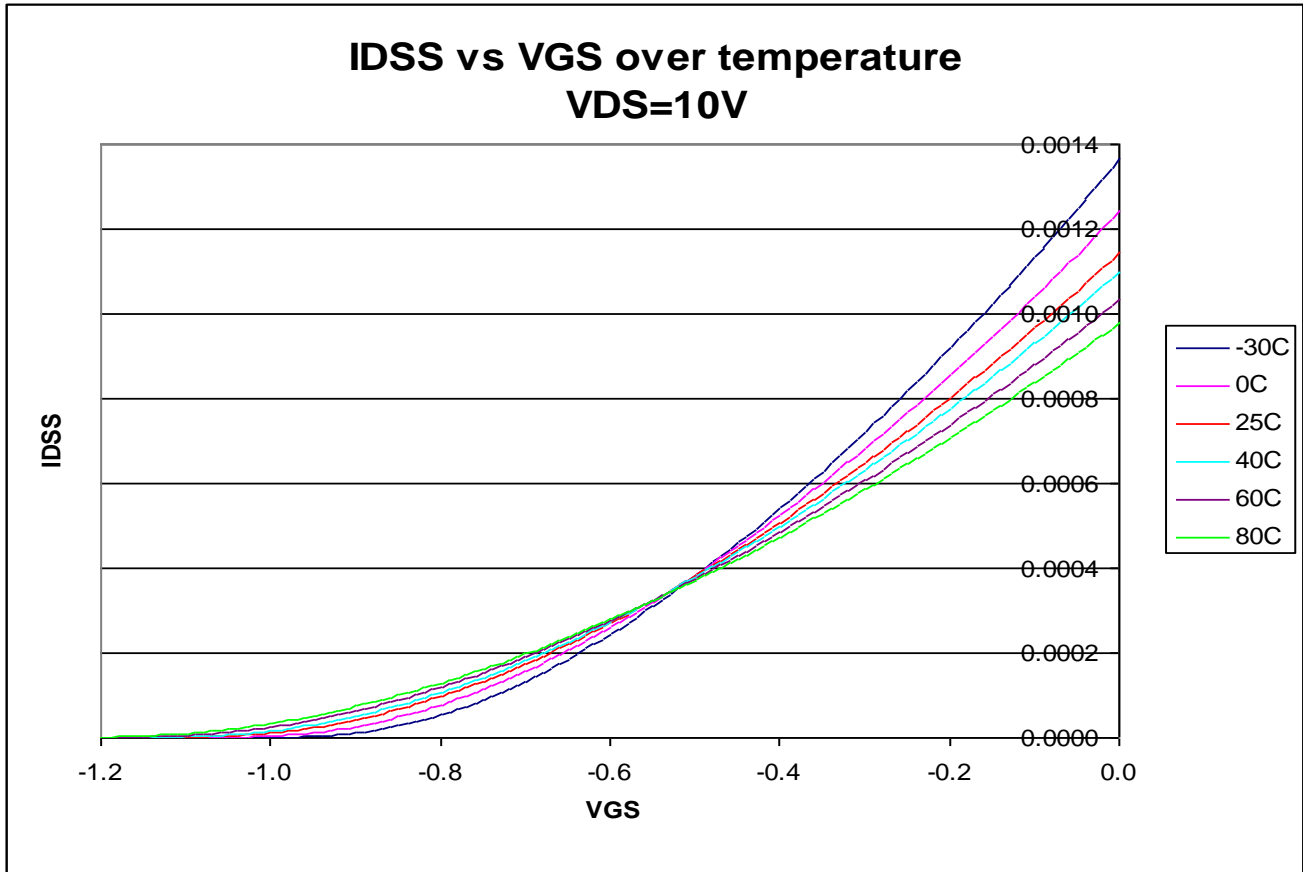
### 3.1 Electrical Curves



**Gain vs  $I_{dss}$  -  $V_{ds}=5V$** **Gm vs  $I_{ds}$ ,  $V_{ds}=10V$   
 $I_{dss}=1mA$** 







### 3.2 Noise Characteristics

Ids mA	Vgs V	Noise @		
		1KHz	10KHz	100KHz
0.5	0.43	3.67	3.36	2.75
0.9	0.17	3.74	3.08	2.44
1.3	0.08	4.15	2.96	2.26



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#### **LIFE SUPPORT APPLICATIONS**

This product is not designed for use in life support appliances, devices, or systems where malfunction of these products can be reasonably expected to result in personal injury.

Semefab (Scotland) Ltd customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Semefab for any damages resulting from such improper use or sale.

Semefab (Scotland) Ltd  
Newark Road South  
Eastfield Industrial Estate  
Glenrothes, Fife KY7 4NS  
Telephone: +44 (0) 1592 630 630  
Fax: +44 (0) 1592 775 265  
Email [sales@semefab.co.uk](mailto:sales@semefab.co.uk)

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