depletion-type n-channel MOSFET *designed for . . .*

- **Small-Signal Amplifiers**
- **Ultra-High Input Impedance Amplifiers**
  - **Electrometers**
  - **Smoke detectors**
  - **pH Meters**

Performance Curves MA See Section 4

BENEFITS

- Insignificant Loading in High Impedance Circuits
  $R_{IN} > 10^{15}\ \Omega$
- High Off-Isolation as a Switch
  $I_{D(off)} < 100$ pA

TO-18
See Section 5

SUBSTRATE AND CASE CONNECTION TO SOURCE PIN

*ABSOLUTE MAXIMUM RATINGS (25°C)

Drain-to-Source Voltage	20 V
Gate-to-Channel Voltage (Note 1)	±60 V
Drain Current	20 mA
Total Device Dissipation at (or below) 25°C Free-Air Temperature (Note 2)	300 mW
Storage Temperature Range	-65 to 200°C
Lead Temperature 1/16" From Case For 10 Sec	255°C

*ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

		Characteristic		Min	Typ	Max	Unit	Test Conditions	
1	STATIC	BV_{DSX}	Drain-Source Breakdown Voltage	20			V	$I_D = 1\ \mu A$, $V_{GS} = -10$ V	
2		$V_{GS(off)}$	Gate-Source Cutoff Voltage		-3.5	-6.0		$V_{DS} = 10$ V, $I_D = 1\ \mu A$	
3		V_{GS}	Gate-Source Voltage	-0.7		-5.5		$V_{DS} = 10$ V, $I_D = 200\ \mu A$	
4		I_{DSS}	Saturation Drain Current	2		10	mA	$V_{DS} = 10$ V, $V_{GS} = 0$	
5		$I_{D(off)}$	Drain Cutoff Current			100	pA	$V_{DS} = 5$ V, $V_{GS} = -10$ V	
6		r_{GS}	Common-Source Parallel Input Resistance	10^{15}	10^{16}		Ω	$V_{DS} = 10$ V, $I_D = 0.15$ mA	
7	DYNAMIC	$r_{ds(on)}$	Drain-Source ON Resistance (Note 3)		300	550	Ω	$V_{GS} = 0$, $V_{DS} = 0$	f = 1 kHz
8					100			$V_{GS} = 10$ V, $V_{DS} = 0$	
9		g_{os}	Common-Source Output Conductance			120	μmho	$V_{DS} = 10$ V, $V_{GS} = 0$	f = 1 kHz
10		g_{fs}	Common-Source Forward Transconductance	1,400	2,000	2,800			
11		$\lvert y_{fs} \rvert$	Common-Source Forward Transadmittance	1,400					f = 50 MHz
12		C_{iss}	Common-Source Input Capacitance (Output Shorted)		6.8	7.5	pF		f = 140 kHz
13		C_{rss}	Common-Source Reverse Transfer Capacitance			1.6			f = 1 MHz

*JEDEC registered data

MA

NOTES:

1. Permanent damage may result if voltages greater than ±60 volts are applied to the gate
2. Derate linearly to 175°C free-air temperature at rate of 2 mW/°C
3. Not JEDEC registered data