

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
 $I_{D(off)} < 100 \text{ pA}$

*ABSOLUTE MAXIMUM RATINGS (25°C)

Drain-to-Source Voltage	20 V
Gate-to-Channel Voltage (Note 1)	$\pm 60 \text{ V}$
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

TO-18
See Section 5



SUBSTRATE AND CASE CONNECTION TO SOURCE PIN

*ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

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

*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