

## N-CHANNEL ENHANCEMENT MODE D-MOS FETs 8-CHANNEL ARRAYS

### ORDERING INFORMATION

18 Pin Plastic DIP	ANO110NA	ANO120NA	ANO130NA	ANO140NA
Description (each channel)	100V,100 $\Omega$	200V,300 $\Omega$	300V,300 $\Omega$	400V,350 $\Omega$

### FEATURES

- Ultra-Low Channel OFF Leakage, <800pA
- High Channel-to-Channel Isolation
- 100V to 400V Capability
- Industry Standard Pin-Out

### APPLICATIONS

- Electrostatic Array Drivers
- Electroluminescent Panel Drivers
- Converters
- Multi-Channel Array Drivers

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = +25°C per channel unless otherwise specified)

#### Drain-Source Voltage

ANO110N	+100V
ANO120N	+200V
ANO130N	+300V
ANO140N	+400V

#### Drain-Gate Voltage (V<sub>GS</sub> = 0)

ANO110N	+100V
ANO120N	+200V
ANO130N	+300V
ANO140N	+400V

#### Channel-to-Channel Isolation Voltage

Drain-to-Drain Voltage (V <sub>GS</sub> = 0)	
ANO110N	+100V
ANO120N	+200V
ANO130N	+300V
ANO140N	+400V

#### Gate-Source Voltage

Operating and Storage Temperature Range	-55 to +85°C
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Lead Temperature (1/16" from mounting Surface for 10 sec.)	+300°C
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#### Continuous Drain Current, Total Package

	T <sub>A</sub> = +25°C	T <sub>C</sub> = +25°C
ANO110N	80mA	140mA
ANO120N, ANO130N	50mA	80mA
ANO140N	40mA	75mA

#### Continuous Drain Current, Single Channel

	T <sub>A</sub> = +25°C	T <sub>C</sub> = +25°C
ANO110N	50mA	100mA
ANO120N, ANO130N	30mA	60mA
ANO140N	25mA	50mA

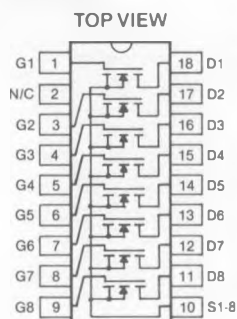
#### Continuous Device Dissipation

	T <sub>A</sub> = +25°C	T <sub>C</sub> = +25°C
Total Package	.64W	2.0W
Single Channel	.30W	1.0W

#### Linear Derating Factor

	T <sub>A</sub> = +25°C	T <sub>C</sub> = +25°C
Total Package	10.67mW/°C	33.2mW/°C
Single Channel	5mW/°C	16.6mW/°C

### PIN CONFIGURATION & SCHEMATIC DIAGRAM



### PACKAGE DIMENSIONS

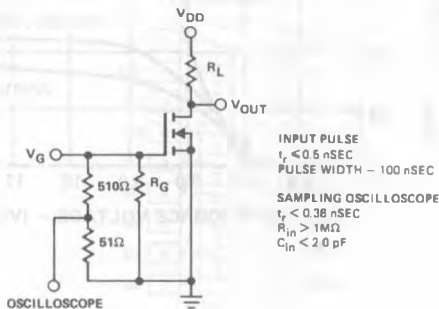
18-Pin Plastic DIP  
(See Package 11)

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = +25 °C per channel unless otherwise noted)

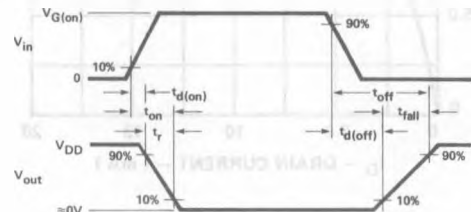
#	CHARACTERISTIC		MIN	TYP	MAX	UNIT	TEST CONDITIONS	
1	BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	ANO110	100	160	V	I <sub>D</sub> = 100μA, V <sub>GS</sub> = 0	
2			ANO120	200	300			
3			ANO130	300	400			
4			ANO140	400	450			
5	I <sub>DSS</sub>	Drain-Source OFF Leakage Current	ANO110		5.0	nA	V <sub>DS</sub> = 80V V <sub>DS</sub> = 160V V <sub>DS</sub> = 240V V <sub>DS</sub> = 330V	
6			ANO120		5.0			V <sub>GS</sub> = 0 (NOTE 1)
7			ANO120		5.0			
8			ANO140		5.0			
9	I <sub>GBS</sub>	Gate-Body Leakage Current			10	nA	V <sub>GS</sub> = 20V, V <sub>DS</sub> = 0	
10	V <sub>GS(th)</sub>	Gate-Source Threshold Voltage	2.0		5.0	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 1.0mA	
11	r <sub>DS(on)</sub>	Drain-Source ON Resistance	ANO110		60	100	ohms	I <sub>D</sub> = 10mA, V <sub>GS</sub> = 10V
12			ANO120		210	300		
13			ANO130		260	300		
14			ANO140		325	350		
15	I <sub>D(on)</sub>	Drain-Source ON Current	ANO110	50			mA	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 10V
16			ANO120	25				
17			ANO130	25				
18			ANO140	25				
19	g <sub>fs</sub>	Common-Source Forward Transcond	ANO110	8.0			mmhos	V <sub>DS</sub> = 25V, I <sub>D</sub> = 10mA, f = 1KHz
20			ANO120	4.0				
21			ANO130	4.0				
22			ANO140	4.0				
23	C <sub>iSS</sub>	Common-Source Input Capacitance		8.0	10	pF	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0, f = 1MHz	
24	C <sub>oSS</sub>	Common-Source Output Capacitance		1.5	2.0			
25	C <sub>rSS</sub>	Common-Source Reverse Transfer Capacitance		0.8	1.0			
26	t <sub>d(on)</sub>	Turn-ON Delay Time		3		nS	V <sub>DD</sub> = 25V, V <sub>G(on)</sub> = 10V R <sub>L</sub> = 820Ω R <sub>G</sub> = 51Ω	
27	t <sub>r</sub>	Rise Time		3				
28	t <sub>d(off)</sub>	Turn-OFF Delay Time		5				
29	t <sub>f</sub>	Fall Time		5				

Note 1: Limit is OFF leakage of all 8 segments in parallel.

### SWITCHING TIMES TEST CIRCUIT

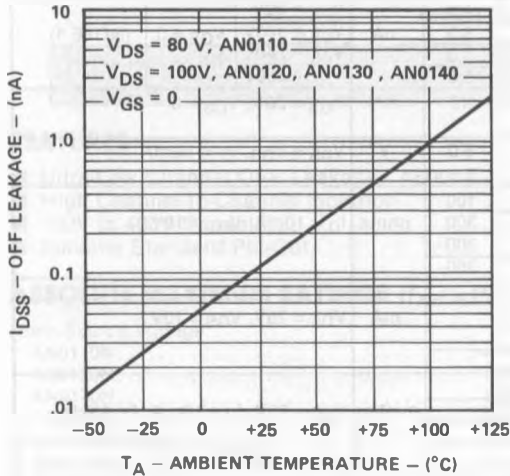


### TEST WAVEFORMS

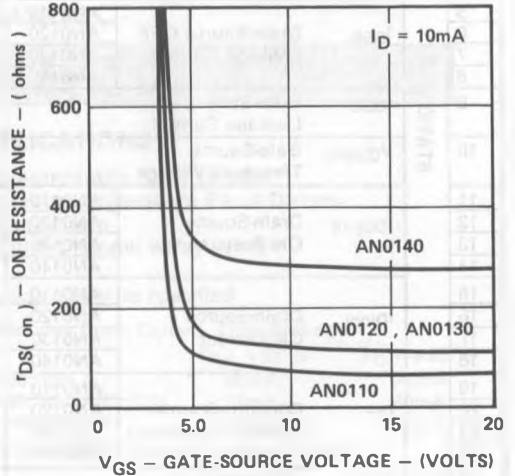


**TYPICAL PERFORMANCE CHARACTERISTICS** ( $T_A = +25^\circ\text{C}$ , per channel, unless otherwise specified)

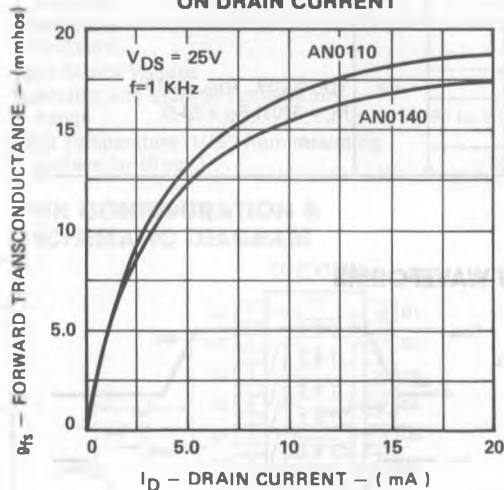
**DRAIN-SOURCE OFF LEAKAGE**  
-vs-  
**AMBIENT TEMPERATURE**



**DRAIN-SOURCE ON RESISTANCE**  
-vs-  
**GATE-SOURCE VOLTAGE**



**FORWARD TRANSCONDUCTANCE**  
-vs-  
**ON DRAIN CURRENT**



**ON DRAIN CURRENT**  
-vs-  
**GATE-SOURCE VOLTAGE**

