

8 Channel Power MOSFET Array Monolithic N-channel Enhancement Mode

Ordering Information

BV _{DSS} / BV _{DGS} (min)	R _{DS(ON)} (max)	I _{D(ON)} (min)	I _{DSS} ** @ V _{DS} = 100V Max	I _{DSS} ** @ V _{DS} = 250V Max	Order Number / Package			
					18-Lead Ceramic DIP	18-Lead Plastic DIP	Plastic SOW-20*	Die
160V	350Ω	25mA	1nA	—	AN0116NB	AN0116NA	AN0116WG	AN0116ND
200V	300Ω	25mA	—	—	AN0120NB	AN0120NA	—	AN0120ND
300V	300Ω	25mA	—	—	AN0130NB	AN0130NA	—	AN0130ND
320V	350Ω	25mA	—	1nA	AN0132NB	AN0132NA	AN0132WG	AN0132ND
400V	350Ω	25mA	—	—	AN0140NB	AN0140NA	AN0140WG	AN0140ND

* Same as SO-20 with 300 mil wide body.

** Average current per channel, measured with all eight channels connected in parallel.

Features

- ☐ Low drain to source leakage for AN0116 and AN0132
- ☐ 200-volt to 400-volt capability
- ☐ Interfaces directly to CMOS logic
- ☐ 8 independent channels
- ☐ Low crosstalk between channels
- ☐ Low power dissipation
- ☐ Pin compatible with industry standard driver array
- ☐ Freedom from secondary breakdown

General Description

The Supertex AN01 series of high voltage arrays is designed to provide the interface between MOS logic and loads requiring high voltages and intermediate currents. Each circuit consists of eight channels in a common-source configuration with open drains. This design minimizes the number of package leads needed.

The AN0116 and AN0132 are ideally suited for low leakage/high impedance measurement, providing excellent accuracy and resolution for Automatic Test Equipment.

Applications

- ☐ High impedance/low leakage measurements for Bare Board Testers
- ☐ High voltage piezoelectric transducer drivers
- ☐ High voltage electroluminescent panel drivers
- ☐ High voltage electrostatic array drivers
- ☐ General multi-channel driver array

Absolute Maximum Ratings

Drain-to-Source Voltage	BV _{DSS}
Drain-to-Gate Voltage	BV _{DGS}
Gate-to-Source Voltage	± 20V
Operating and Storage Temperature	-55°C to +150°C
Soldering Temperature*	300°C
Channel-to-Channel Crosstalk	10mV/V

*Distance of 1.6 mm from case for 10 seconds.

Thermal Characteristics

Package	I_D (continuous)*	I_D (pulsed)*	Power Dissipation @ $T_C = 25^\circ\text{C}$	θ_{JA} $^\circ\text{C/W}$	θ_{JC} $^\circ\text{C/W}$	I_{DR}	I_{DRM}^*
18 lead plastic	30mA	75mA	1.5W	135	83	30mA	75mA
18 lead ceramic	40mA	75mA	2.0W	85	62	40mA	75mA

* I_D (continuous) is limited by max rated T_J .

Electrical Characteristics (@ 25°C unless otherwise specified)

(Notes 1, 2 and 3)

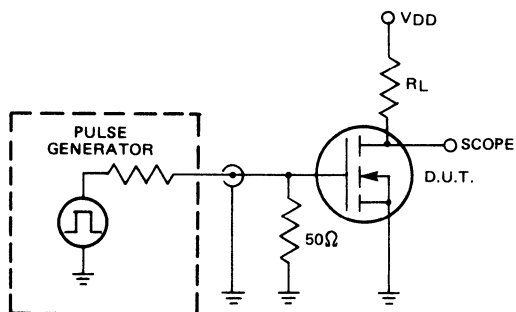
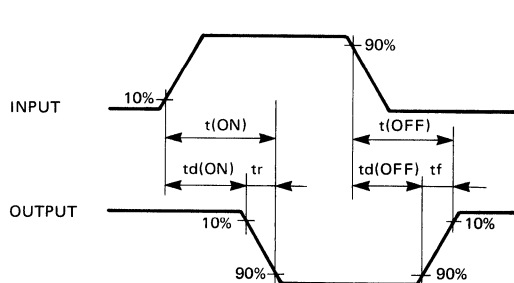
Symbol	Parameter		Min	Typ	Max	Unit	Conditions
B _V DSS	Drain-to-Source Breakdown Voltage	ANO116 ANO120 ANO130 ANO132 ANO140	160 200 300 320 400			V	I _D = 100μA, V _{GS} = 0V
V _{GS(th)}	Gate Threshold Voltage		2		5	V	V _{GS} = V _{DS} , I _D = 1mA
ΔV _{GS(th)}	Change in V _{GS(th)} with Temperature			−3.5		mV/°C	V _{GS} = V _{DS} , I _D = 1mA
I _{GSS}	Gate Body Leakage	ANO120 ANO130 ANO140			10	nA	V _{GS} = ±20V, V _{DS} = 0
		ANO116 ANO132			1	nA	V _{GS} = ±20V, V _{DS} = 0 (Note 3)
I _{DSS}	Zero Gate Voltage Drain Current	ANO120			1	μA	V _{GS} = 0, V _{DS} = Max Rating
		ANO130 ANO140			1	mA	V _{GS} = 0, V _{DS} = 0.8 Max Rating T _A = 125 °C
		ANO116			1	nA	V _{GS} = 0, V _{DS} = 100V (Note 3)
					1	mA	V _{GS} = 0, V _{DS} = 0.8 Max Rating T _A = 125 °C
		ANO132			1	nA	V _{GS} = 0, V _{DS} = 250V (Note 3)
					1	mA	V _{GS} = 0, V _{DS} = 0.8 Max Rating T _A = 125 °C
I _{D(ON)}	ON-State Drain Current		25			mA	V _{GS} = 10V, V _{DS} = 25V
R _{DS(ON)}	Static Drain-to-Source ON-State Resistance	ANO120 ANO130			300	Ω	V _{GS} = 10V, I _D = 10mA
		ANO116 ANO132 ANO140			350	Ω	V _{GS} = 10V, I _D = 10mA
ΔR _{DS(ON)}	Change in R _{DS(ON)} with Temperature			0.8		%/°C	V _{GS} = 10V, I _D = 10mA
G _{FS}	Forward Transconductance		4.0	8.0		m $\mathcal{U}$	I _D = 10mA, ΔV _{GS} = 1V
C _{ISS}	Input Capacitance			5.0	7.5	pF	V _{DS} = 25V, V _{GS} = 0 f = 1 MHz
C _{OSS}	Common Source Output Capacitance			3.0	5.0		
C _{RSS}	Reverse Transfer Capacitance			0.8	1.5		
t _{d(ON)}	Turn-ON Delay Time			3		ns	V _{DS} = 25V I _D = 10mA 50Ω drive, V _{GS(ON)} =10V
t _r	Rise Time			3			
t _{d(OFF)}	Turn-OFF Delay Time			5			
t _f	Fall Time			3			
V _{SD}	Diode Forward Voltage Drop				1.3	V	V _{GS} = 0, I _{SD} = 50mA

Note 1: All D.C. parameters 100% tested at 25°C unless otherwise stated. (Pulse test: 300ms pulse, 2% duty cycle.)

Note 2: All A.C. parameters sample tested.

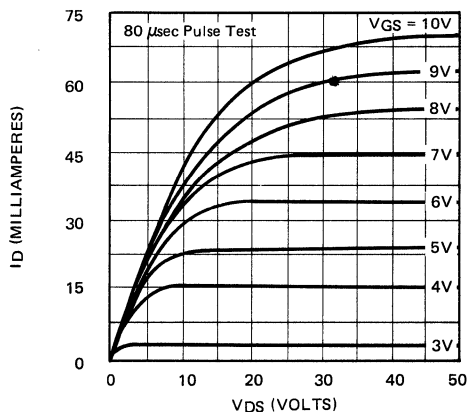
Note 3: Average current per channel, measured with all 8 channels connected in parallel.

Switching Waveforms and Test Circuit

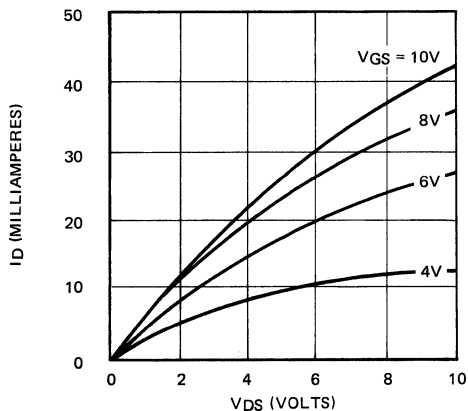


Typical Performance Curves

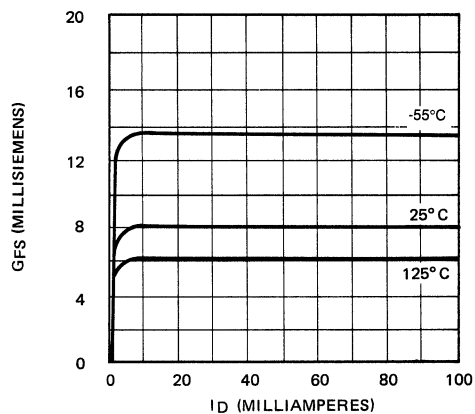
Output Characteristics



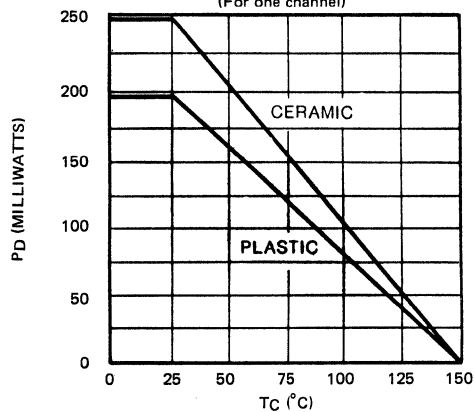
Saturation Characteristics

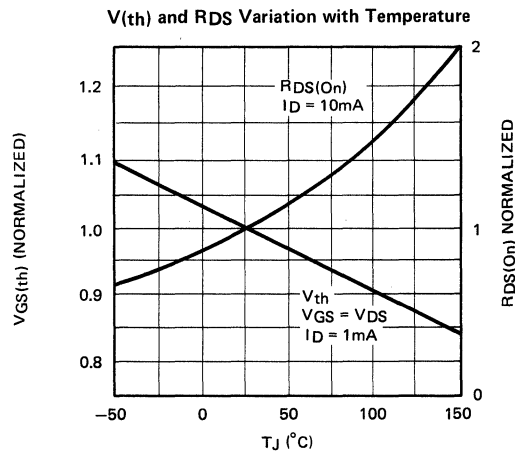
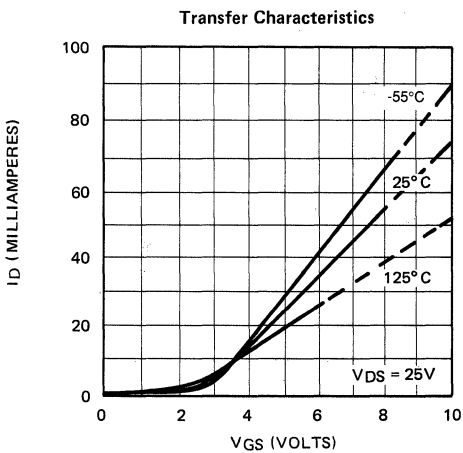
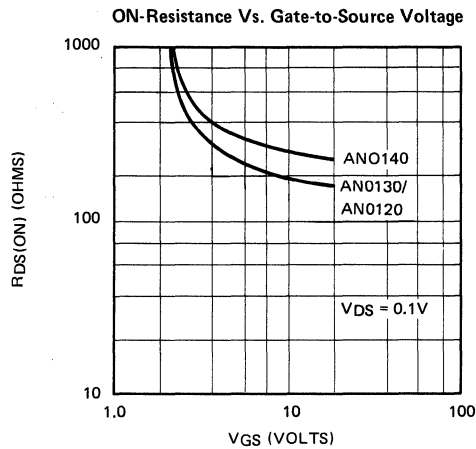
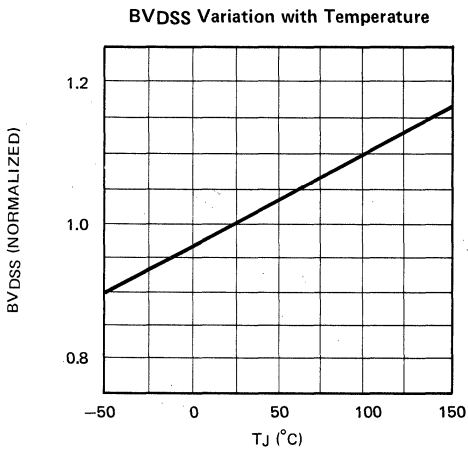
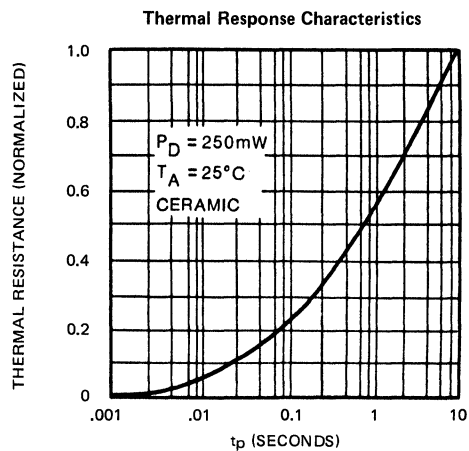
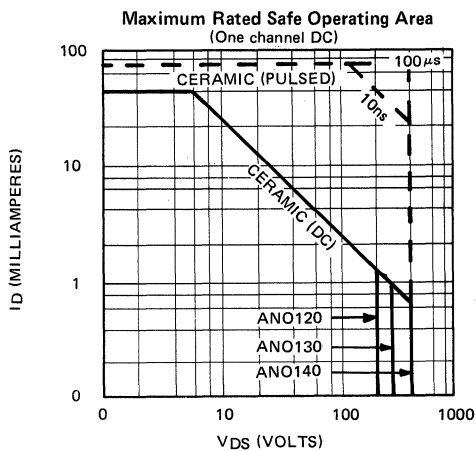


Transconductance Vs. Drain Current

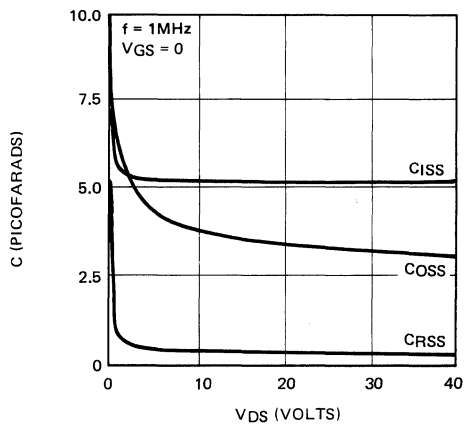


Power Dissipation Vs. Case Temperature
(For one channel)

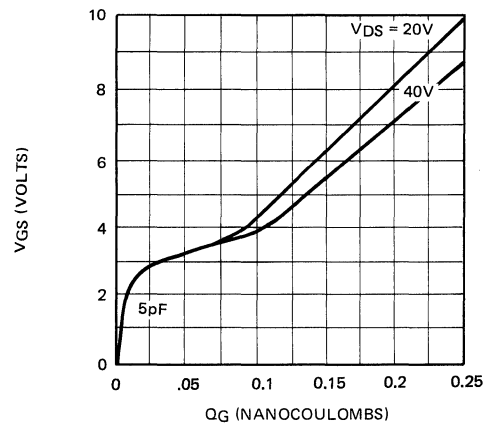




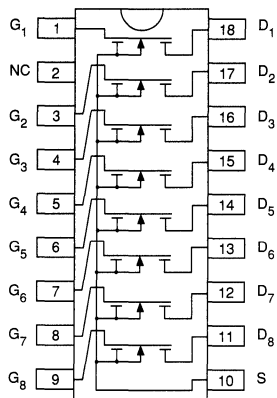
Capacitance Vs. Drain-to-Source Voltage



Gate Drive Dynamic Characteristics

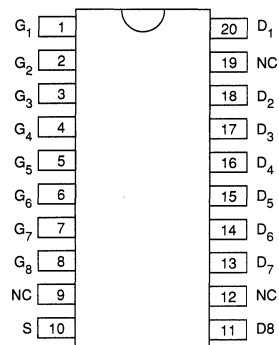


Pin Configuration and Schematic



top view

18-pin DIP



top view

SOW-20