8 Channel MOSFET Array
Monolithic N-Channel Enchancement 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 Plastic DIP	Plastic SOW-20*	Die†
160V	350Ω	25mA	1nA	—	AN0116NA	AN0116WG	AN0116ND
200V	300Ω	25mA	—	—	AN0120NA	—	AN0120ND
300V	300Ω	25mA	—	—	AN0130NA	—	AN0130ND
320V	350Ω	25mA	—	1nA	AN0132NA	AN0132WG	AN0132ND
400V	350Ω	25mA	—	—	AN0140NA	AN0140WG	AN0140ND

* Same as SO-20 with 300 mil wide body.
** Average current per channel, measured with all eight channels connected in parallel.
† MIL visual screening available

Features

- ☐ Low drain to source leakage for AN0116 and AN0132
- ☐ 160-volt to 400-volt capability
- ☐ Interfaces directly to CMOS logic
- ☐ 8 independent channels
- ☐ Low crosstalk between channels
- ☐ Low power dissipation
- ☐ Free from secondary breakdown

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

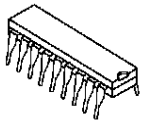
* Distance of 1.6 mm from case for 10 seconds.

General Description

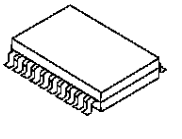
The Supertex AN01 series of high voltage arrays is designed to provide the interface between CMOS logic and loads requiring high voltages and intermediate currents. Each circuit consists of eight channels in a common-source configuration with open drains. This design minimizes the number of package leads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

The AN0116 and AN0132 are ideally suited for low leakage/high impedance measurement, providing excellent accuracy and resolution for automatic test equipment.

Package Options



18-Lead DIP



SOW-20

Thermal Characteristics

Package	I_D (continuous)*	I_D (pulsed)*	Power Dissipation @ T_C = 25°C	θ_{ja} °C/W	θ_{jc} °C/W	I_{DR}	I_{DRM}*
18 Lead Plastic	30mA	75mA	1.5W	135	83	30mA	75mA
SOW - 20	30mA	75mA	1.4W	110	89	30mA	75mA

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

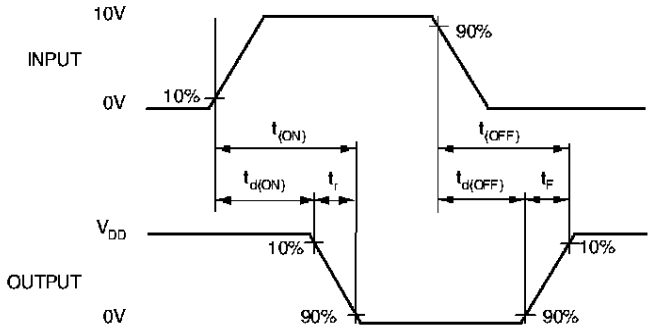
Electrical Characteristics (@ 25°C unless otherwise specified)

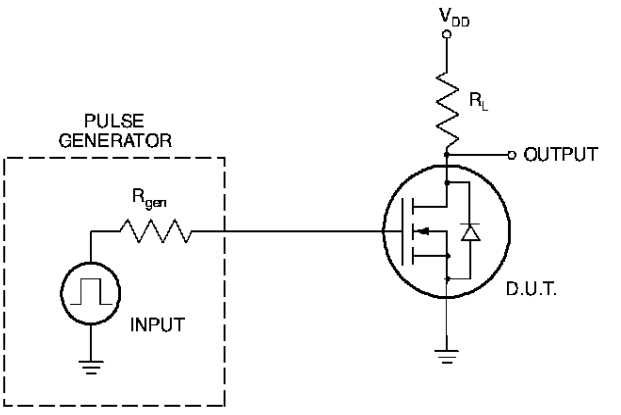
Symbol	Parameter		Min	Typ	Max	Unit	Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	AN0116	160			V	V_{GS} = 0, I_D = 100µA
		AN0120	200				
		AN0130	300				
		AN0132	320	380			
		AN0140	400				
$V_{GS(th)}$	Gate Threshold Voltage		2		5	V	V_{GS} = V_{DS}, I_D = 1mA
$\Delta V_{GS(th)}$	Change in $V_{GS(th)}$ with Temperature			-3.5		mV/°C	V_{GS} = V_{DS}, I_D = 1mA
I_{GSS}	Gate Body Leakage	AN0120 AN0130 AN0140			10	nA	V_{GS} = ±20V, V_{DS} = 0(3)
		AN0116 AN0132			1	nA	V_{GS} = ±20V, V_{DS} = 0(3)
I_{DSS}	Zero Gate Voltage Drain Current	AN0120			1	µA	V_{GS} = 0, V_{DS} = Max Rating(3)
		AN0130 AN0140			1	mA	V_{GS} = 0, V_{DS} = 0.8 Max Rating T_A = 125°C(3)
		AN0116			1	nA	V_{GS} = 0V, V_{DS} = 100V(3)
					2	µA	V_{GS} = 0V, V_{DS} = 0.8 Max Rating T_A = 125°C(3)
		AN0132			1	nA	V_{GS} = 0V, V_{DS} = 250V(3)
					2	µA	V_{GS} = 0, V_{DS} = 0.8 Max Rating T_A = 125°C(3)
$I_{D(ON)}$	ON-State Drain Current		25			mA	V_{GS} = 10V, V_{DS} = 25V
$R_{DS(ON)}$	Static Drain-to-Source ON-State Resistance	AN0120 AN0130			300	Ω	V_{GS}= 10V, I_D = 10mA
		AN0116 AN0132 AN0140			350	Ω	V_{GS}= 10V, I_D = 10mA
$\Delta R_{DS(th)}$	Change in $R_{DS(th)}$ with Temperature			0.8		%/°C	V_{GS} =10V, I_D = 10mA,
G_{FS}	Forward Transconductance		4.0	8.0		mM	ΔV_{GS} =1V, I_D = 10mA
C_{ISS}	Input Capacitance			5.0	7.5	pF	V_{GS} = 0, V_{DS} = 25V, f = 1MHz
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_{DD} = 25V, I_D = 10mA R_{GEN} = 25Ω
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

Notes:

1. All D.C. parameters 100% tested at 25°C unless otherwise stated. (Pulse test: 300µs pulse, 2% duty cycle.)
2. All A.C. parameters sample tested.
3. Average current per channel, measured with all 8 channels connected in parallel.

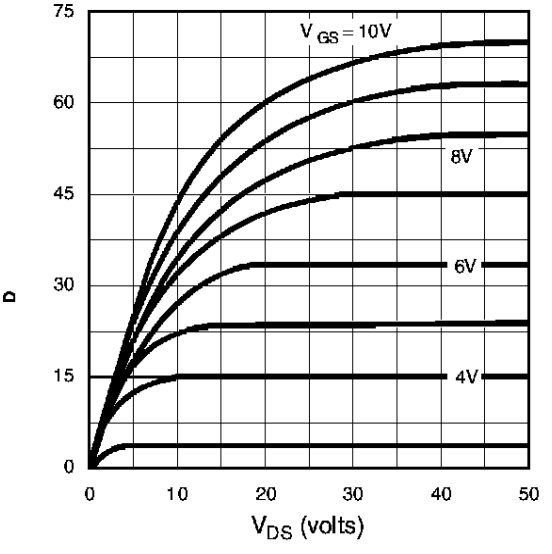
Switching Waveforms and Test Circuit



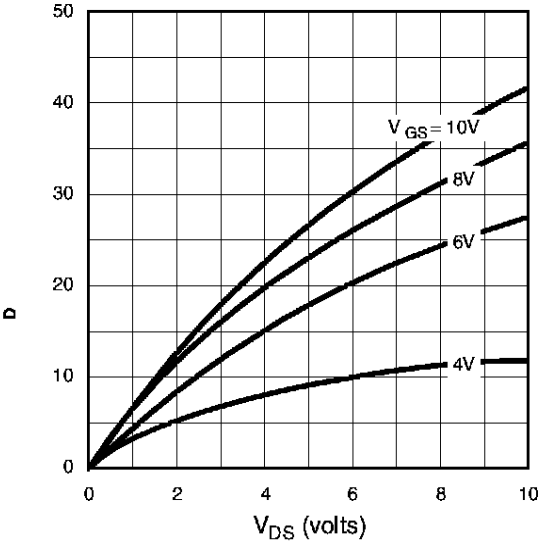


Typical Performance Curves

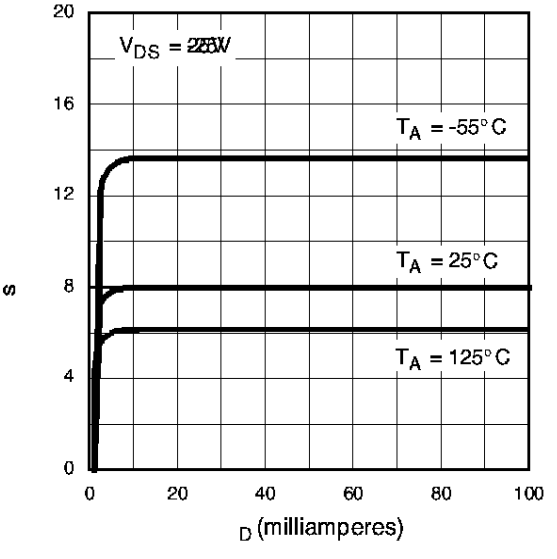
Output Characteristics



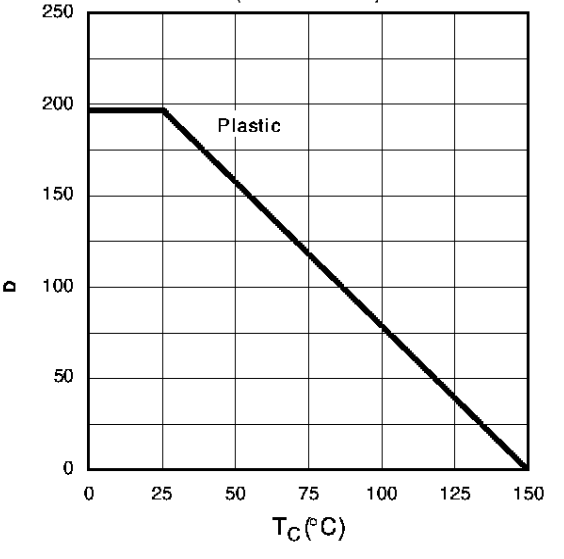
Saturation Characteristics



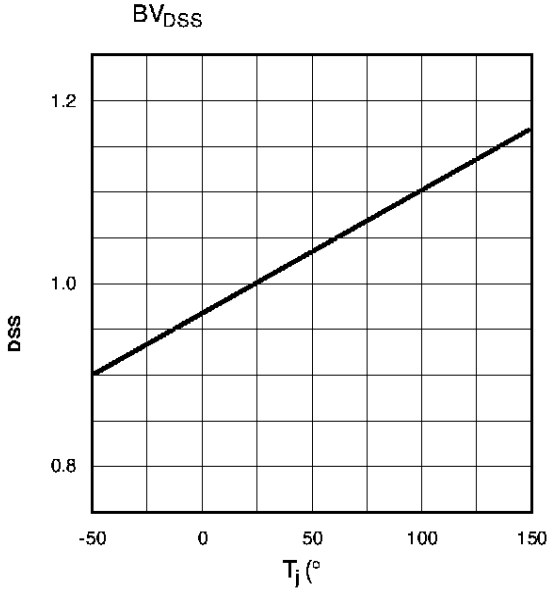
Transconductance vs. Drain Current

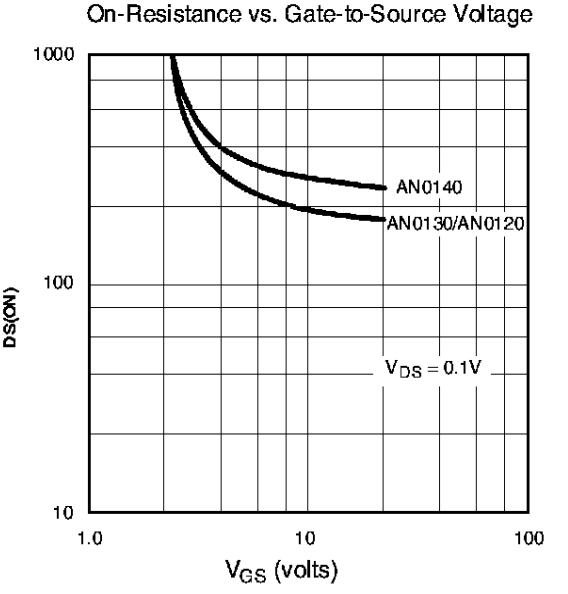


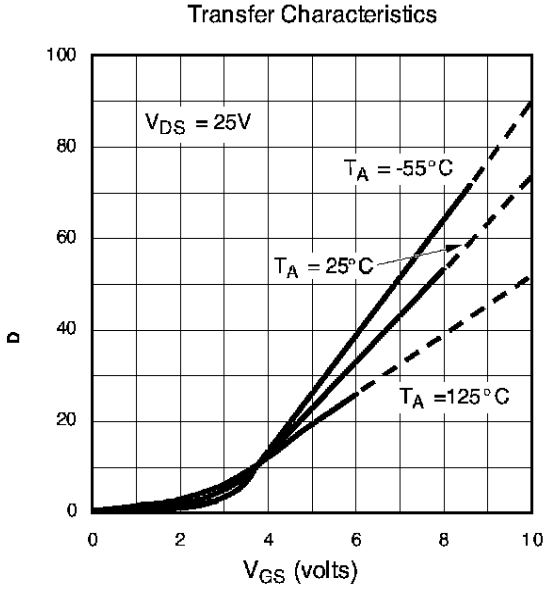
Power Dissipation vs. Case Temperature
(For one channel)

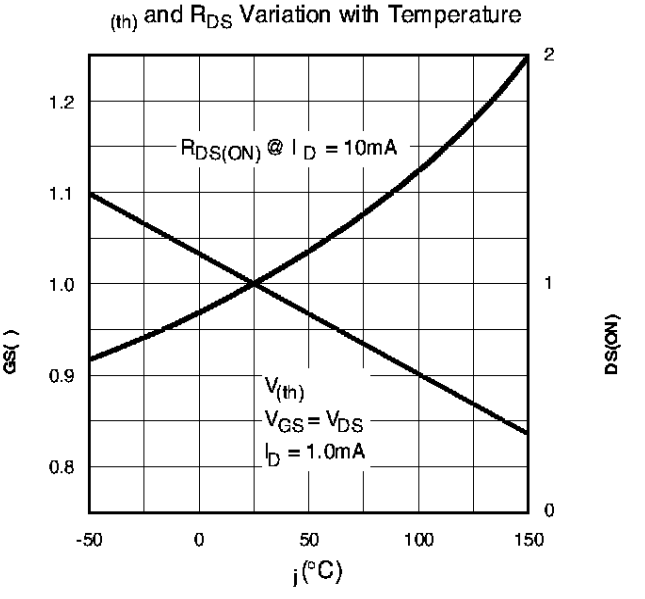


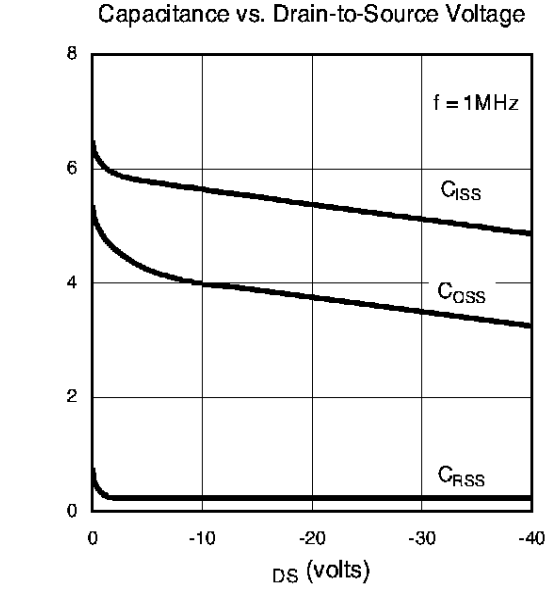
Typical Performance Curves

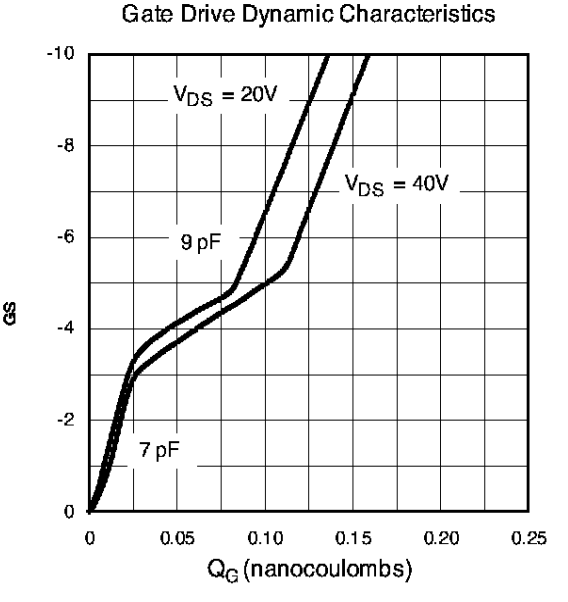




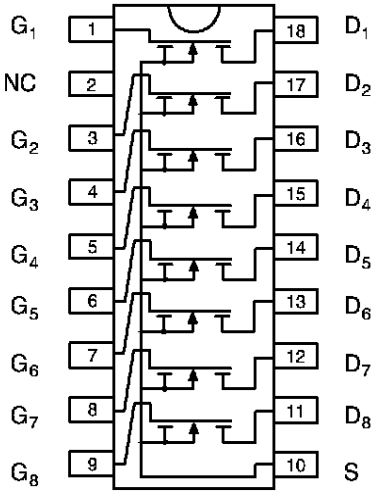




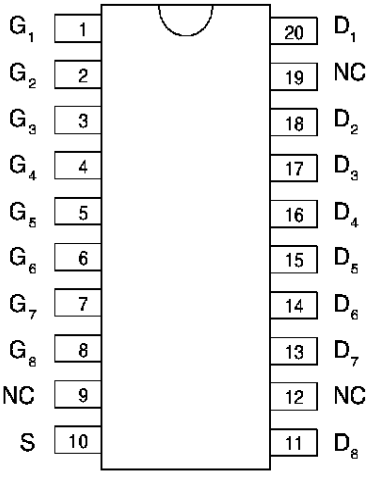




Pin Configuration and Schematic



top view
18-pin DIP



top view
SOW - 20