

8 P-Channel Latchable Power MOSFET Array

Ordering Information

V _{DD} (max)	R _{O(ON)} (max)	I _{O(ON)} (min)	I _{O(OFF)} (max)	Order Number/Package	
				SO-16	Die
-320V	700Ω	-15mA	-1.0nA	AP0332CG	AP0332ND

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

Features

- Low drain to source leakage
- Interfaces directly to TTL and CMOS logic
- 8 independent channels
- Low crosstalk between channels
- Low power dissipation
- Freedom from secondary breakdown
- Serial data input
- On-chip decoder, latch with set and write disable circuitry

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 arrays

Absolute Maximum Ratings¹

Off-state output voltage, V _{OO}	-320V
Logic supply voltage, V _{DD}	-0.5V to +15V
Logic input levels, all inputs	-0.5V to V _{DD}
Operating and storage temperature range	-55°C to +150°C
Soldering temperature ²	300°C
Channel-to-channel crosstalk	10mV/V

Notes:

1. All voltages are referenced to V_{SS}.
2. Distance of 1.6mm from case for 10 seconds.

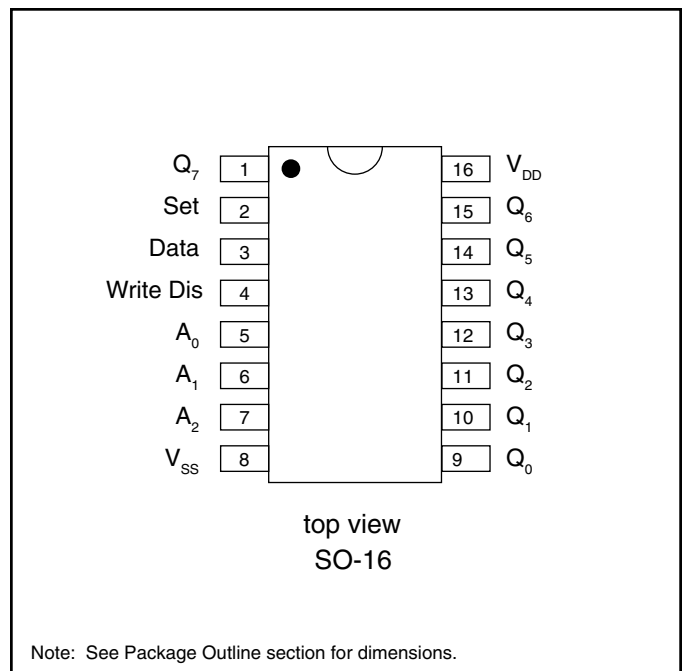
General Description

The Supertex AP0332 is an 8 P-Channel 320V common source power MOSFET array with a CMOS 8 bit addressable latch. The outputs are guaranteed to have very low leakage current. The outputs are addressed by logic inputs A₀, A₁, and A₂. The addressed and unaddressed output can be turned on or off by the data, set, and write disable inputs.

The AP0332 is ideally suited for low leakage/high impedance measurements, providing excellent accuracy as well as resolution for automatic bare board test equipment and other applications.

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Pin Configuration



Electrical Characteristics (@ 25°C and $V_{DD} = 12V$ unless otherwise specified)

DC Characteristics

Symbol	Parameter	Min	Typ	Max	Unit	Conditions
$I_{O(OFF)}$	Off-State Output Current			-8.0	nA	$V_O = \text{max. rating}$, 8 outputs connected in parallel
$I_{O(ON)}$	On-State Output Current	-15			mA	$V_O = 25V$
$R_{O(ON)}$	On-State Output Resistance			700	Ω	$I_O = -10mA$
$\Delta R_{O(ON)}$	Change in $R_{O(ON)}$ with High Temperature		0.8		%/°C	$I_O = -10mA$
I_{DDQ}	Quiescent Logic Supply Current		0.05	16.5	μA	
V_{IL}	Input Low Voltage			3.5	V	
V_{IH}	Input High Voltage	12			V	
I_{IN}	Input Current			1.0	μA	

Note:

- All voltages are referenced to V_{SS} .

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AC Characteristics

Symbol	Parameter	Min	Typ	Max	Unit	Fig. 1*	Conditions
$t_{D(ON)}$	Turn-On Delay Time		800		ns	1a	$V_O = 25V, I_O = -10mA$
$t_{D(OFF)}$	Turn-Off Delay Time		800		ns	1b	
t_r	Rise Time		200		ns	10	
t_f	Fall Time		200		ns	11	
t_{PHL}, t_{PLH}	Propagation Delay Time from Write Disable to Output		87		ns	2	
t_{PHL}, t_{PLH}	Propagation Delay Time from Set to Output		87		ns	3	
t_{PHL}, t_{PLH}	Propagation Delay Time from Address to Output		107		ns	9	
t_W	Minimum Pulse Width – Data		50	100	ns	4	
t_W	Minimum Pulse Width – Address		100	200	ns	8	
t_W	Minimum Pulse Width – Set		40	75	ns	5	
t_S	Setup Time – Data to Write Disable	50			ns	6	
t_H	Hold Time – Data to Write Disable	75			ns	7	
C_{IN}	Input capacitance – Any Input		5.0	7.5	pF		

*Refer to circled numbers on Timing Diagram (Figure 1).

Note:

- All voltages are referenced to V_{SS} .

Recommended Operating Conditions

(For maximum reliability, nominal operating conditons should be selected so that operation is always within the following ranges.)

Symbol	Parameter	V _{DD}	Min	Max	Unit
V _{DD}	Logic supply voltage		10.0	13.2	V
V _O	Output Voltage referenced to V _{DD}		0	-320	V
V _{IH}	Input High Voltage	12V	V _{DD} - 2	V _{DD}	V
V _{IL}	Input Low Voltage	12V	0	2.0	V
T _A	Operating Free-Air Temperature		0	70	°C

Note:

1. All voltages are referenced to V_{SS}.

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Mode Selection

Data	Write Disable	Set	Addressed Output	Unaddressed Outputs
H L	L	L	Off On	Holdspriv.
H L	H	L	Holdspriv.	Holdspriv.
H L	L	H	Off On	Off
H L	H	H	Off	Off

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Timing Diagram

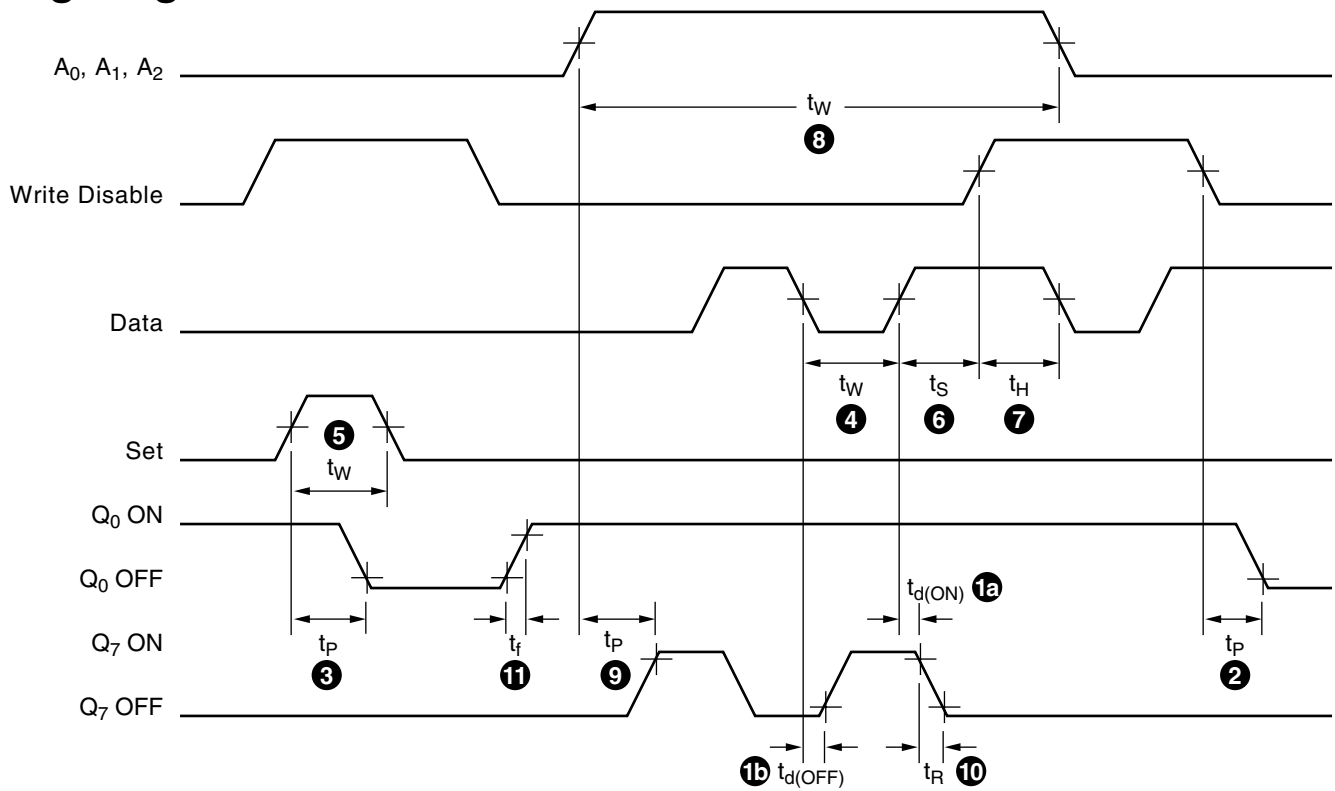


Figure 1

Functional Block Diagram

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