

## 1. DESCRIPTION

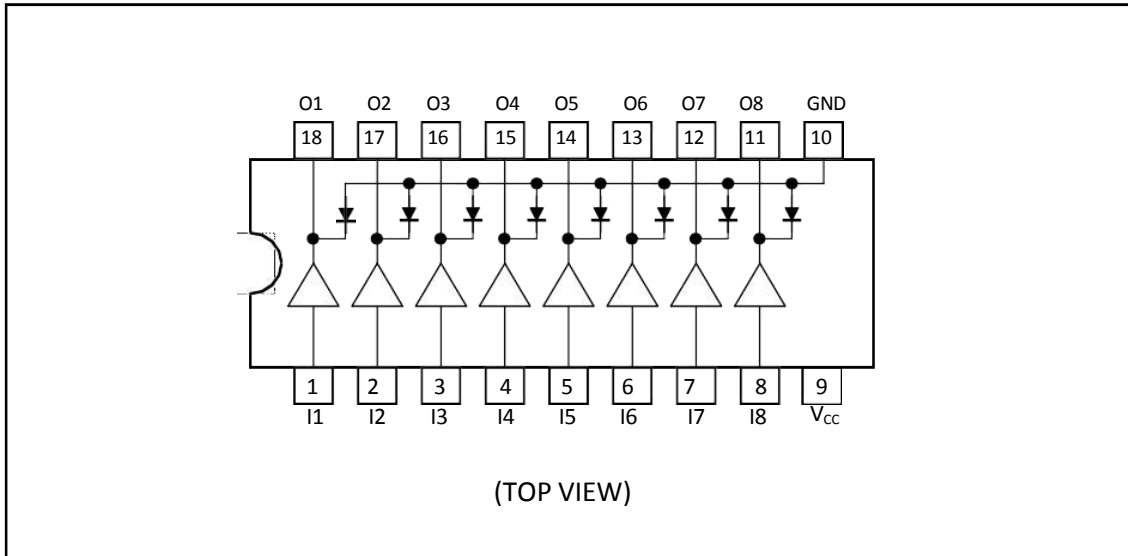
The XL62783/XD62783 are DMOS transistor array with 8-channel driver. These drivers are specifically designed for fluorescent display applications. Applications include relay, hammer and lamp drivers etc.

It has a clamp diode for switching inductive loads built-in in each output. Please be careful about thermal conditions during use.

## 2. FEATURES

- DMOS output type
- Eight channel driver
- High voltage : VCC = 50 V (MAX)
- High current : IOUT = -500 mA  
(MAX for each channel)
- Input voltage(output on) : 2.0 V (MIN)
- Input voltage(output off) : 0.6 V (MAX)

### 3. PIN CONFIGURATIONS AND FUNCTIONS

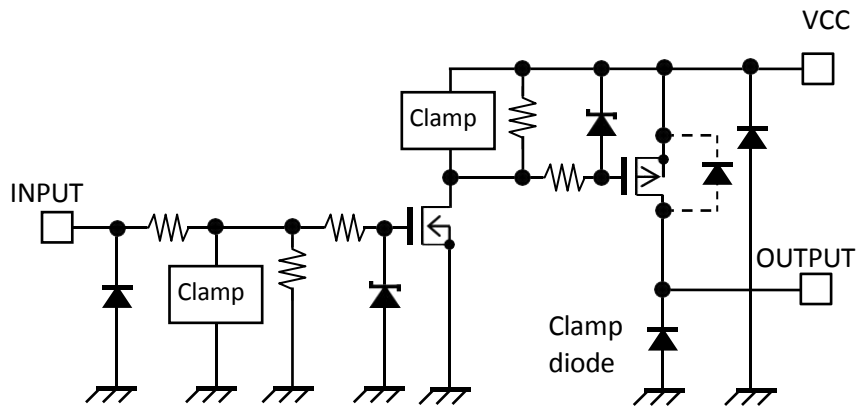


Pin connection may be simplified for explanatory purpose.

#### Pin Definition

Pin No.	Pin name	Function
1	I1	Input pin
2	I2	Input pin
3	I3	Input pin
4	I4	Input pin
5	I5	Input pin
6	I6	Input pin
7	I7	Input pin
8	I8	Input pin
9	VCC	Power supply pin
10	GND	GND pin
11	O8	Output pin
12	O7	Output pin
13	O6	Output pin
14	O5	Output pin
15	O4	Output pin
16	O3	Output pin
17	O2	Output pin
18	O1	Output pin

#### 4. EQUIVALENT CIRCUIT(each driver)



(Equivalent circuit may be simplified for explanatory purpose.)

## 5. SPECIFICATIONS

### 5.1. Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Power supply voltage		V <sub>CC</sub>	-0.5 to 50	V
Output current (for each channel)		I <sub>OUT</sub>	-500	mA
Input voltage		V <sub>IN</sub>	-0.5 to 30	V
Clamp diode reverse voltage		V <sub>R</sub>	50	V
Clamp diode forward current		I <sub>F</sub>	500	mA
Power dissipation	DIP18(Note1)	P <sub>D</sub>	1.2	W
	SOP18 (Note2)		1.0	
Operating temperature		T <sub>opr</sub>	-40 to 85	°C
Storage temperature		T <sub>stg</sub>	-55 to 150	°C

Note1: Device alone. When Ta exceeds 25°C, it is necessary to do the derating with 12 mW/°C.

Note2: On PCB (Size: 75 mm × 114 mm × 1.6 mm, Cu area: 20%, single-side glass) When Ta exceeds 25°C, it is necessary to do the derating with 11 mW/°C.

## 5.2. Operating Ratings(Ta = -40 to 85°C)

Characteristics		Symbol	Condition	Min	Typ.	Max	Unit	
Power supply voltage		V <sub>CC</sub>	I <sub>OUT</sub> = -100 mA	2.0	—	50	V	
Output current (for each channel)	DIP18 (Note1)	I <sub>OUT</sub>	1 circuits ON, Ta = 25°C	0	—	-390	mA	
			t <sub>pw</sub> = 25 ms 8 circuits ON Ta = 85°C T <sub>j</sub> = 120°C	Duty = 10%	0	—		-380
				Duty = 50%	0	—		-160
	SOP18 (Note2)		1 circuits ON, Ta = 25°C	0	—	-390		
			t <sub>pw</sub> = 25 ms 8 circuits ON Ta = 85°C T <sub>j</sub> = 120°C	Duty = 10%	0	—		-360
				Duty = 50%	0	—		-150
Input voltage (Output on)		V <sub>IN (ON)</sub>	I <sub>OUT</sub> = -100 mA or upper, V <sub>DS</sub> = 2.0 V	2.0	—	25	V	
Input voltage (Output off)		V <sub>IN (OFF)</sub>	I <sub>OUT</sub> = -100 μA or less, V <sub>DS</sub> = 2.0 V	0	—	0.6	V	
Clamp diode forward current		I <sub>F</sub>	—	—	—	350	mA	

Note1: Device alone.

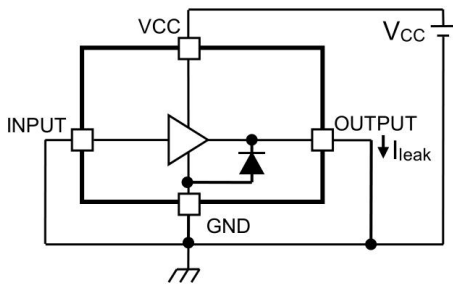
Note2: On PCB (Size: 75 mm × 114 mm × 1.6 mm, Cu area: 20%, single-side glass epoxy).

**5.3. Electrical Characteristics (Ta = 25°C unless otherwise noted)**

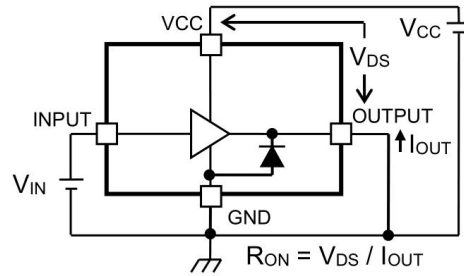
Characteristics	Symbol	Test Circuit	Condition	Min	Typ.	Max	Unit
Output leakage current	I <sub>leak</sub>	1	V <sub>CC</sub> = 50 V, V <sub>IN</sub> = 0 V Ta = 85°C	—	—	2.0	μA
Output voltage (Output ON-resistance)	V <sub>DS</sub> (R <sub>ON</sub> )	2	I <sub>OUT</sub> = -350 mA V <sub>IN</sub> = 5.0 V, V <sub>CC</sub> = 5.0 V	—	0.7 (1.6)	1.5 (3.25)	V (Ω)
			I <sub>OUT</sub> = -200 mA V <sub>IN</sub> = 5.0 V, V <sub>CC</sub> = 5.0 V	—	0.5 (1.6)	0.9 (3.25)	
			I <sub>OUT</sub> = -100 mA V <sub>IN</sub> = 5.0 V, V <sub>CC</sub> = 5.0 V	—	0.3 (1.6)	0.7 (3.25)	
Input current (Output on)	I <sub>IN (ON)</sub>	3	V <sub>IN</sub> = 2.0 V	—	—	0.2	mA
Input current (Output off)	I <sub>IN (OFF)</sub>	4	V <sub>IN</sub> = 0 V, Ta = 85°C	—	—	3	μA
Input voltage (Output on)	V <sub>IN (ON)</sub>	5	I <sub>OUT</sub> = -100 mA or Upper V <sub>DS</sub> = 2.0 V	—	—	2.0	V
Supply current (for each channel)	I <sub>CC</sub>	3	V <sub>IN</sub> = 2.0 V, V <sub>CC</sub> = 50 V Output open	—	—	2.0	mA
Clamp diode reverse current	I <sub>R</sub>	6	V <sub>R</sub> = 50 V, Ta = 85°C	—	—	5.0	μA
Clamp diode forward voltage	V <sub>F</sub>	7	I <sub>F</sub> = 350 mA	—	—	2.0	V
Turn-on delay	t <sub>ON</sub>	8	V <sub>CC</sub> = 50 V R <sub>L</sub> = 125 Ω C <sub>L</sub> = 15 pF	—	0.6	—	μs
Turn-off delay	t <sub>OFF</sub>			—	2.7	—	

## 5.4. Test Circuit

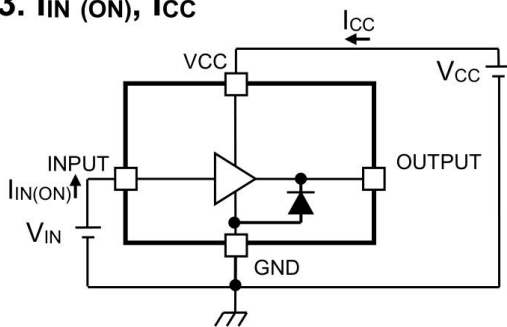
### 1. $I_{leak}$



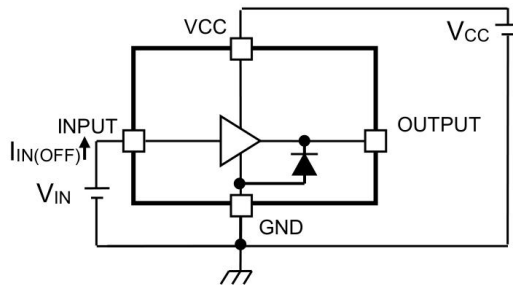
### 2. $V_{DS} (R_{ON})$



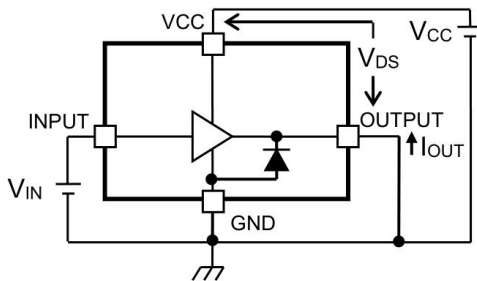
### 3. $I_{IN} (ON), I_{CC}$



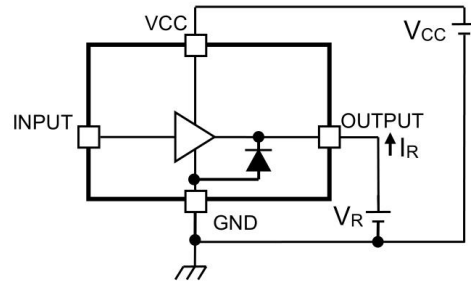
### 4. $I_{IN} (OFF)$



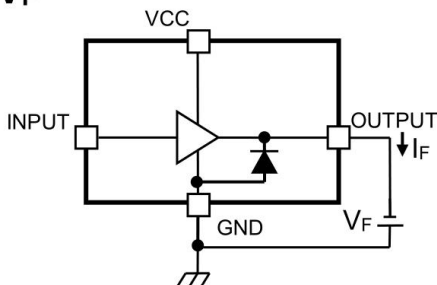
### 5. $V_{IN} (ON)$



### 6. $I_R$

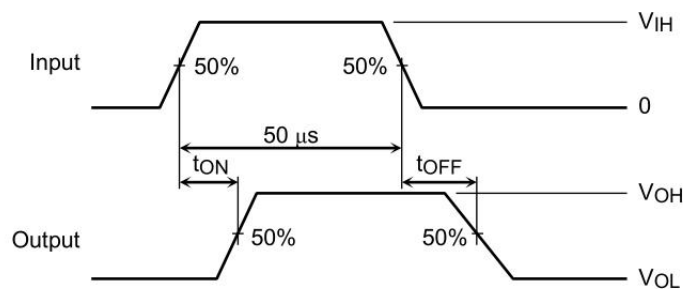
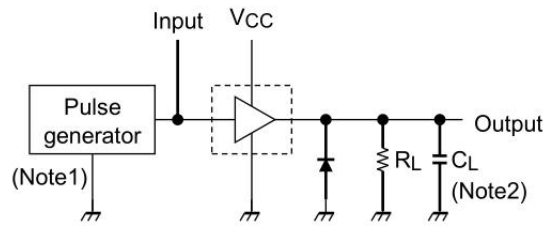


### 7. $V_F$



(Test circuit may be simplified for explanatory purpose.)

### 5.5. tON, tOFF



Note 1: Pulse width 50  $\mu$ s, Duty cycle 10%

Output impedance 50  $\Omega$ ,  $t_r \leq 5$  ns,  $t_f \leq 10$  ns,  $V_{IH} = 5.0$  V

Note 2:  $C_L$  includes the probe and the test board capacitance.

Note 3: Test circuit and timing chart may be simplified for explanatory purpose.

### Precautions for Using

This IC does not include built-in protection circuits for excess current or overvoltage. Therefore, if the short-circuit between adjacent pins or between outputs, the short-to-power or ground fault has occurred, the current or voltage beyond the absolute maximum rating is impressed, and IC destroys. When designing, please consider enough in power supply line, output line and GND line. In addition, so as not to continue to flow a current that exceeds the absolute maximum rating of the IC, please insert the appropriate fuse in the power supply line.

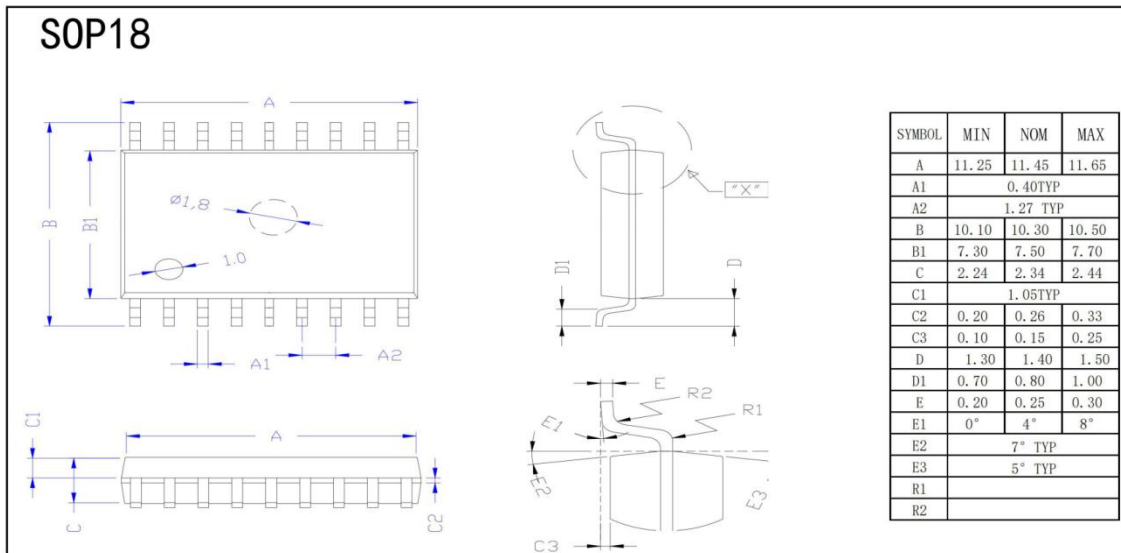


## 6. ORDERING INFORMATION

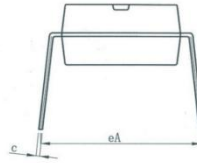
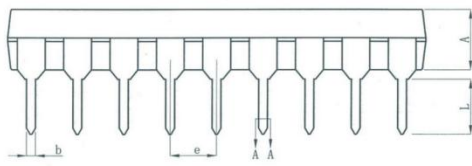
Ordering Information

Part Number	Device Marking	Package Type	Body size (mm)	Temperature (°C)	MSL	Transport Media	Package Quantity
XD62783	XD62783	DIP18	22.90 * 6.50	- 40 to 85	MSL3	Tube 20	800
XL62783	XL62783	SOP18	11.45 * 7.50	- 40 to 85	MSL3	T&R	1000

## 7. DIMENSIONAL DRAWINGS



**DIP18**



symbol	millimeter		
	Min	Nom	Max
A	3.20	3.30	3.40
b	0.44	—	0.53
b1	0.43	0.46	0.49
c	0.25	—	0.30
c1	0.24	0.25	0.26
D	22.80	22.90	23.00
E	6.40	6.50	6.60
e	2.54BSC		
eA	8.30	8.80	9.30
L	3.00	—	—

