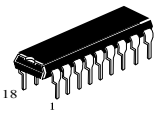
8CH DARLINGTON SOURCE DRIVER

IK62783

The IK62783 are eight current drivers with common power supply and ground.
The IK62783 are purposed to use different devices: relays, lamps, displays (LED & gas discharge cells), in fluorescent indicators, telecommunication lines and logic devices.

IK62783N 

DIP-18

IK62783D 
SOP-18

IK62783DH 

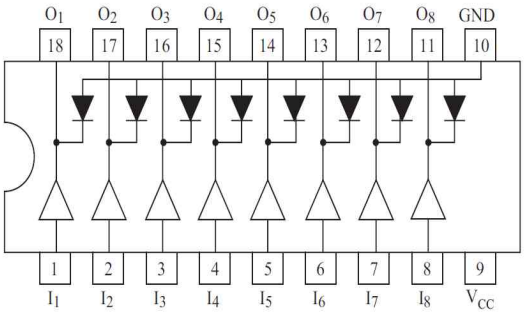
SOP-20

Ta= -40 ~ 85°C For all package

FEATURES

- High output voltage up to 50V
- One channel output current up to minus - 500 mA
- Output clamp diodes
- Single supply voltage 50V
- TTL, 5V CMOS
- 3 Diodes Serially Connected internally

Pin Connection (top view)



Schematics (each driver)

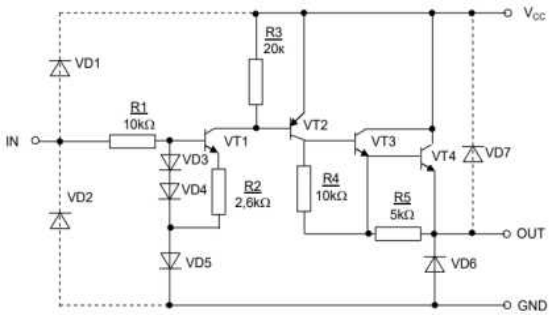


Table 2 – PIN DESCRIPTION (DIP-18, SOP-18)

Pin Number	Symbol	Description
01	IN 1	Input
02	IN 2	Input
03	IN 3	Input
04	IN 4	Input
05	IN 5	Input
06	IN 6	Input
07	IN 7	Input
08	IN 8	Input
09	Vcc	Supply voltage pin
10	GND	Common pin (ground)
11	OUT 8	Output
12	OUT 7	Output
13	OUT 6	Output
14	OUT 5	Output
15	OUT 4	Output
16	OUT 3	Output
17	OUT 2	Output
18	OUT 1	Output

Table 3 – PIN DESCRIPTION (SOP-20)

Pin Number	Symbol	Description
01	IN 1	Input
02	IN 2	Input
03	IN 3	Input
04	IN 4	Input
05	IN 5	Input
06	IN 6	Input
07	IN 7	Input
08	IN 8	Input
09	Vcc	Supply voltage pin
10	NC	NC
11	NC	NC
12	GND	Common pin (ground)
13	OUT 8	Output
14	OUT 7	Output
15	OUT 6	Output
16	OUT 5	Output
17	OUT 4	Output
18	OUT 3	Output
19	OUT 2	Output
20	OUT 1	Output

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Min	Max	Unit
V_{CC}	Supply voltage		-	50	V
Iout	Output Current (One Channel)		-	-500	mA/ch
V_{IN}	Input voltage		-0.5	15	V
V_R	Clamp diode reverse voltage		-	50	V
I_F	Clamp diode forward current		-	500	mA
T_{stg}	Storage temperature		-60	150	℃
P_D	Power Dissipation	DIP	1.47		W
		SOP	0.96		W

* Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied.
Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

RECOMMENDED OPERATION MODES

Symbol	Parameter		Test Condition		Min	Max	Unit
V_{CC}	Supply voltage		-		-	50	V
I_{OUT}	Output current	DIP	Ta=85℃ Tj=120℃ Tpw=25mS	Duty=10% 8 Circuits	-	-260	mA/ch
				Duty=50% 8 Circuits		-59	
		SOP		Duty=10% 8 Circuits		-180	
				Duty=50% 8 Circuits		-38	
V_R	Clamp diode reverse voltage		-		-	50	V
I_F	Clamp diode forward current		-		-	400	mA

ELECTRICAL CHARACTERISTICS

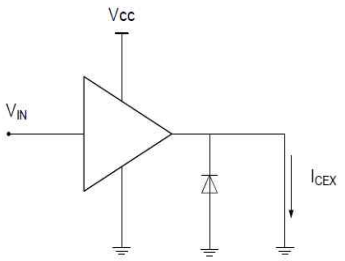
Parameter	Symbol	Test CIRCUIT	Measurement mode	Norm		Ta (°C)	Unit
				Min	Max		
Output leakage current at close (OFF) state of output	I_{CEX}	1	V_{CC} = 50 V V_{IN} = 0.4 V	-	100	25±10	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	2	I_{OUT} = -100 mA V_{IN} = 2 V	-	1.8 2.16	25±10 -40 to 85	V
			I_{OUT} = -225 mA V_{IN} = 2 V	-	1.9 2.28		
			I_{OUT} = -350 mA V_{IN} = 2 V	-	2.0 2.4		
			I_{OUT} = -225 mA V_{IN} = 4.5 V	-	1.9 2.28		
			I_{OUT} = -350 mA V_{IN} = 4.5 V	-	2.0 2.4		
Input current	$I_{IN(ON)}$	3	V_{IN} = 2.4 V	-	0.052 0.082		mA
			V_{IN} = 3.85 V	-	0.26 0.31		
			V_{IN} = 12 V	-	1.13 1.356		
Input voltage at open (ON) state of output	$V_{IN(ON)}$	4	I_{OUT} = -350 mA V_{CE} = 2 V	-	2.0 2.4		V
Input voltage at close (OFF) state of output,	$V_{IN(OFF)}$		I_{OUT} = -500 μA	0.8 0.64	-		V
Consumption current	$I_{CC(ON)}$	3	V_{IN} = 2 V V_{CC} = 50 V	-	2.5 3.0		mA
Reverse current of clamp diode	I_R	5	V_R = 50 V	-	50 60		uA
Forward DC voltage of clamp diode	V_F	6	I_F = 350 mA	-	2.0 2.4		V

TYPICAL ELECTRIC PARAMETERS at Ta = 25 ºC

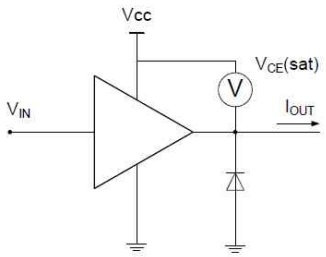
Parameter	Symbol	Test CIRCUIT	Measurement mode	Typical	Max	Unit
Switch -ON delay	t_{ON}	7	R_L = 125 Ω, V_{CC} = 50 V C_L = 15 pF	0.15	0.3	μs
Switch-OFF delay	t_{OFF}			3.0	5.0	μs

Test Circuit

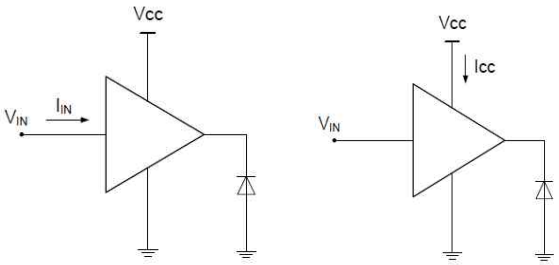
1. Icex



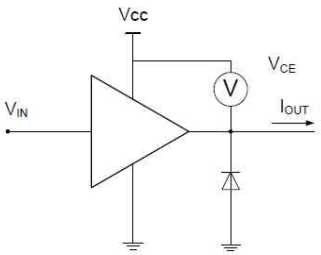
2. VCE (sat)



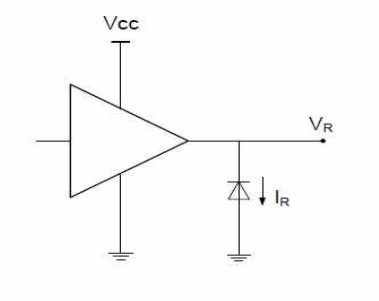
3. IIN (ON), ICC



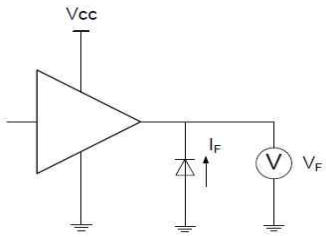
4. VIN (ON), VIN (OFF)



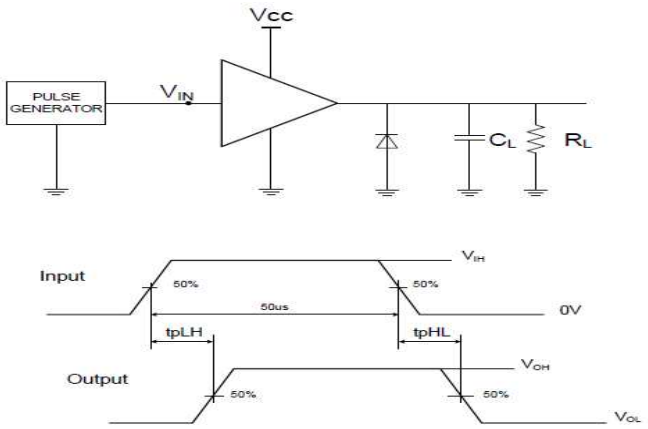
5. IR

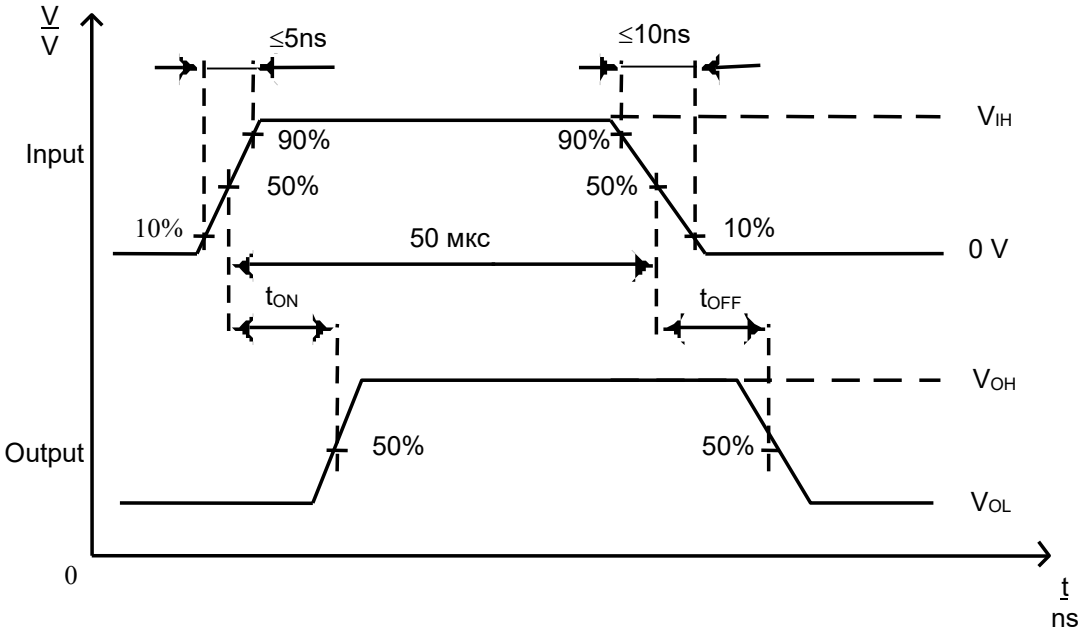


6. VF



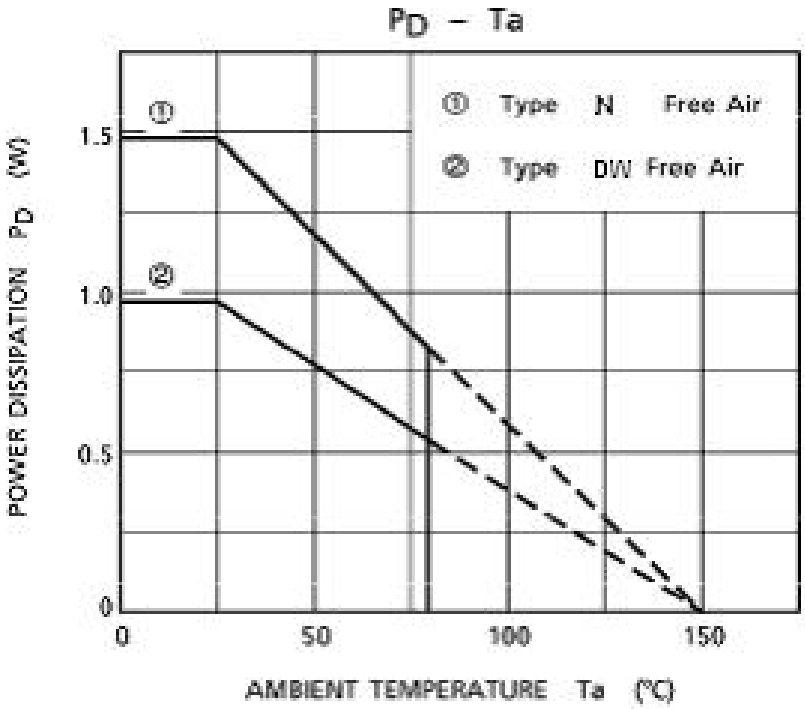
7. tON, tOFF





Pulse width 50 μs, ratio (duty cycle) 100% • t_W / T = 10% (t_W – pulse width, μs; T – period , μs)

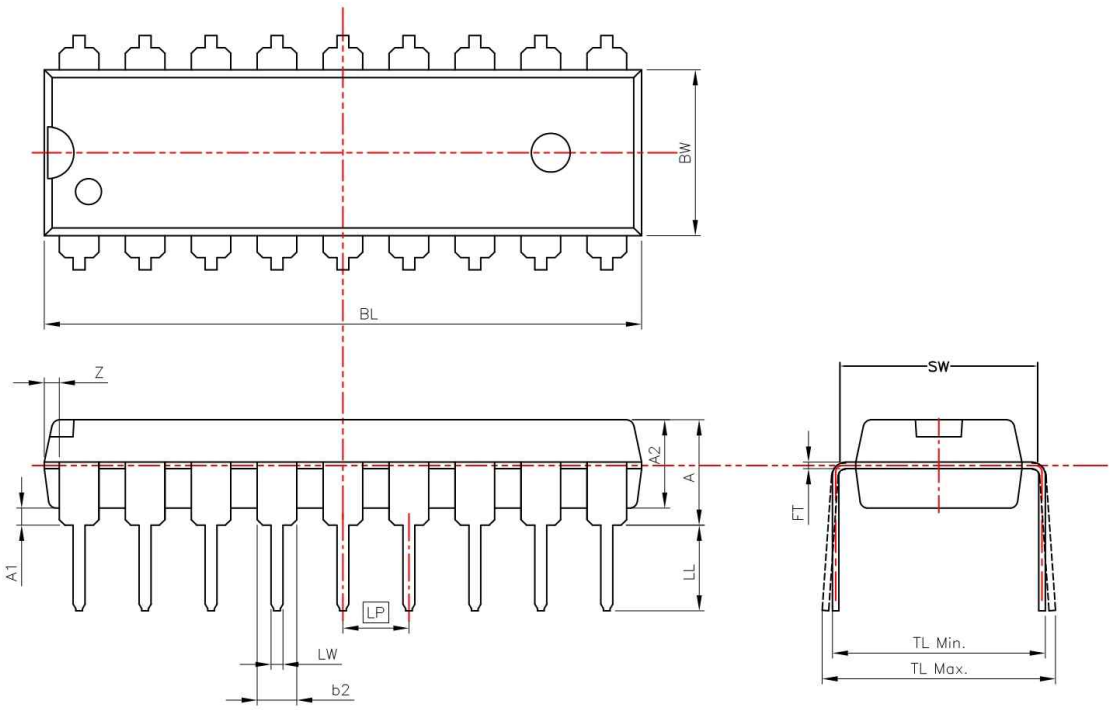
Fig. 4 – Time diagram of IK62783 at measurement of signal delay at switching -ON t_{ON} and switching -OFF t_{OFF}



PACKAGE DIMENSIONS

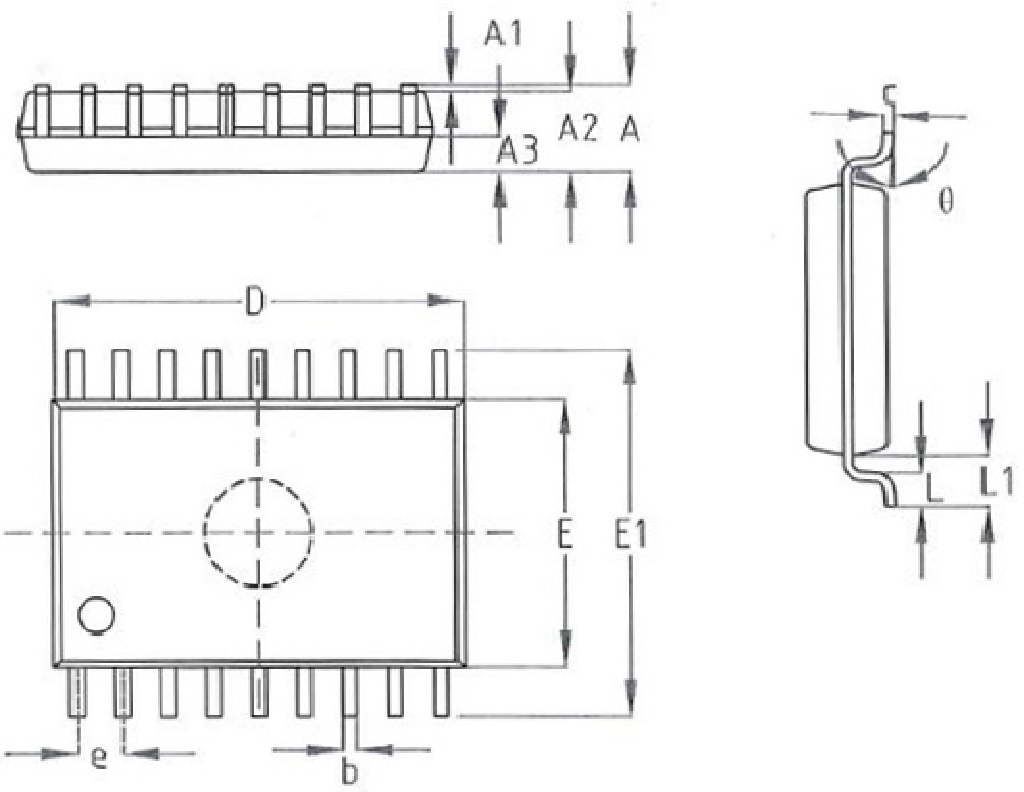
DIP-18

Unit: mm



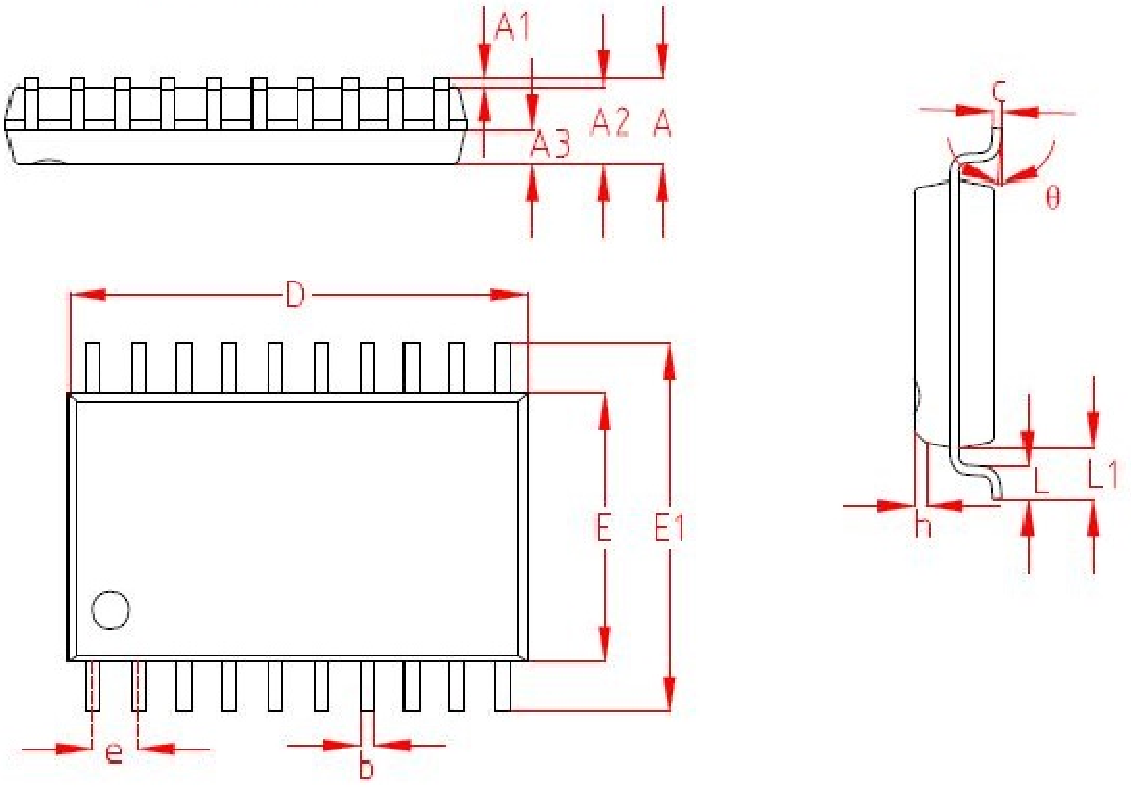
SYMBOL	Dimension (mm)		
	Min	Typ	Max
BL	22.800		23.200
BW	6.200		6.600
FT	0.246		0.262
TL	7.900		8.800
LP	2.515		2.565
LW	0.432		0.482
A			4.310
A1	0.550		0.750
A2	3.300		3.500
b2		1.524	
LL	3.200		3.500
SW		7.620	
Z		0.570	

SOP-18



Symbol	Dimension, mm		
	Min	Avg	Max
A	-	-	2.65
A1	0.10	0.15	0.25
A2	2.20	2.30	2.40
A3	0.97	1.02	1.07
b	0.39	-	0.47
c	0.25	-	0.29
D	11.35	11.45	11.55
E	7.40	7.50	7.60
E1	10.10	10.30	10.50
e	1.27 BSC		
L1	1.40 REF		
L	0.70	-	1.00
θ	0	-	8

SOP-20



Symbol	Dimension, mm		
	Min	Avg	Max
A	-	-	2.65
A1	0.10	-	0.30
A2	2.25	2.30	2.35
A3	0.97	1.02	1.07
b	0.39	-	0.47
c	0.25	-	0.29
D	12.70	12.80	12.90
E	7.40	7.50	7.60
E1	10.10	10.30	10.50
e	1.27 BSC		
L1	1.40 REF		
h	0.25	-	0.75
L	0.70	-	1.00
θ	0	-	8