

## 8CH DARLINGTON SOURCE DRIVER

**IK62783/4**

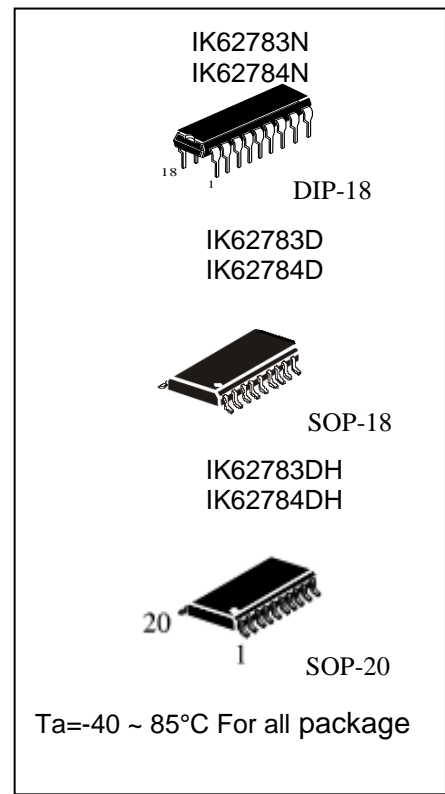
The IK62783, IK62784 are eight current drivers with common power supply and ground.

The IK62783, IK62784 are purposed to use different devices: relays, lamps, displays (LED & gas discharge cells), in fluorescent indicators, telecommunication lines and logic devices.

### FEATURES

- High output voltage up to 50V
- One channel output current up to minus 500 mA
- Output clamp diodes
- Single supply voltage 50V

Permissible value of electrostatic potential 2000V



**Table 1 – ELECTRIC CIRCUITRY DIFFERENCE OF ICS**

IC Marking	Quantity of Serially Connected Diodes	Applicable with ICs
IK62783N/D/DH	3	TTL, 5 V CMOS
IK62784N/D/DH	6	6 ~ 15 V P-MOS, CMOS

**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		Norm		Unit
			Min	Max	
V <sub>CC</sub>	Supply voltage		-	50	V
I <sub>OUT</sub>	Output current (one channel)		-	-500	mA
V <sub>IN</sub>	Input voltage for IK62783		-0.5	15	V
	for IK62784		-0.5	30	
V <sub>R</sub>	Clamp diode reverse voltage		-	50	V
I <sub>F</sub>	Clamp diode forward current		-	500	mA
T <sub>stg</sub>	Storage temperature		-60	150	°C
P <sub>D</sub>	Power Dissipation	IK62783/4N	1.47		W
		IK62783/4DW/DH	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**

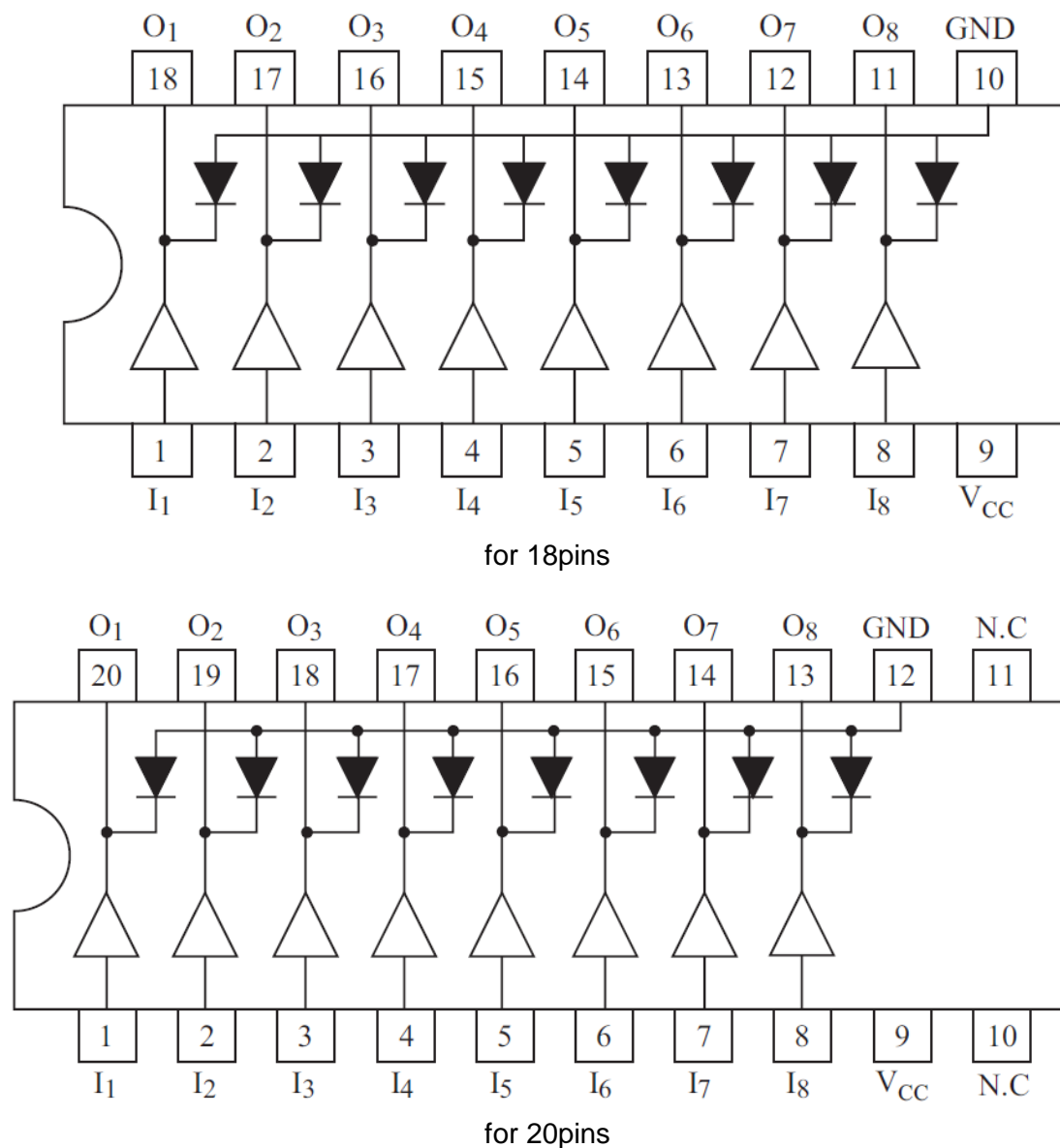
Symbol	Parameter		Norm		Unit
			Min	Max	
V <sub>CC</sub>	Supply voltage		-	50	V
I <sub>OUT</sub>	Output current (one channel)		-	-350	mA
V <sub>R</sub>	Control pin diode reverse voltage		-	50	V
I <sub>F</sub>	Control pin diode forward current		-	400	mA
P <sub>D</sub>	Power Dissipation	IK62783/4N	-	0.52	W
		IK62783/4DW/DH	-	0.4	

## ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Measurement mode	P/N	Norm		Ta (°C)	Unit
				Min	Max		
V <sub>IN(ON)</sub>	Input voltage at open (ON) state of output	I <sub>OUT</sub> = -350 mA V <sub>CE</sub> = 2 V	IK62783	-	$\frac{2.0}{2.4}$	$\frac{25 \pm 10}{-40 \text{ to } 85}$	V
			IK62784	-	$\frac{4.5}{5.4}$		
V <sub>IN(OFF)</sub>	Input voltage at close (OFF) state of output,	I <sub>OUT</sub> = -500 μA	IK62783	$\frac{0.8}{0.64}$	-		V
			IK62784	$\frac{2.0}{1.6}$	-		
I <sub>CC(ON)</sub>	Consumption current	V <sub>IN</sub> = 2 V V <sub>CC</sub> = 50 V	IK62783	-	$\frac{2.5}{3.0}$		mA
		V <sub>IN</sub> = 4.5 V V <sub>CC</sub> = 50 V	IK62784				
V <sub>CE(sat)</sub>	Collector-emitter saturation voltage	I <sub>OUT</sub> = -100 mA V <sub>IN</sub> = 2 V	IK62783	-	$\frac{1.8}{2.16}$		V
		I <sub>OUT</sub> = -225 mA V <sub>IN</sub> = 2 V			$\frac{1.9}{2.28}$		
		I <sub>OUT</sub> = -350 mA V <sub>IN</sub> = 2 V			$\frac{2.0}{2.4}$		
		I <sub>OUT</sub> = -100 mA V <sub>IN</sub> = 4.5 V	IK62784		$\frac{1.8}{2.16}$		
		I <sub>OUT</sub> = -225 mA V <sub>IN</sub> = 4.5 V			$\frac{1.9}{2.28}$		
		I <sub>OUT</sub> = -350 mA V <sub>IN</sub> = 4.5 V			$\frac{2.0}{2.4}$		
I <sub>CEX</sub>	Output leakage current at close (OFF) state of output	V <sub>CC</sub> = 50 V V <sub>IN</sub> = 0.4 V		-	100	25±10	μA
V <sub>F</sub>	Forward DC voltage of clamp diode	I <sub>F</sub> = 350 mA		-	$\frac{2.0}{2.4}$	$\frac{25 \pm 10}{-40 \text{ to } 85}$	V
I <sub>IN(ON)</sub>	Input current	V <sub>IN</sub> = 2.4 V	IK62783	-	$\frac{0.052}{0.062}$		mA
		V <sub>IN</sub> = 3.85 V			$\frac{0.26}{0.31}$		
		V <sub>IN</sub> = 5 V	IK62784		$\frac{0.13}{0.156}$		
		V <sub>IN</sub> = 12 V			$\frac{1.13}{1.356}$		
I <sub>R</sub>	Reverse current of clamp diode	V <sub>R</sub> = 50 V		-	$\frac{50}{60}$	μA	

**TYPICAL ELECTRIC PARAMETERS at Ta = 25 °C**

Symbol	Parameter	Measurement mode	Typical value	Unit
t <sub>ON</sub>	Switch -ON delay	R <sub>L</sub> = 125 Ω, V <sub>CC</sub> = 50 V	0.15	μs
t <sub>OFF</sub>	Switch-OFF delay	C <sub>L</sub> = 15 pF	3.0	μs



**Fig 1 – Electric block diagram**

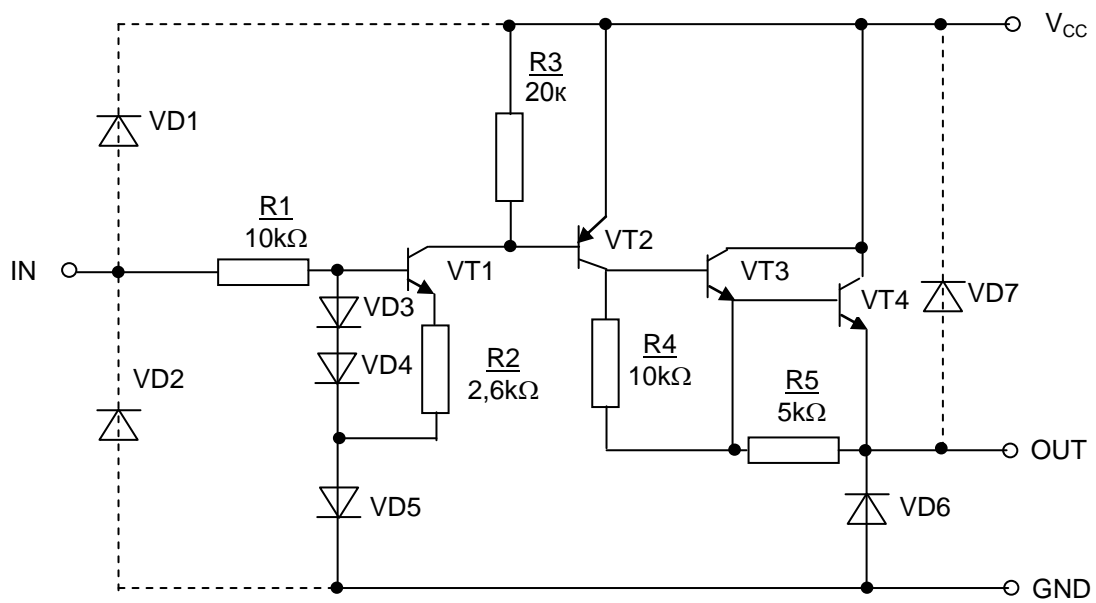


Fig. 2 – Electrical scheme of one channel of ICs IK62783

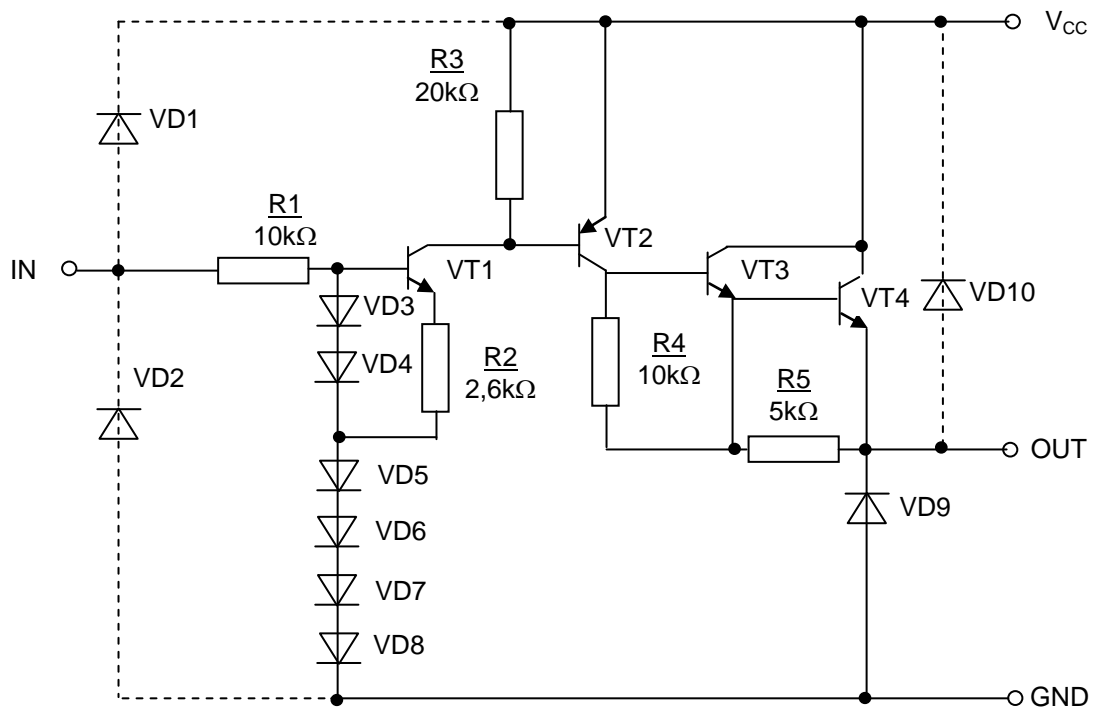
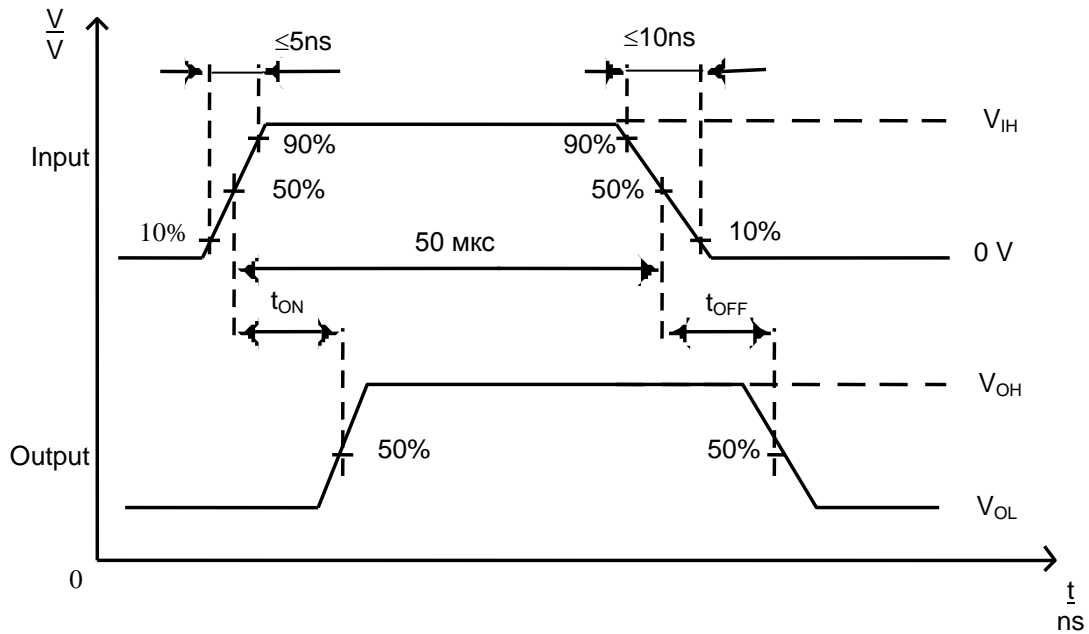
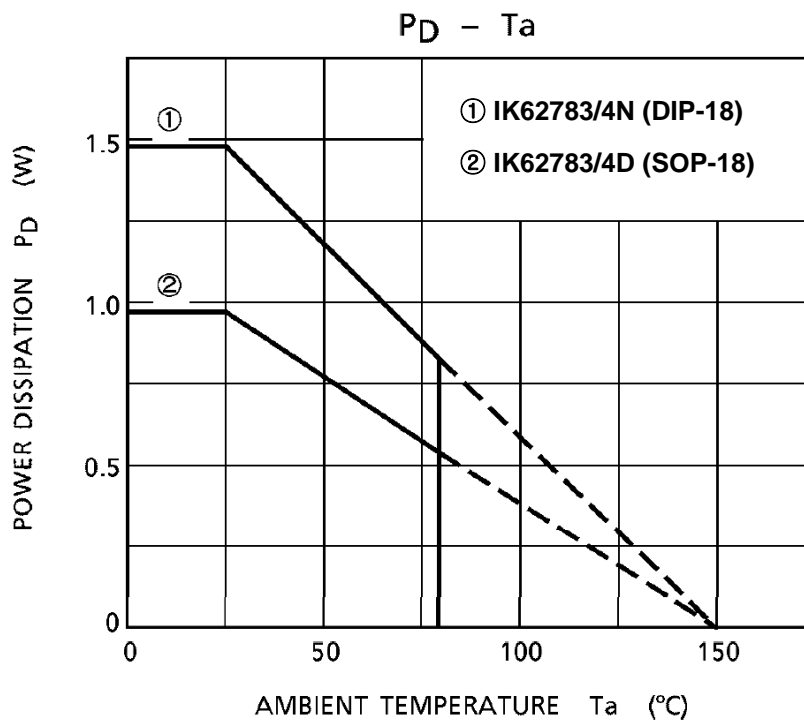


Fig. 3 – Electrical scheme of one channel of ICs IK62784



Pulse width 50  $\mu$ s, ratio (duty cycle) 100% •  $t_w / T = 10\%$  (  $t_w$  – pulse width,  $\mu$ s; T – period ,  $\mu$ s)

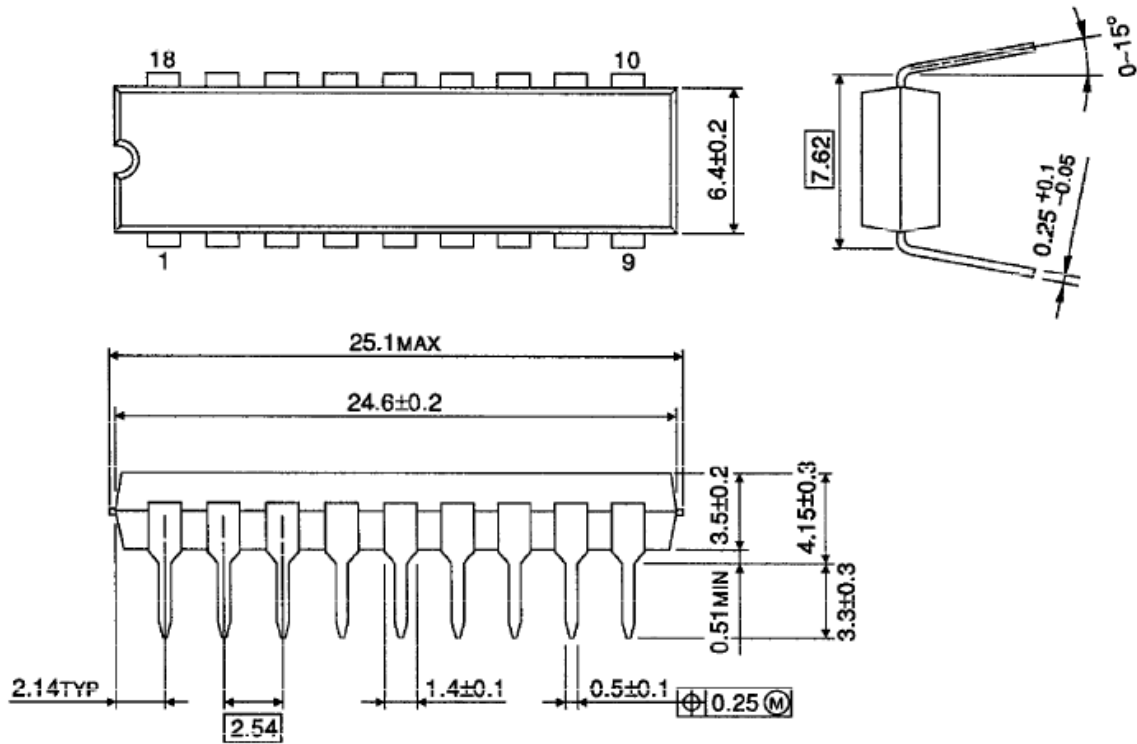
Fig. 4 – Time diagram of IK62783, IK62784 at measurement of signal delay at switching -ON  $t_{ON}$  and switching -OFF  $t_{OFF}$



PACKAGE DIMENSIONS

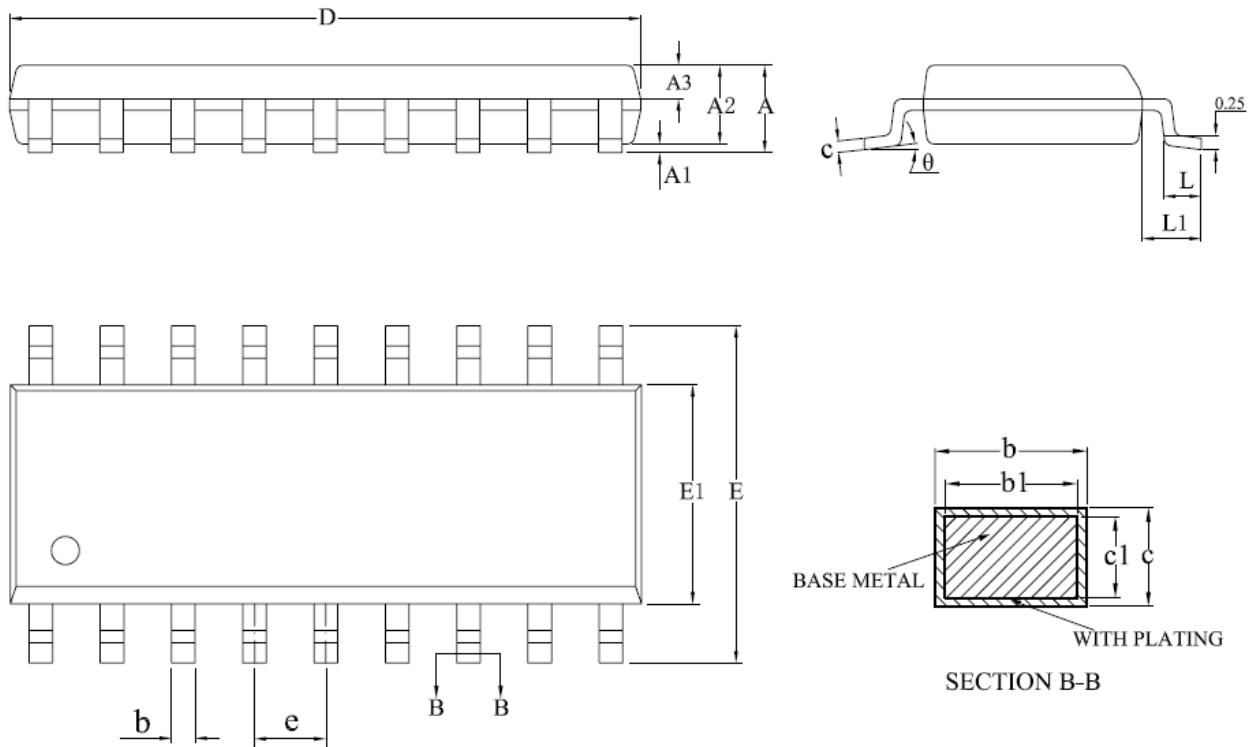
DIP-18

Unit: mm



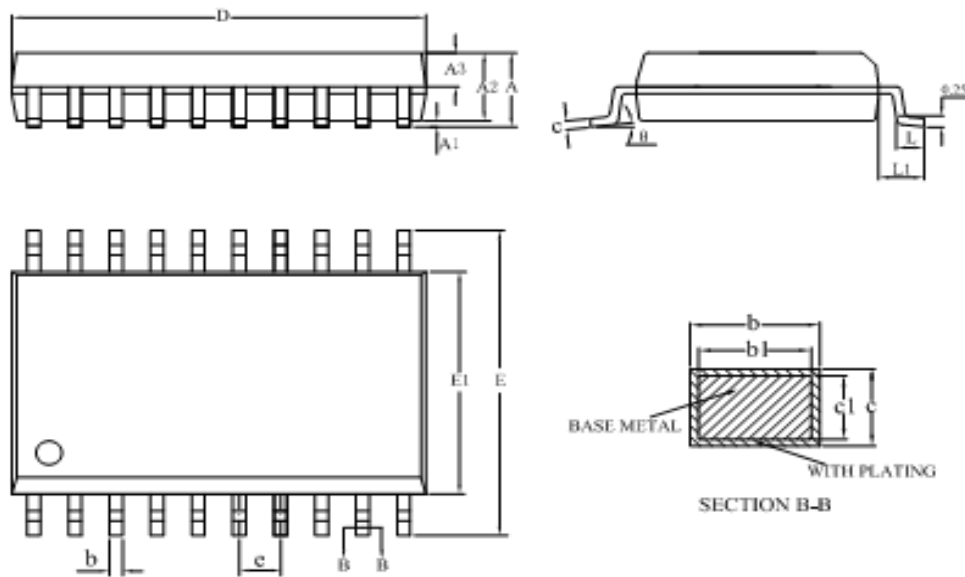


SOP-18



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	2.70
A1	0.10	—	0.28
A2	2.25	2.30	2.35
A3	0.97	1.02	1.07
b	0.35	—	0.44
b1	0.34	0.37	0.39
c	0.26	—	0.31
c1	0.24	0.25	0.26
D	11.25	11.45	11.65
E	10.10	10.30	10.50
E1	7.30	7.50	7.70
e	1.27BSC		
L	0.70	—	1.00
L1	1.40BSC		
θ	0	—	8°
L/P载体尺寸 (mil)	140*160		

SOP-20



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	2.70
A1	0.10	0.20	0.30
A2	2.10	2.30	2.50
A3	0.92	1.02	1.12
b	0.35	—	0.44
b1	0.34	0.37	0.39
c	0.26	—	0.31
c1	0.24	0.25	0.26
D	12.60	12.80	13.00
E	10.10	10.30	10.50
E1	7.30	7.50	7.70
e	1.27BSC		
L	0.70	0.85	1.00
L1	1.40BSC		
$\theta$	0	—	$8^\circ$
L/F载体尺寸 (mil)	140*160		
	160*250		