

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

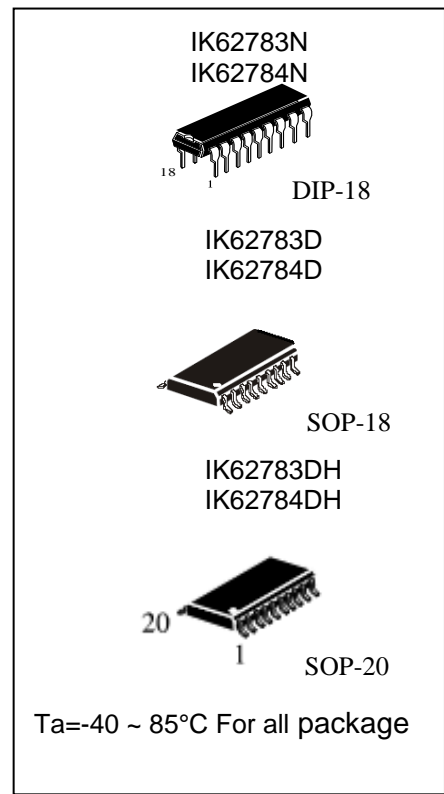


Table 1 – ELECTRIC CIRCUITRY DIFFERENCE OF ICS

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		Min	Max	Unit
V _{CC}	Supply voltage		-	50	V
I _{out}	Output Current (One Channel)		-	-500	mA/ch
V _{IN}	Input voltage for IK62783		-0.5	15	V
	for IK62784		-0.5	30	
V _R	Clamp diode reverse voltage		-	50	V
I _F	Clamp diode forward current		-	500	mA
T _{stg}	Storage temperature		-60	150	°C
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 °C Tj=120 °C 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	
P _D	Power Dissipation	DIP	-	0.52		W	
		SOP	-	0.4		W	

ELECTRICAL CHARACTERISTICS

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

TYPICAL ELECTRIC PARAMETERS at Ta = 25 °C

Symbol	Parameter	Measurement mode	Typical value	Unit
t _{ON}	Switch -ON delay	R _L = 125 Ω, V _{CC} = 50 V	0.15	μs
t _{OFF}	Switch-OFF delay	C _L = 15 pF	3.0	μs

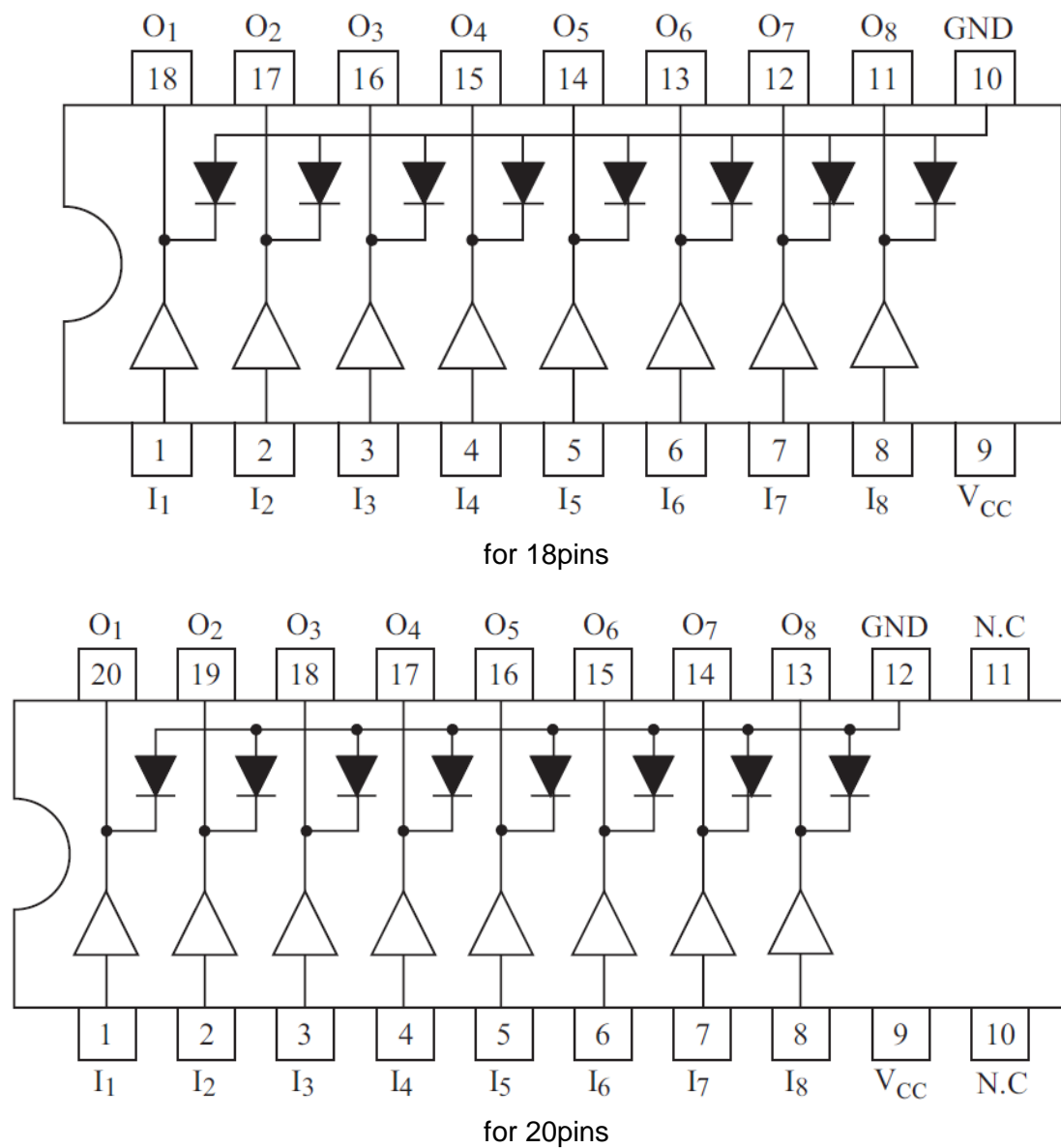


Fig 1 – Electric block diagram

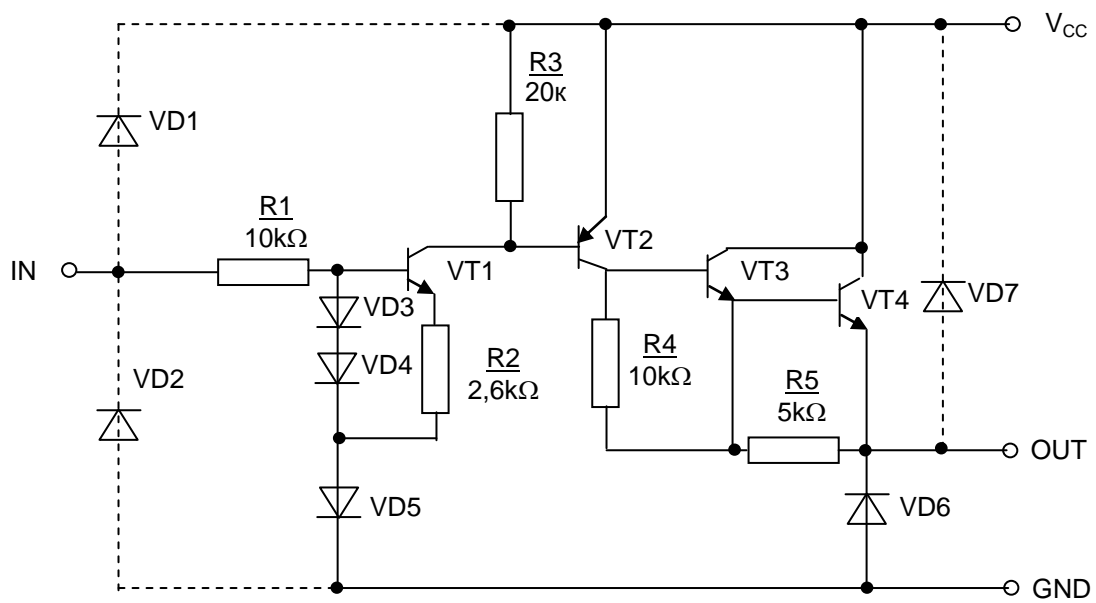


Fig. 2 – Electrical scheme of one channel of ICs IK62783

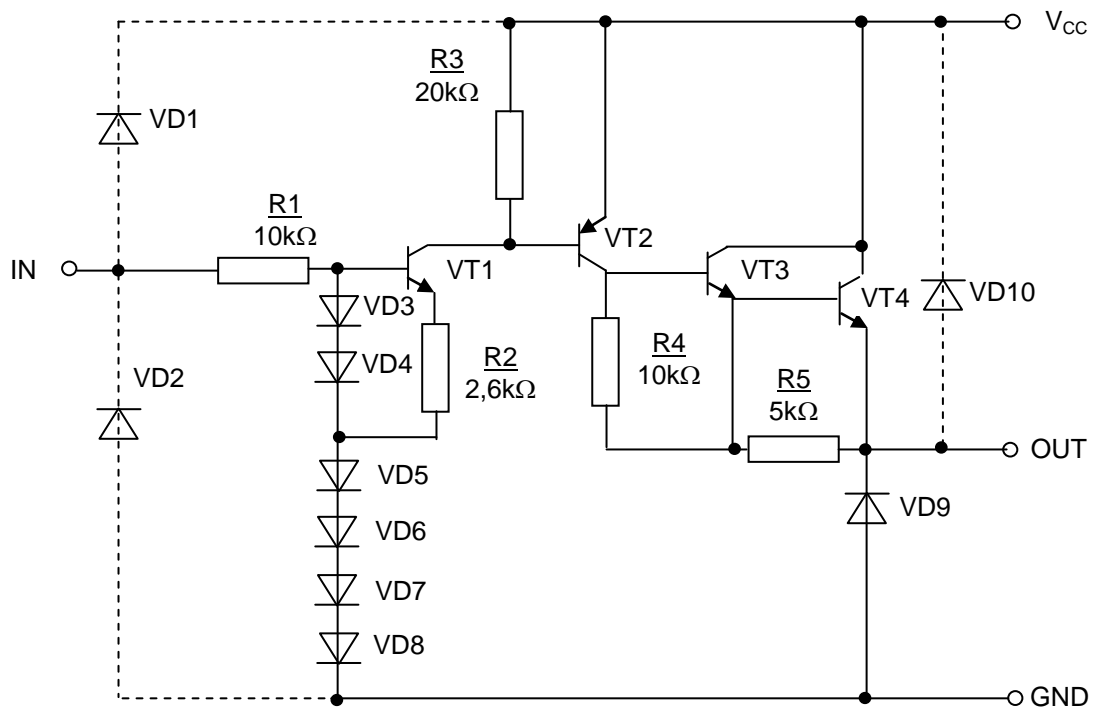
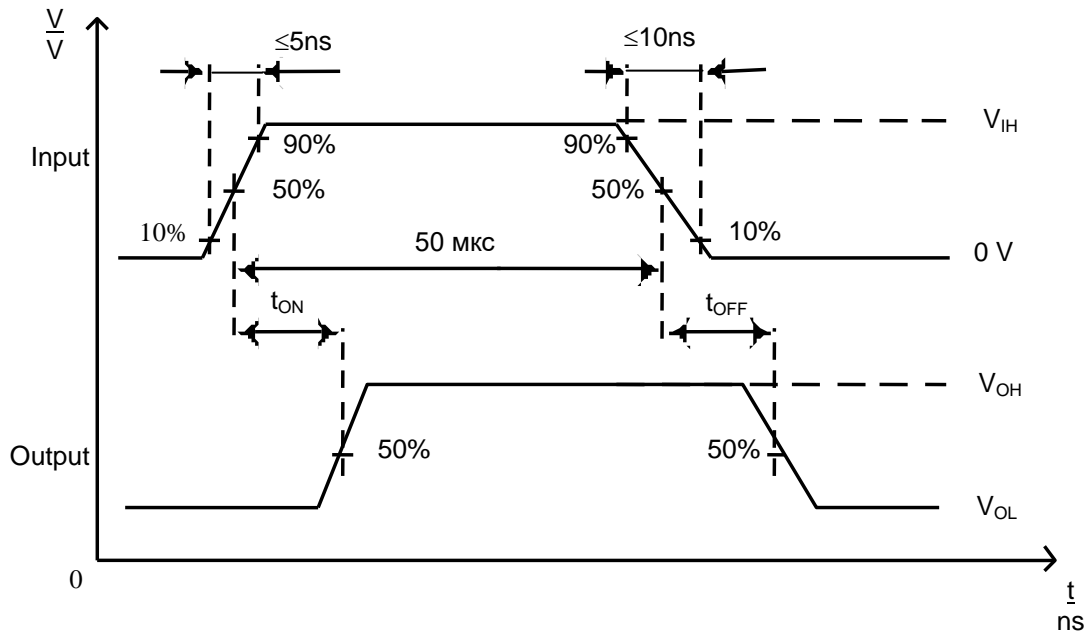
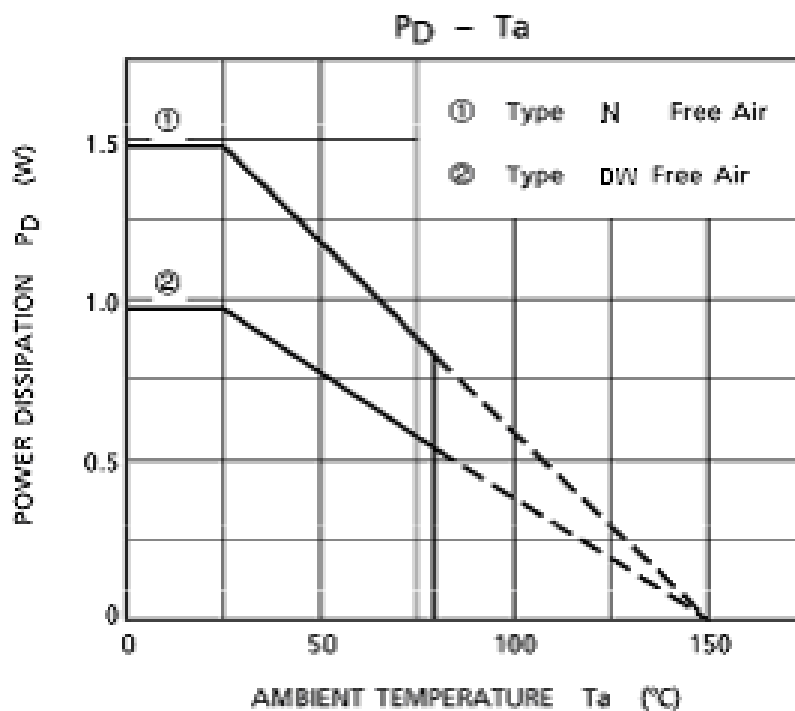


Fig. 3 – Electrical scheme of one channel of ICs IK62784



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

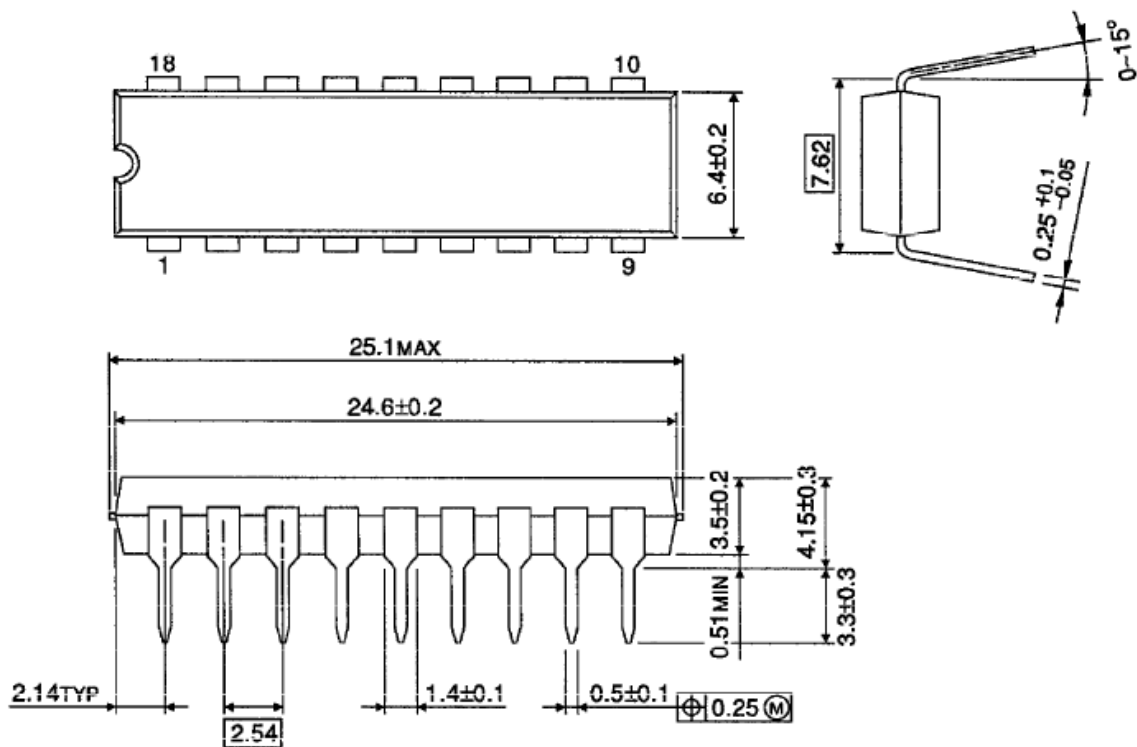
Fig. 4 – Time diagram of IK62783, IK62784 at measurement of signal delay at switching -ON t_{ON} and switching -OFF t_{OFF}



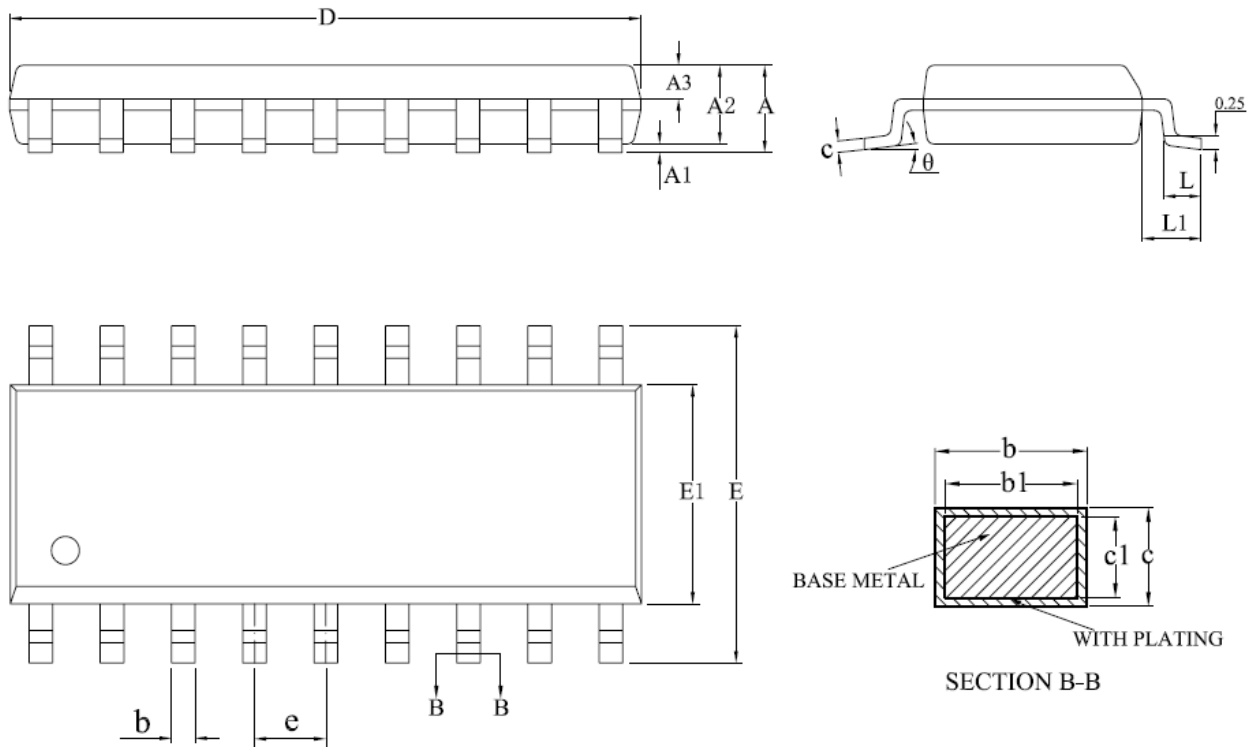
PACKAGE DIMENSIONS

DIP-18

Unit: mm

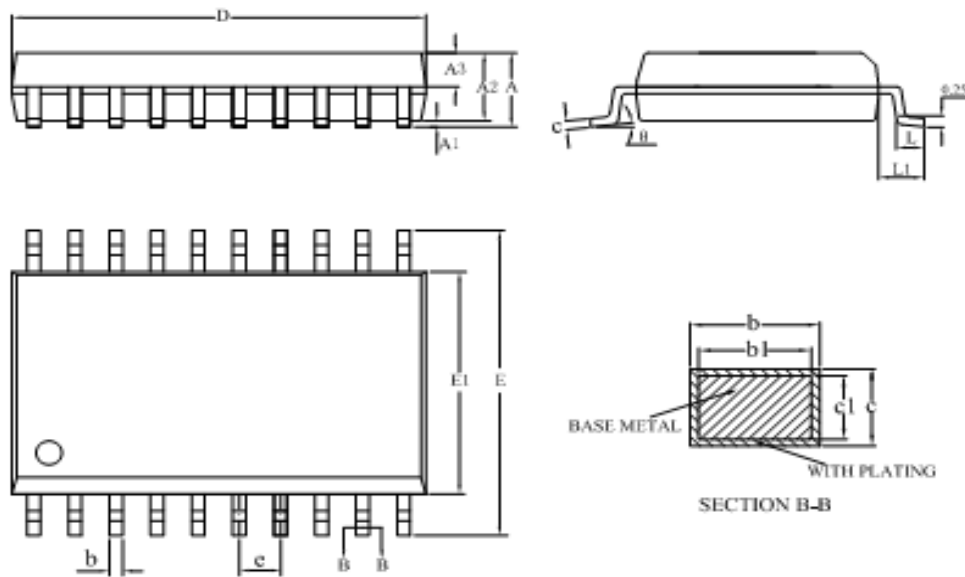


SOP-18



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		
θ	0	—	8°
L/F载体尺寸 (mil)	140*160		
	160*250		