

8 channel Darlington current driver

The HT62783A, HT62784A are 8- channel current driver with common supply and ground.

The HT62783A, HT62784A are purposed in different devices: re- lays, lamps, displays (LED & gas discharge cells), telecommunication lines and logic devices.

Main features:

- The HT62783AR, HT62784AR are realized in 18-pin SOP18
- HT62783AN,HT62784AN – in 18-pin DIP18
- output sustaining voltage up to 50 V;
- one channel output current up to 500 mA;
- output clamp diodes;
- single supply voltage of drivers.

Allowable value of electrostatic potential 2000V

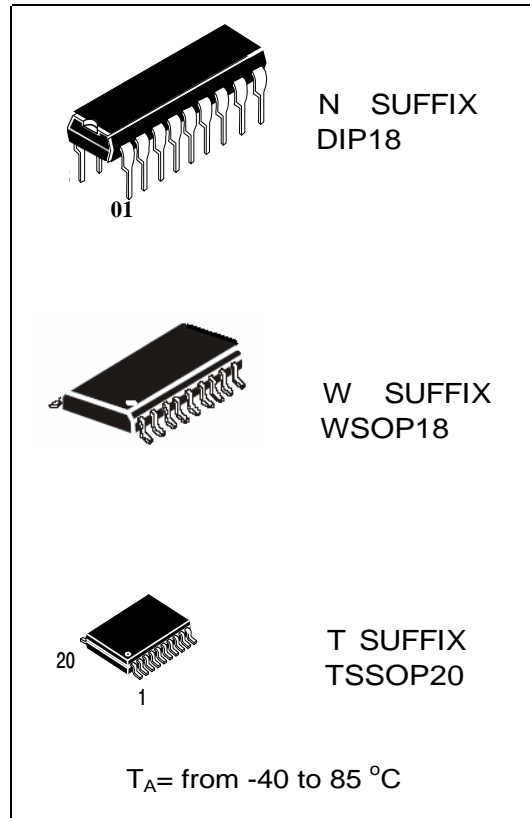


Table 1 – Electric circuitry difference of ICs

IC marking	Number of serially connected diodes	Applicable with ICs
HT62783A	3	TTL, 5 V CMOS
HT62784A	6	6 ÷ 15 V P-MOS, CMOS

Schematics (each driver)

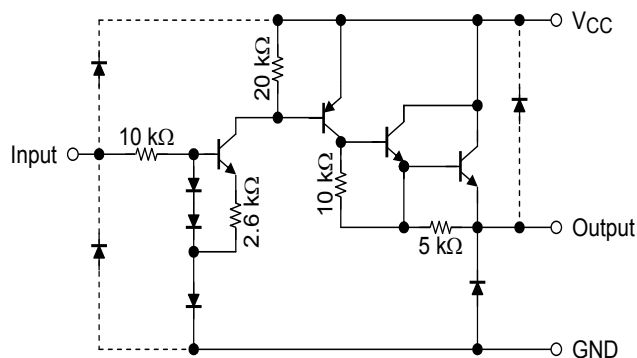
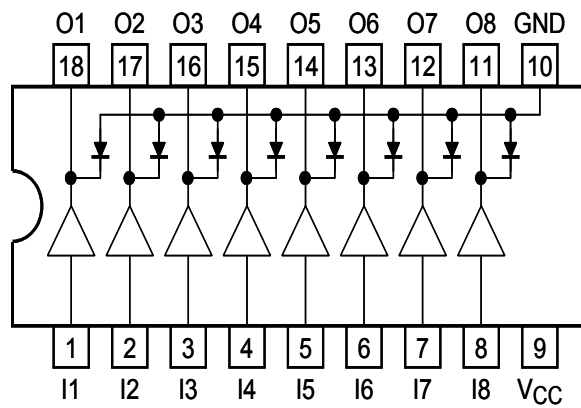
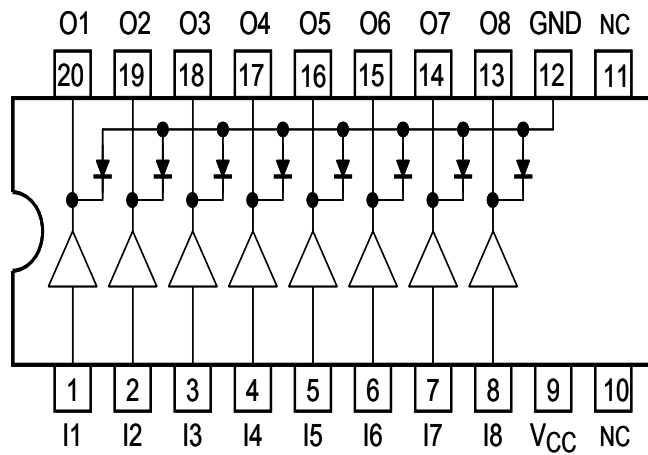


Table 2 -Pin Assignment (top view)

(WSOP18,DIP18)



(TSSOP20,SSOP20)



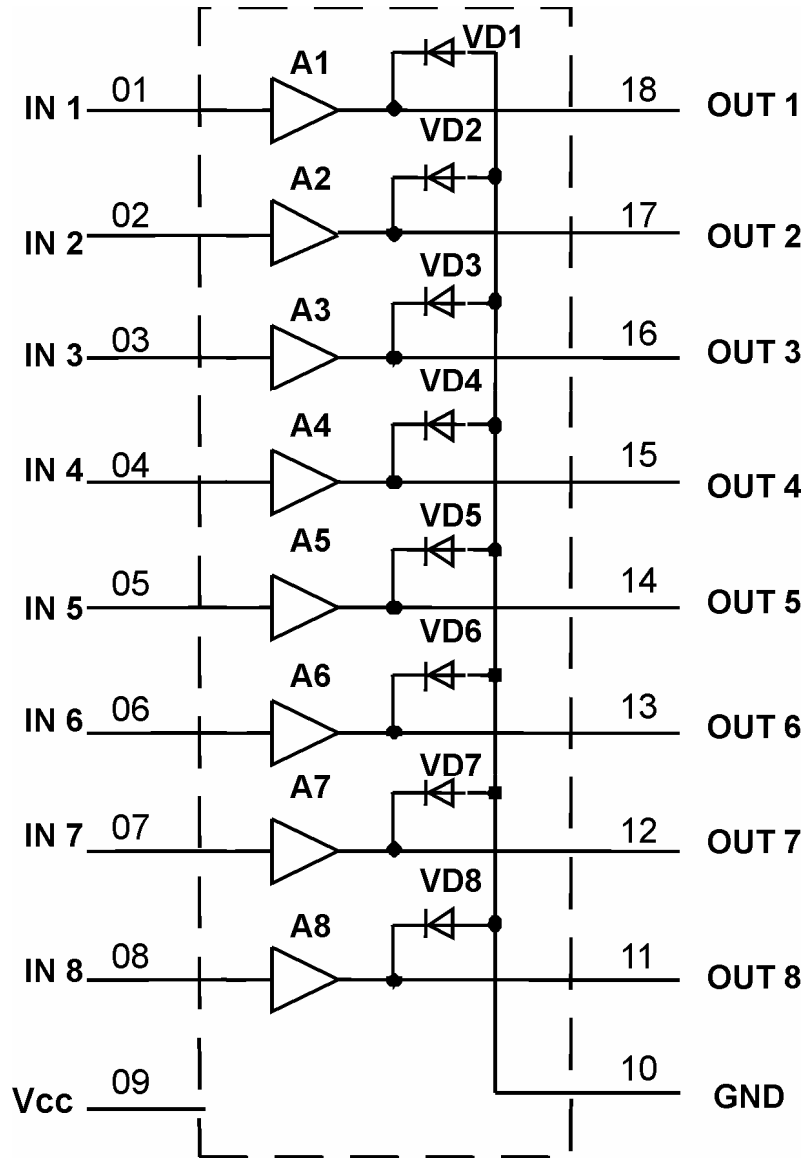


Fig 2 – Electric block diagram

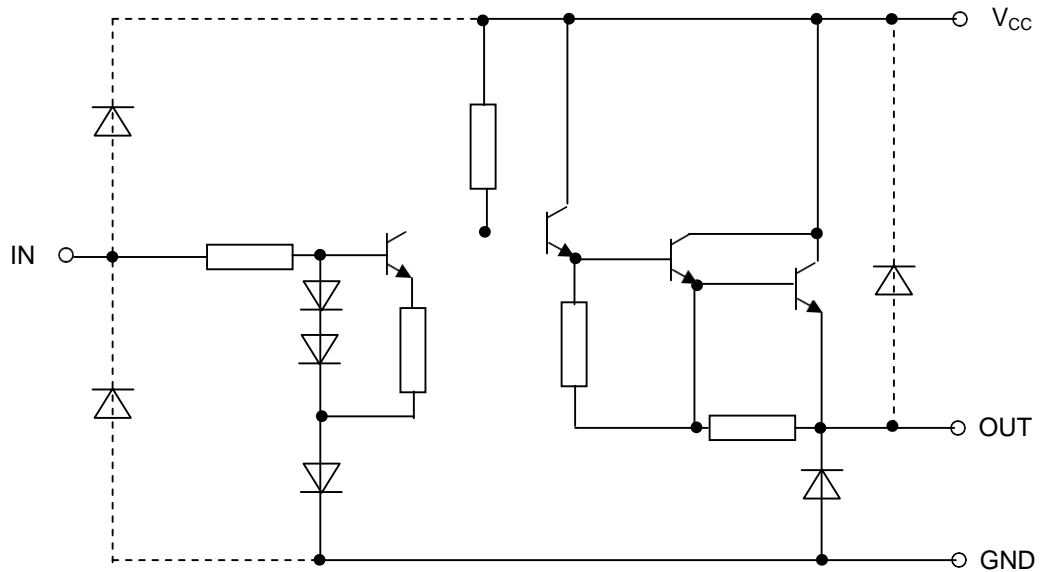


Fig. 3 – Electrical scheme of one channel of HT62783A

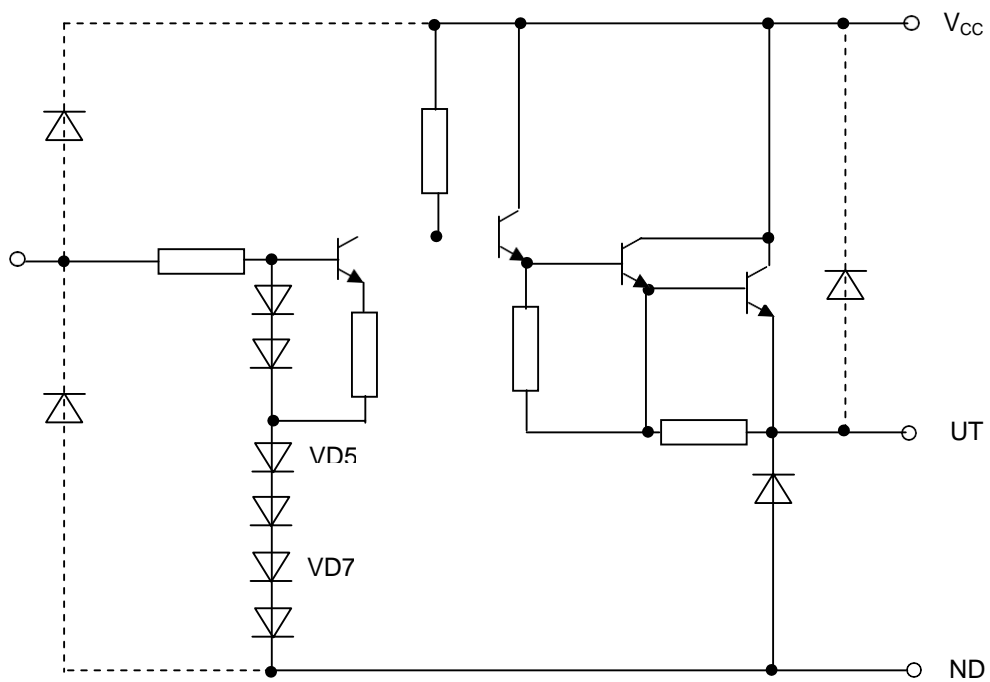


Fig. 4 – Electrical scheme of one channel of HT62784A

Table 3 –Maximum ratings

Symbol	Parameter	Norm		Unit
		Min	Max	
V_{CC}	Supply voltage	-0,5	50	V
I_{OUT}	Output current (one channel)	-	-500*	mA
V_{IN}	Input voltage HT62783	-0,5	15	V
	HT62784	-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**	-	0,96*	W

 *On PCB with dimensions 50 × 50 × 1,6 mm, 40% Cu.
 ** Of HT62783, HT62784

Table 4 – Recommended operation modes

Symbol	Parameter	Norm		Unit
		Min	Max	
V_{CC}	Supply voltage	0	50	V
I_{OUT}	Output current (one channel)	-	-350*	mA
	8 channels at Duty 10% $T_{pw} = 25$ ms, $T_a = 85$ °C, $T_j = 120$ °C	-	-180*	
	Duty 50%	-	-38*	
V_R	Clamp diode reverse voltage	-	50	V
I_F	Clamp diode forward current	-	400	mA
P_D	Power dissipation **	-	0,4*	W

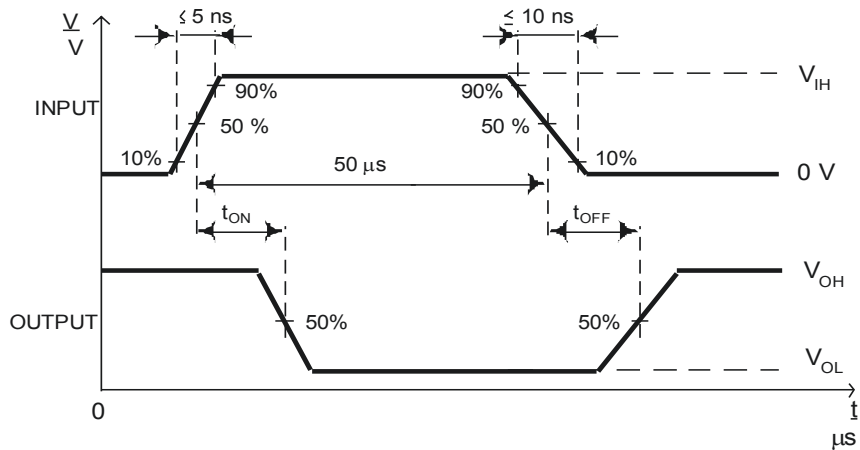
 *On PCB with dimensions 50 × 50 × 1,6 mm, 40% Cu.
 ** Of HT62783, HT62784

Table 5 – Electric parameters of ICs

Symbol	Parameter	Measurement mode	Norm		Ambient, temperature °C	Unit
			Min	Max		
$V_{IN(ON)}$	Input voltage	$V_{CE} = 2\text{ V}$ $V_{CE} = 2,4\text{ V}$ $I_{OUT} = 350\text{ mA}$	-	$\frac{2,0}{2,4}$	$\frac{25\pm 10}{-40}$ 85	V
	HT62783A		-	$\frac{4,5}{5,4}$		
$V_{IN(OFF)}$	Input voltage	$I_{OUT} = 500\ \mu\text{A}$	$\frac{0,8}{0,64}$	-	$\frac{25\pm 10}{-40}$ 85	mA
	HT62783A		$\frac{2,0}{1,6}$	-		
$I_{CC(ON)}$	Supply current	$V_{IN} = 2\text{ V}$ $V_{CC} = 50\text{ V}$	-	$\frac{2,5}{3,0}$	$\frac{25\pm 10}{-40}$ 85	mA
	HT62783A		$V_{IN} = 4,5\text{ V}$ $V_{CC} = 50\text{ V}$	-		
$V_{CE(sat)}$	Output saturation voltage HT62783A	$I_{OUT} = -100\text{ mA}$ $V_{IN} = 2\text{ V}$	-	$\frac{1,8}{2,16}$	$\frac{25\pm 10}{-40}$ 85	V
		$I_{OUT} = -225\text{ mA}$ $V_{IN} = 2\text{ V}$	-	$\frac{1,9}{2,28}$		
		$I_{OUT} = -350\text{ mA}$ $V_{IN} = 2\text{ V}$	-	$\frac{2,0}{2,4}$		
	HT62784A	$I_{OUT} = -100\text{ mA}$ $V_{IN} = 4,5\text{ V}$	-	$\frac{1,8}{2,16}$		
		$I_{OUT} = -225\text{ mA}$ $V_{IN} = 4,5\text{ V}$	-	$\frac{1,9}{2,28}$		
		$I_{OUT} = -350\text{ mA}$ $V_{IN} = 4,5\text{ V}$	-	$\frac{2,0}{2,4}$		
I_{CEX}	Output leakage current	$V_{CC} = 50\text{ V}$ $V_{IN} = 0,4\text{ V}$	-	100	25 ± 10	μA
V_F	Clamp diode forward voltage	$I_F = 350\text{ mA}$	-	$\frac{2,0}{2,4}$	$\frac{25\pm 10}{-40}$ 85	V
			$I_F = 400\text{ mA}$	-		
$I_{IN(ON)}$	Input current HT62783A	$V_{IN} = 2,4\text{ V}$	-	$\frac{0,052}{0,062}$	$\frac{25\pm 10}{-40}$ 85	mA
		$V_{IN} = 3,85\text{ V}$	-	$\frac{0,26}{0,31}$		
	HT62784A	$V_{IN} = 5\text{ V}$	-	$\frac{0,13}{0,156}$		
		$V_{IN} = 12\text{ V}$	-	$\frac{1,13}{1,356}$		
I_R	Clamp diode reverse current	$V_R = 50\text{ V}$	-	$\frac{50}{60}$		μA

Table 6 – Typical electric parameters at Ta = 25 °C

Symbol	Parameter	Measurement mode	Typical value	Unit
t_{ON}	Turn -ON delay	$R_L = 125 \Omega$, $V_{OUT} = 50 V$	0,15	μs
t_{OFF}	Turn-OFF delay		$C_L = 15 pF$	3,0

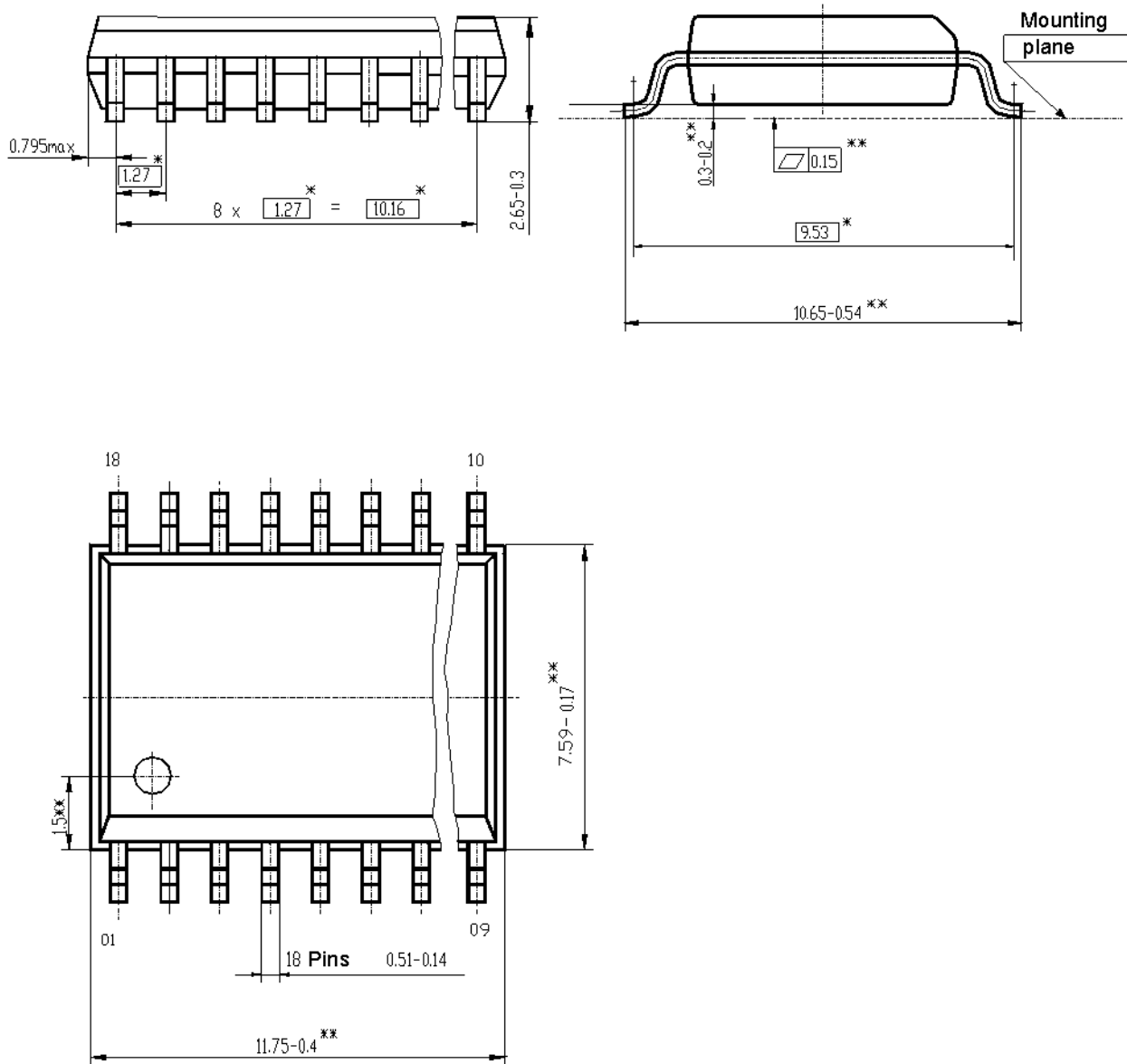

Note

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

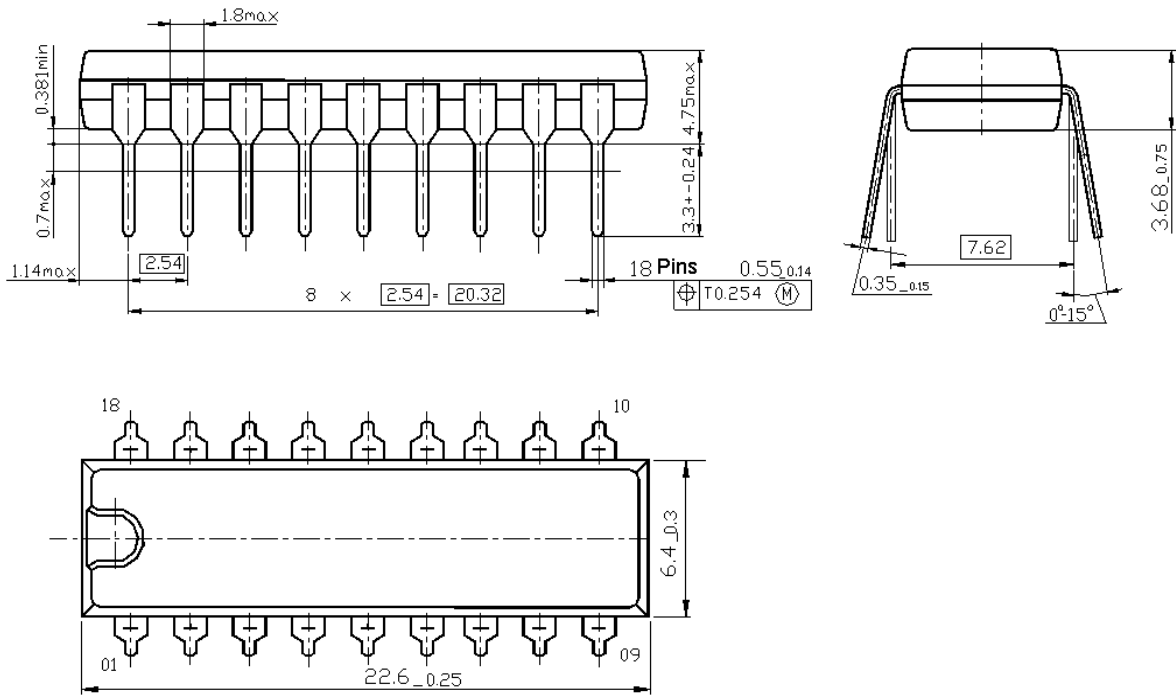
Fig. 5 – Time diagram of HT62783AR, HT62784AR, HT62783AN, HT62784AN at measurement of signal delay at turn -ON t_{ON} and turn-OFF switching t_{OFF}

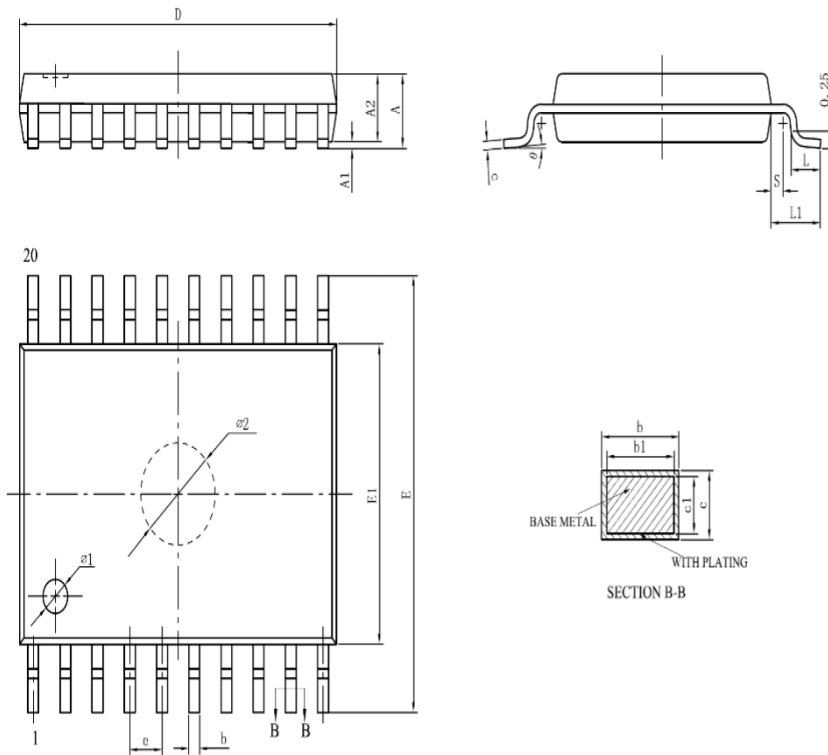
Package dimensions

WSOP18



DIP18



TSSOP20


SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.20
A1	0.05	—	0.15
A2	0.80	1.00	1.05
b	0.19	—	0.30
b1	0.19	0.22	0.25
c	0.09	—	0.20
c1	0.09	—	0.16
D	6.40	6.50	6.60
E1	4.30	4.40	4.50
E	6.20	6.40	6.60
e	0.65BSC		
L	0.45	0.60	0.75
L1	1.00BSC		
S	0.20	—	—
Ø1	Ø0.8X0.05-0.10DP		
Ø2	Ø1.50X0.05-0.15DP		
θ	0	—	8°
L/P载体尺寸 (mil)	118*165 (C)		

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