

8-channel Darlington current driver

HT62783A&HT62784A

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

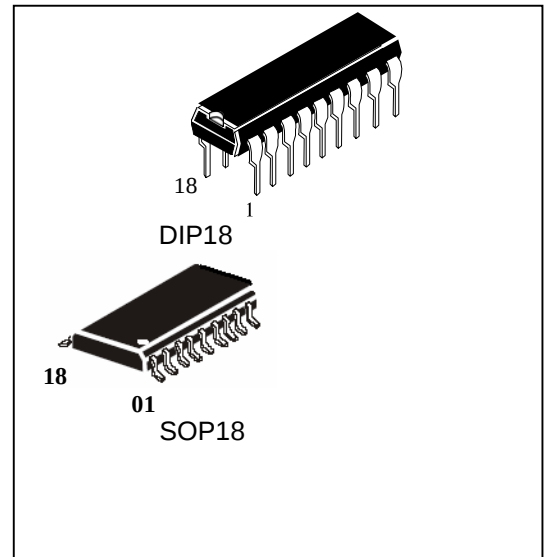




Table 2 – Package pins

Pin number (SOP18, DIP18)	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

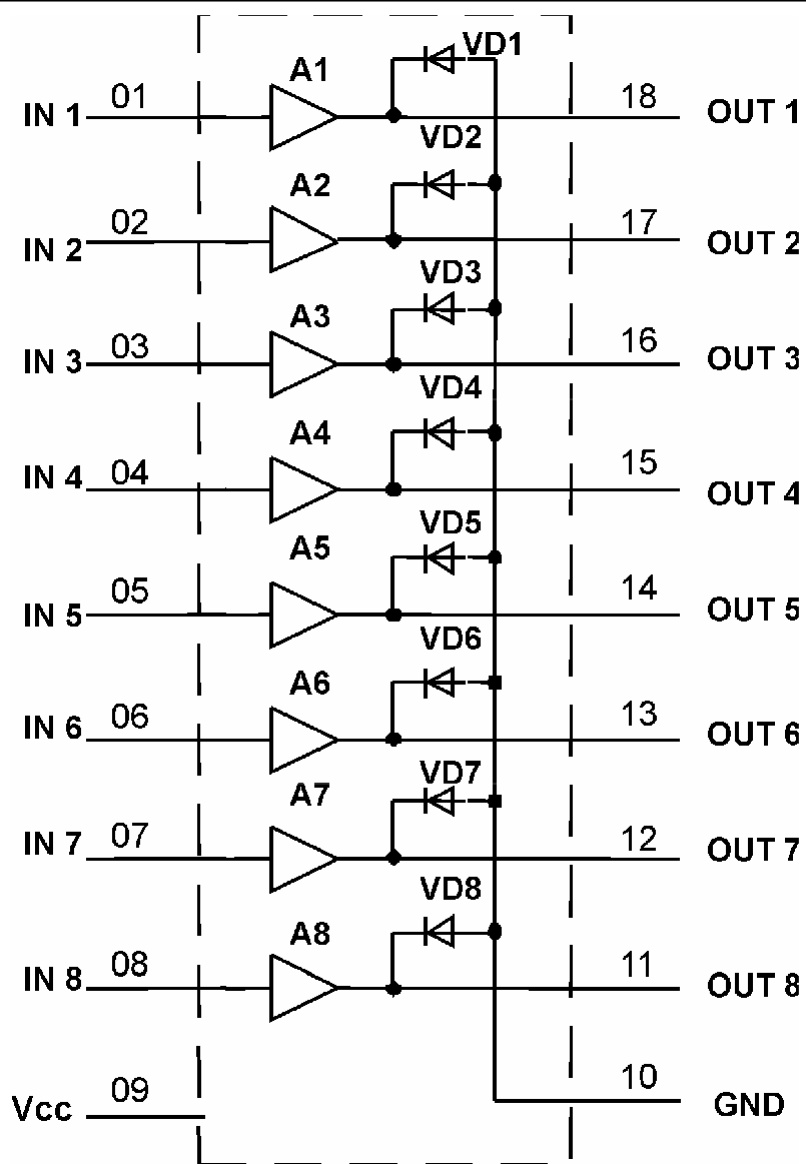


Fig 2 – Electric block diagram

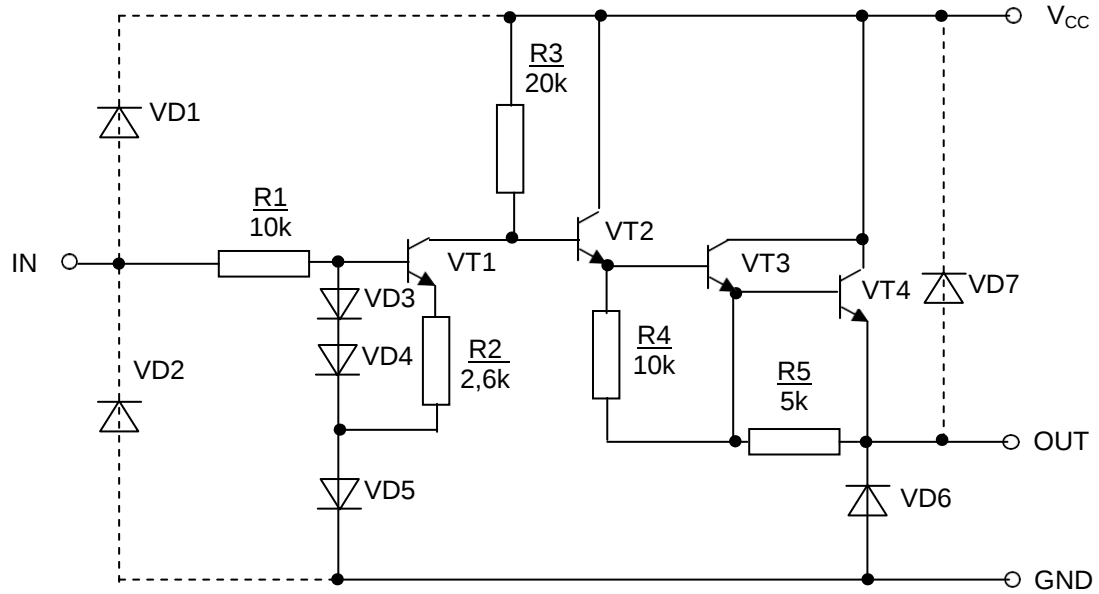


Fig. 3 – Electrical scheme of one channel of HT62783A

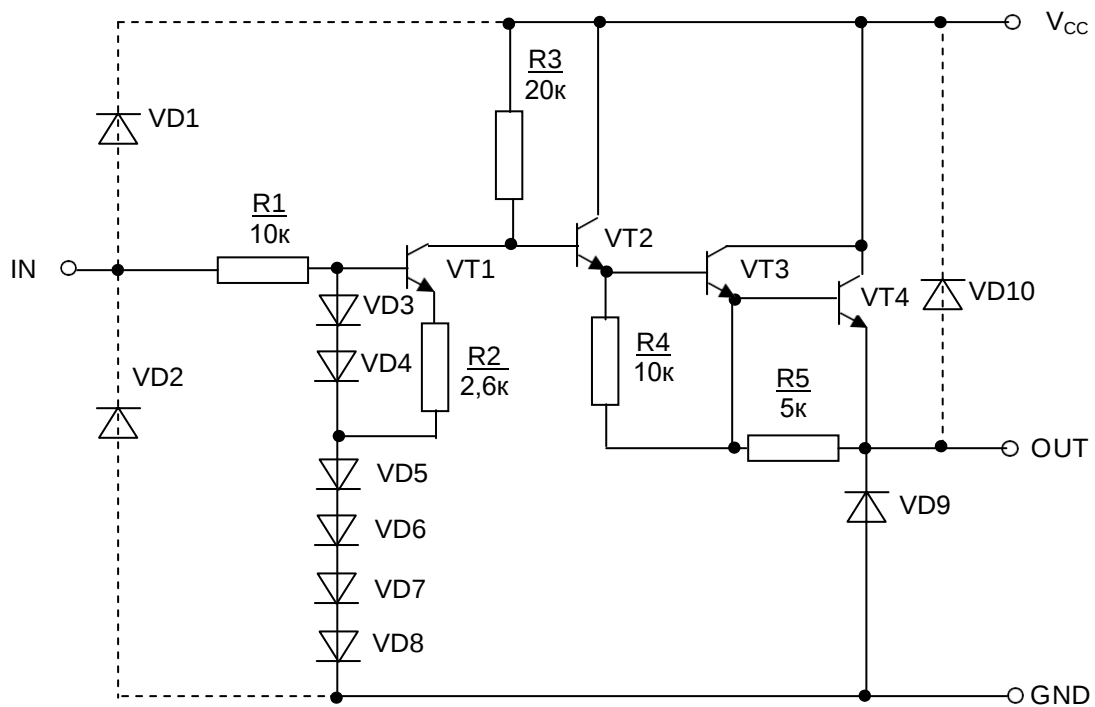


Fig. 4 – Electrical scheme of one channel of HT62784A

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 HT62783AR,HT62783AR	-0,5	15	V
	HT62784AR,HT62784AN	-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

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 $T_{pw} = 25\text{ ms}$, $T_a = 85\text{ °C}$, $T_j = 120\text{ °C}$	-	-180*	
	Duty 10%	-	-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

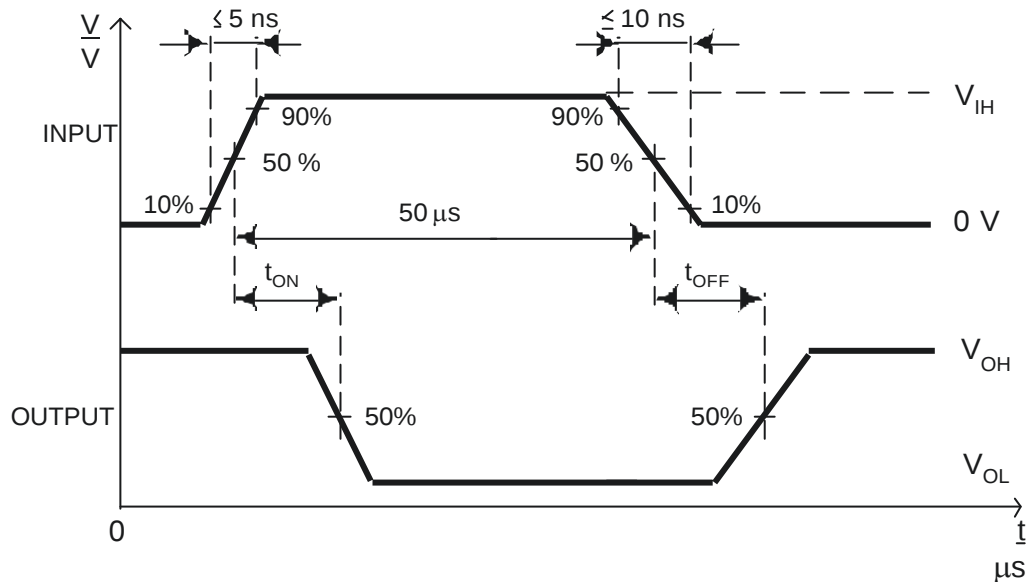


Table 5 – Electric parameters of ICs

Symbol	Parameter	Measurement mode	Norm		Ambient, temperature °C	Unit
			Min	Max		
$V_{IN(ON)}$	Input voltage HT62783A	$V_{CE} = 2\text{ V}$ $V_{CE} = 2,4\text{ V}$ $I_{OUT} = 350\text{ mA}$	-	$\frac{2,0}{2,4}$	$\frac{25\pm 10}{-40}$ 85	V
	HT62784A		-	$\frac{4,5}{5,4}$		
$V_{IN(OFF)}$	Input voltage HT62783A	$I_{OUT} = 500\text{ }\mu\text{A}$	$\frac{0,8}{0,64}$	-		
	HT62784A		$\frac{2,0}{1,6}$	-		
$I_{CC(ON)}$	Supply current HT62783A	$V_{IN} = 2\text{ V}$ $V_{CC} = 50\text{ V}$	-	$\frac{2,5}{3,0}$	$\frac{25\pm 10}{-40}$ 85	mA
	HT62784A	$V_{IN} = 4,5\text{ V}$ $V_{CC} = 50\text{ V}$				
$V_{CE(sat)}$	Output saturation voltage HT62783A	$I_{OUT} = -100\text{ mA}$ $V_{IN} = 2\text{ V}$	-	$\frac{1,8}{2,16}$		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
		$I_F = 400\text{ mA}$	-	$\frac{3,0}{3,6}$		
$I_{IN(ON)}$	Input current HT62783A	$V_{IN} = 2,4\text{ V}$	-	$\frac{0,052}{0,062}$		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	$R_L = 125 \Omega, V_{OUT} = 50 V$ $C_L = 15 pF$	0,15	μs
t_{OFF}	Turn-OFF delay		3,0	μs



Note

Pulse width is 50 μs , ratio (duty cycle) 100% • $t_w / T = 10\%$ (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}

