

**TD62101P/F,TD62103P/F
TD62104P/F,TD62105P/F**

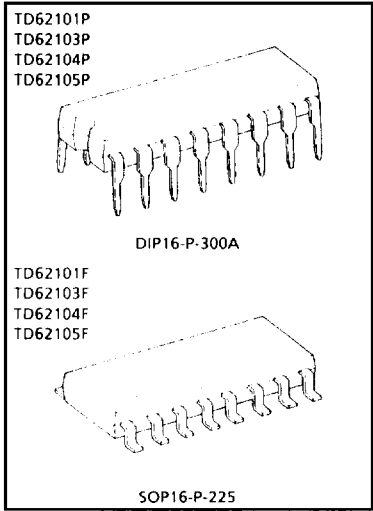
7CH DARLINGTON SINK DRIVER

The TD62101P/F series are high-voltage, high-current darlington drivers comprised of seven NPN darlington pairs.

FEATURES

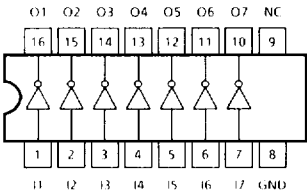
- Output current (single output) : 500mA (Max.)
- High sustaining voltage output : 25V (Min.)
- Inputs compatible with various types of logic.
- Package type-P : DIP-16 pin.
- Package type-F : SOP-16 pin.

TYPE	INPUT BASE RESISTOR	DESIGNATION
TD62101P/F	External	General Purpose
TD62103P/F	2.7k Ω	TTL, 5V CMOS
TD62104P/F	10.5k Ω	6~15V CMOS, PMOS
TD62105P/F	20k Ω	12~25V CMOS, PMOS



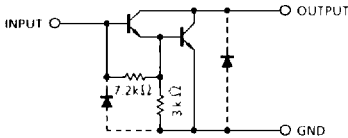
Weight DIP16-P-300A : 1.11g (Typ.)
SOP16-P-225 : 0.16g (Typ.)

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)

TD62101P/F

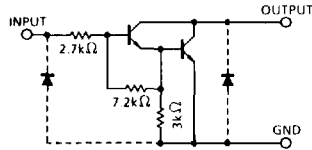


(Note) The input and output parasitic diodes cannot be used as clamp diodes.

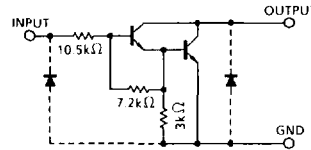
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SCHEMATICS (EACH DRIVER)

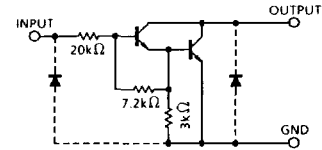
TD62103P / F



TD62104P / F



TD62105P / F



(Note) The input and output parasitic diodes cannot be used as clamp diodes.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Output Sustaining Voltage	$V_{CE(SUS)}$	- 0.5 ~ 25	V
Output Current	I_{OUT}	500	mA / ch
Input Voltage	V_{IN} (Note 1)	- 0.5 ~ 30	V
Input Current	I_{IN} (Note 2)	25	mA
Power Dissipation	P	1.0	W
	F	0.625 (Note 3)	
Operating Temperature	P	- 30 ~ 75	°C
	F	- 40 ~ 85	
Storage Temperature	T_{stg}	- 55 ~ 150	°C

(Note 1) Except TD62101P / F

(Note 2) Only TD62101P / F

(Note 3) On Glass Epoxy PCB (30 × 30 × 1.6mm Cu 50%)

RECOMMENDED OPERATING CONDITIONS (Ta = - 40 ~ 85°C and Ta = - 30 ~ 75°C for only Type-P)

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Sustaining Voltage	$V_{CE(SUS)}$		0	—	25	V
Output Current	I_{OUT}	DC 1 Circuit	0	—	350	mA / ch
		$T_{pw} = 25ms$, Duty = 10% 7 Circuits, Ta = 85°C, Tj = 120°C	0	—	300	
Input Voltage	Except TD62101P / F Only TD62101P / F	V_{IN}	0	—	20	V
Input Current	Only TD62101P / F	I_{IN}	—	—	10	mA
Power Dissipation	P	P_D	—	—	0.44	W
	F	(Note)	—	—	0.325	

(Note) On Glass Epoxy PCB (30 × 30 × 1.6mm Cu 50%)

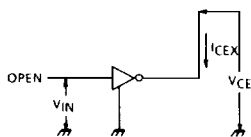
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

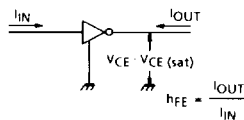
CHARACTERISTIC			SYMBOL	TEST CIRCUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Output Leakage Current	P		I_{CEX}	1	$V_{CE} = 25V$ $I_{IN} = 0$	$T_a = 75^{\circ}C$	—	—	100	μA
	F					$T_a = 85^{\circ}C$	—	—	100	
Collector-Emitter Saturation Voltage			$V_{CE(sat)}$	2	$I_{OUT} = 350mA, I_{IN} = 600\mu A$	—	1.3	2.2	V	
					$I_{OUT} = 200mA, I_{IN} = 400\mu A$	—	1.1	2.0		
					$I_{OUT} = 100mA, I_{IN} = 200\mu A$	—	1.0	1.8		
DC Current Transfer Ratio			h_{FE}	2	$V_{CE} = 2V, I_{OUT} = 350mA$	1000	—	—		
Input Current	Output On	TD62101P / F	$I_{IN(ON)}$	3	$V_{IN} = 1.5V, I_{OUT} = 350mA$	—	0.25	—	mA	
		$V_{IN} = 1.75V, I_{OUT} = 350mA$			—	1.00	—			
		$V_{IN} = 2.4V, I_{OUT} = 350mA$			—	0.4	0.7			
		$V_{IN} = 13.5V, I_{OUT} = 350mA$			—	1.2	1.7			
		$V_{IN} = 20.0V, I_{OUT} = 350mA$			—	1.0	1.5			
	Output Off	P	$I_{IN(OFF)}$	4	$I_{OUT} = 500\mu A$	$T_a = 75^{\circ}C$	50	65	—	μA
		F				$T_a = 85^{\circ}C$	50	65	—	
Input Voltage	Output On	TD62103P / F	$V_{IN(ON)}$	5	$V_{CE} = 2V$	$I_{OUT} = 125mA$	—	—	2.1	V
		TD62104P / F					—	—	4	
		TD62105P / F					—	—	6.4	
		TD62103P / F				$I_{OUT} = 250mA$	—	—	2.7	
		TD62104P / F					—	—	7	
		TD62105P / F					—	—	12	
		TD62103P / F				$I_{OUT} = 350mA$	—	—	3.3	
		TD62104P / F					—	—	8.8	
		TD62105P / F					—	—	15	
Input Capacitance			C_{IN}	6	$V_{IN} = 0, f = 1MHz$	—	15	—	pF	
Turn-On Delay			t_{ON}	7	$V_{OUT} = 25V, R_L = 70\Omega$ $C_L = 15pF$	—	0.1	—	μs	
Turn-Off Delay			t_{OFF}			—	0.2	—		

TEST CIRCUIT

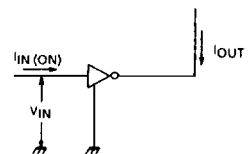
1. I_{CEX}



2. h_{FE} , $V_{CE(sat)}$



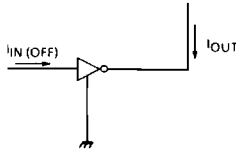
3. $I_{IN(ON)}$



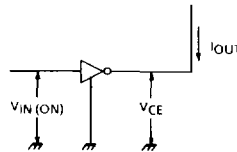
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TEST CIRCUIT

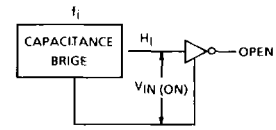
4. I_{IN} (OFF)



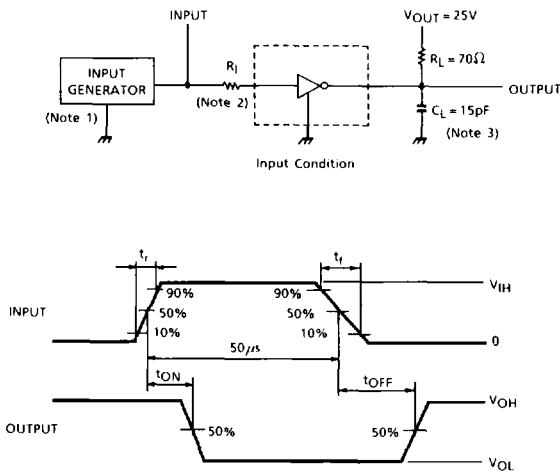
5. V_{IN} (ON)



6. C_{IN}



7. t_{ON} , t_{OFF}

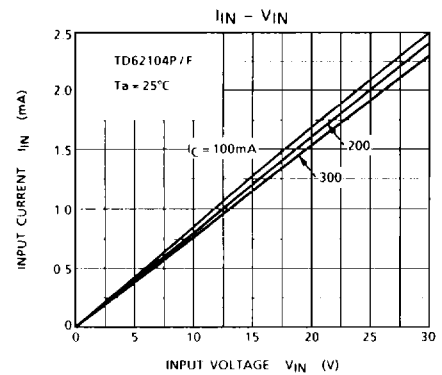
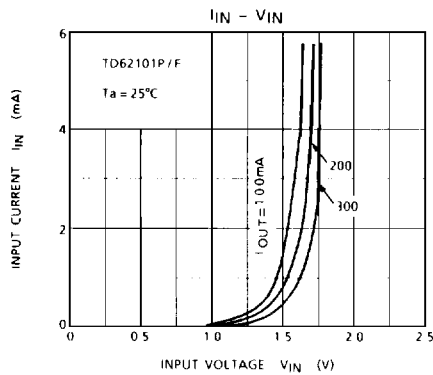
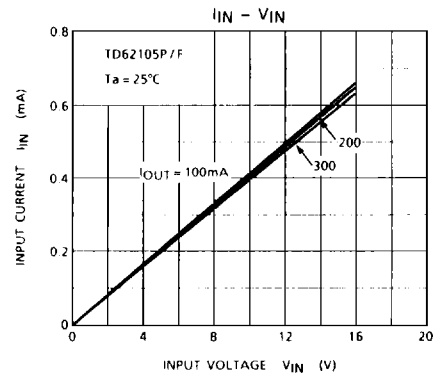
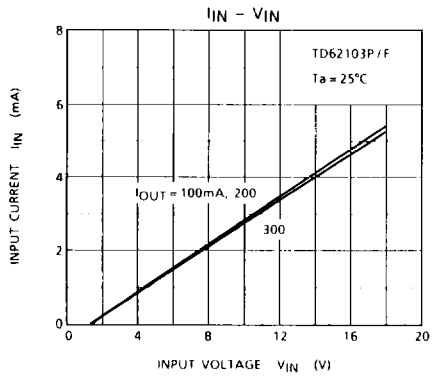
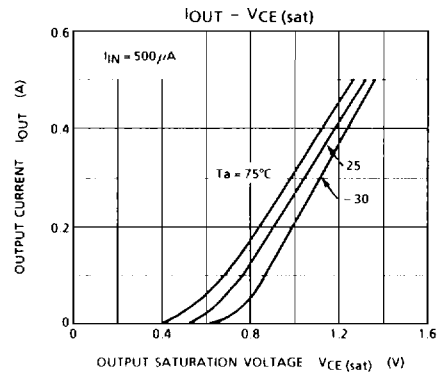
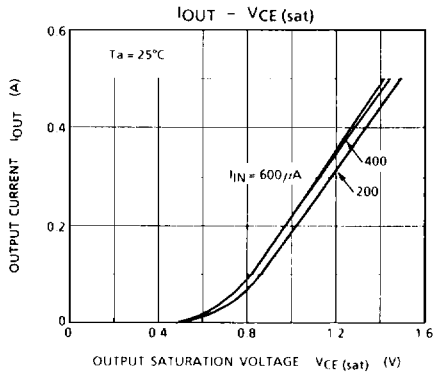


- (Note 1) Pulse Width 50 μ s, Duty Cycle 10%
Output Impedance 50 Ω , $t_r \leq 5$ ns, $t_f \leq 10$ ns
(Note 2) See right.
(Note 3) C_L includes probe and jig capacitance.

INPUT CONDITION

TYPE NUMBER	R_I	V_{IH}
TD62101P/F	2.7k Ω	3V
TD62103P/F	0 Ω	3V
TD62104P/F	0 Ω	8V
TD62105P/F	0 Ω	15V

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