

TD62083AFN, TD62084AFN

8ch DARLINGTON SINK DRIVER

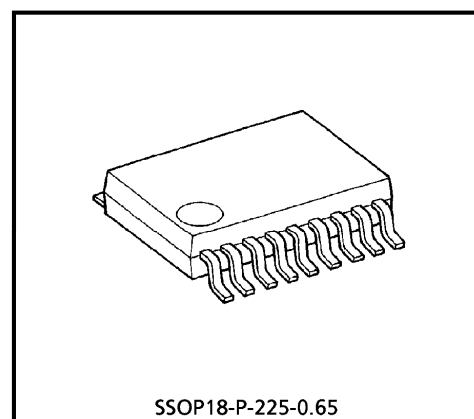
The TD62083AFN and TD62084AFN are high-voltage, high-current darlington drivers comprised of eight NPN darlington pairs.

All units feature integral clamp diodes for switching inductive loads.

Applications include relay, hammer, lamp and display (LED) drivers.

FEATURES

- Package Type : SSOP18 pin
- High Sustaining Voltage Output : 50V (Min.)
- Output Current (Single Output) : 500mA / ch (Max.)
- Output Clamp Diodes
- Inputs compatible with Various Types of Logic.

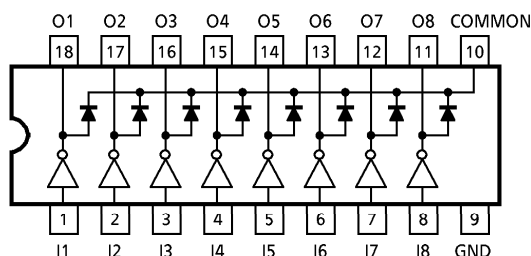


SSOP18-P-225-0.65

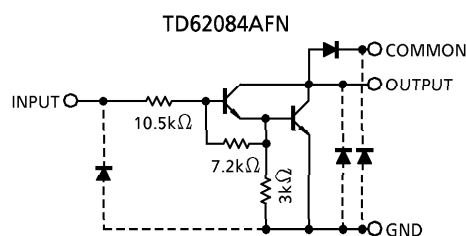
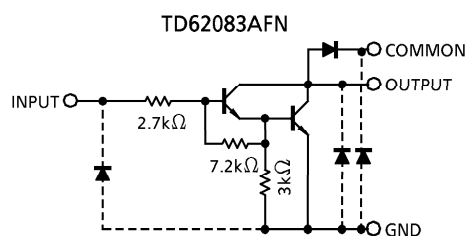
Weight : 0.09g (Typ.)

TYPE	INPUT BASE RESISTOR	DESIGNATION
TD62083AFN	2.7k Ω	TTL, 5V C-MOS
TD62084AFN	10.5k Ω	6~15V P-MOS, C-MOS

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



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

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Output Sustaining Voltage	V _{CE (SUS)}	– 0.5~50	V
Output Current	I _{OUT}	500	mA / ch
Input Voltage	V _{IN}	– 0.5~30	V
Clamp Diode Reverse Voltage	V _R	50	V
Clamp Diode Forward Current	I _F	500	mA
Power Dissipation	P _D *	0.96	W
Operating Temperature	T _{opr}	– 40~85	°C
Storage Temperature	T _{stg}	– 55~150	°C

*On Glass Epoxy PCB (50×50×1.6mm Cu 40%)

RECOMMENDED OPERATING CONDITIONS (Ta = – 40~85°C)

CHARACTERISTIC		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Sustaining Voltage		V _{CE (SUS)}		0	—	50	V
Output Current		I _{OUT} *	DC 1 Circuit	—	—	350	mA / ch
			T _{pw} = 25ms, 8 Circuits	0	—	260	
			Ta = 85°C, T _j = 120°C	0	—	90	
Input Voltage		V _{IN}		0	—	30	V
Input Voltage (Output ON)	TD62083	V _{IN(ON)}		3.5	—	30	V
	TD62084			8	—	30	
Clamp Diode Reverse Voltage		V _R		—	—	50	V
Clamp Diode Forward Current		I _F		—	—	400	mA
Power Dissipation		P _D *		—	—	0.4	W

*On Glass Epoxy PCB (50×50×1.6mm Cu 40%)

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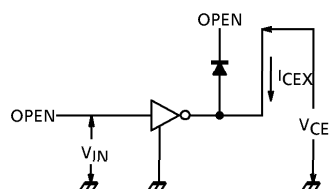
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- The information contained herein is subject to change without notice.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

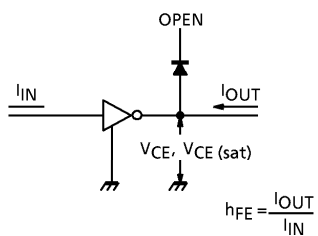
CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Output Leakage Current	TD62083	I _{CEX}	1	V _{CE} = 50V	T _a = 25°C	—	—	50	μA
	V _{CE} = 50V			T _a = 85°C	—	—	100		
	TD62084			V _{CE} = 50V	V _{IN} = 1V	—	—	500	
Output Saturation Voltage		V _{CE (sat)}	2	I _{OUT} = 350mA, I _{IN} = 500μA		—	1.3	1.6	V
				I _{OUT} = 200mA, I _{IN} = 350μA		—	1.1	1.3	
				I _{OUT} = 100mA, I _{IN} = 250μA		—	0.9	1.1	
Input Current	TD62083	I _{IN (ON)}	3	V _{IN} = 3.85V		—	0.93	1.35	mA
	V _{IN} = 5V			—	0.35	0.5			
	V _{IN} = 12V			—	1.0	1.45			
			I _{IN (OFF)}	4	I _{OUT} = 500μA, T _a = 85°C		50	65	—
Input Voltage	TD62083	V _{IN (ON)}	5	V _{CE} = 2V, I _{OUT} = 200mA		—	—	2.4	V
				V _{CE} = 2V, I _{OUT} = 250mA		—	—	2.7	
				V _{CE} = 2V, I _{OUT} = 300mA		—	—	3.0	
	TD62084			V _{CE} = 2V, I _{OUT} = 125mA		—	—	5.0	
				V _{CE} = 2V, I _{OUT} = 200mA		—	—	6.0	
				V _{CE} = 2V, I _{OUT} = 275mA		—	—	7.0	
				V _{CE} = 2V, I _{OUT} = 350mA		—	—	8.0	
DC Current Transfer Ratio		h _{FE}	2	V _{CE} = 2V, I _{OUT} = 350mA		1000	—	—	
Clamp Diode Reverse Current		I _R	6	T _a = 25°C V _R = 50V		—	—	50	μA
				T _a = 85°C V _R = 50V		—	—	100	
Clamp Diode Forward Voltage		V _F	7	I _F = 350mA		—	—	2.0	V
Input Capacitance		C _{IN}	—			—	15	—	pF
Turn-On Delay		t _{ON}	8	R _L = 125Ω, V _{OUT} = 50V		—	0.1	—	μs
Turn-Off Delay		t _{OFF}		R _L = 125Ω, V _{OUT} = 50V		—	0.2	—	

TEST CIRCUIT

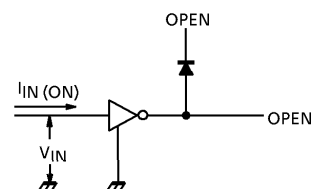
1. I_{CEX}



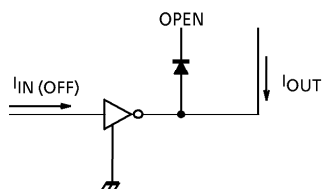
2. $V_{CE} (sat)$, h_{FE}



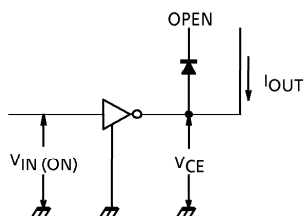
3. $I_{IN} (ON)$



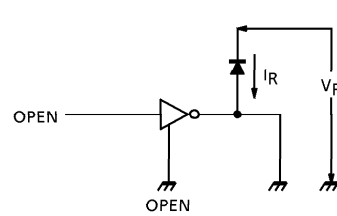
4. $I_{IN} (OFF)$



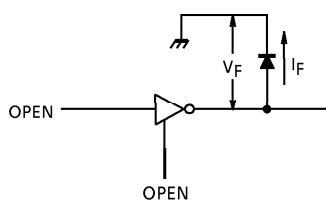
5. $V_{IN} (ON)$

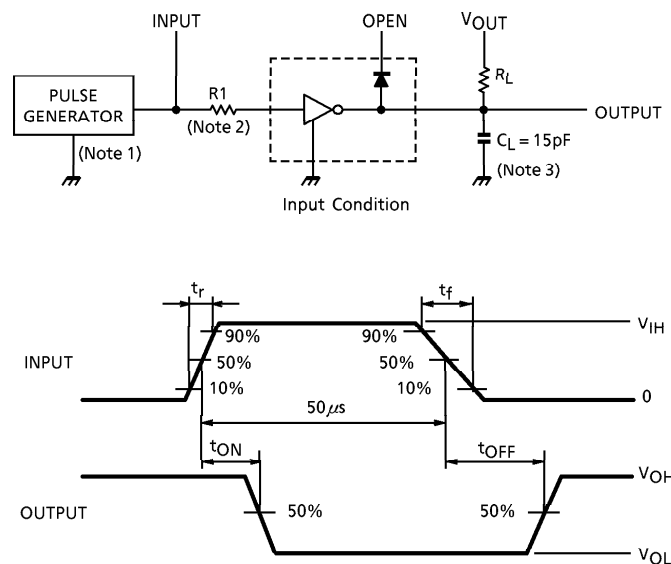


6. I_R



7. V_F



8. t_{ON} , t_{OFF} 

(Note 1) Pulse Width $50\mu\text{s}$, Duty Cycle 10%
Output Impedance 50Ω , $t_r \leq 5\text{ns}$, $t_f \leq 10\text{ns}$

(Note 2) See below

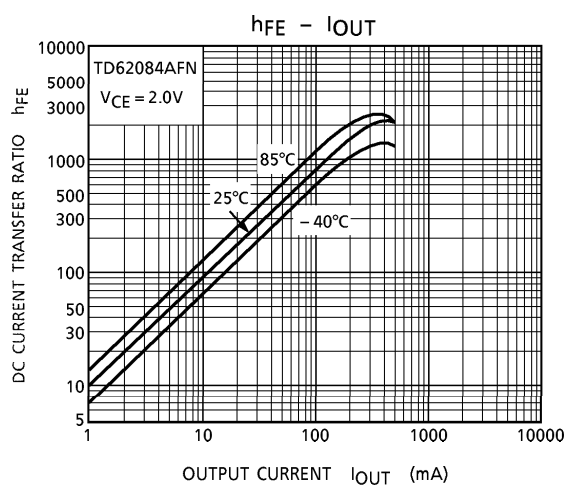
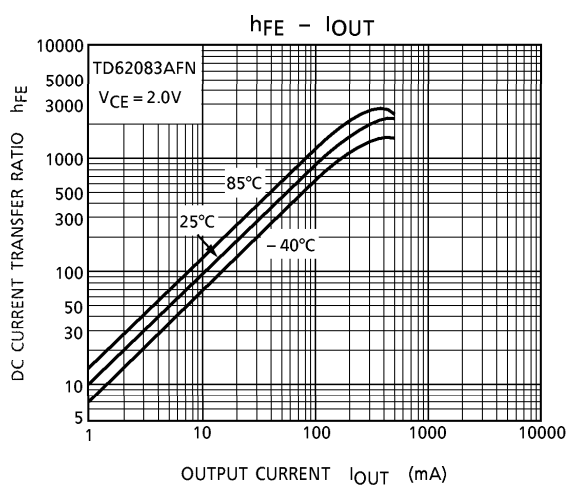
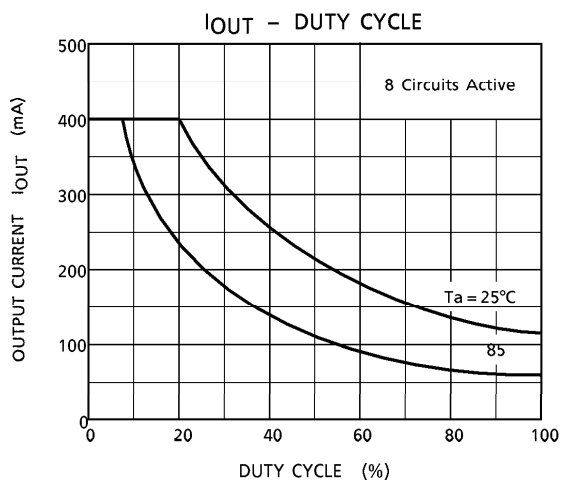
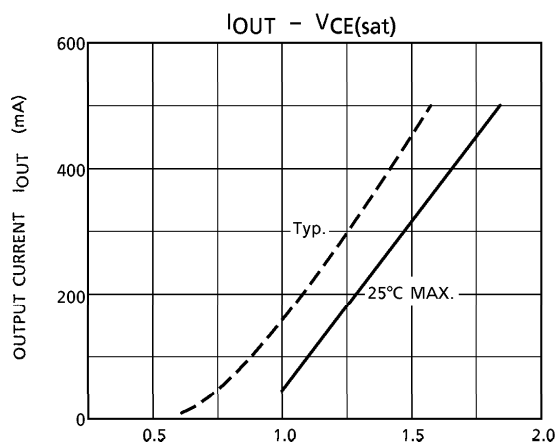
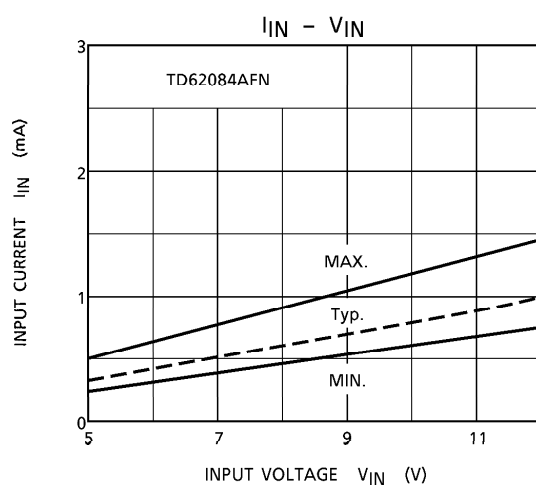
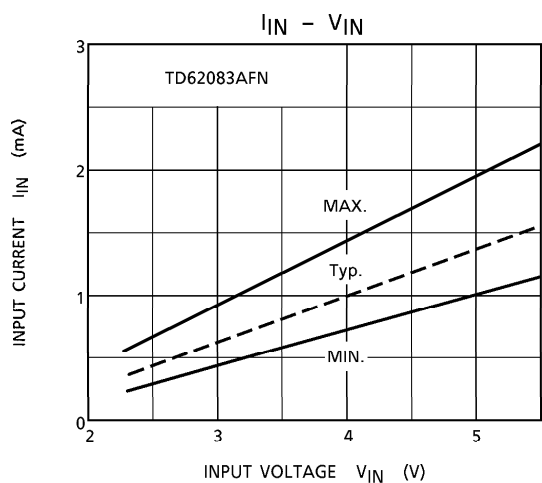
Input Condition

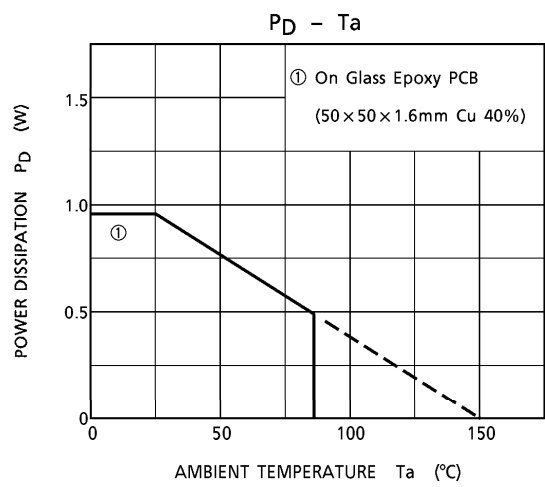
TYPE NUMBER	R1	V_{IH}
TD62083AFN	0	3V
TD62084AFN	0	8V

(Note 3) C_L includes probe and jig capacitance.

PRECAUTIONS for USING

Utmost care is necessary in the design of the output line, COMMON and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

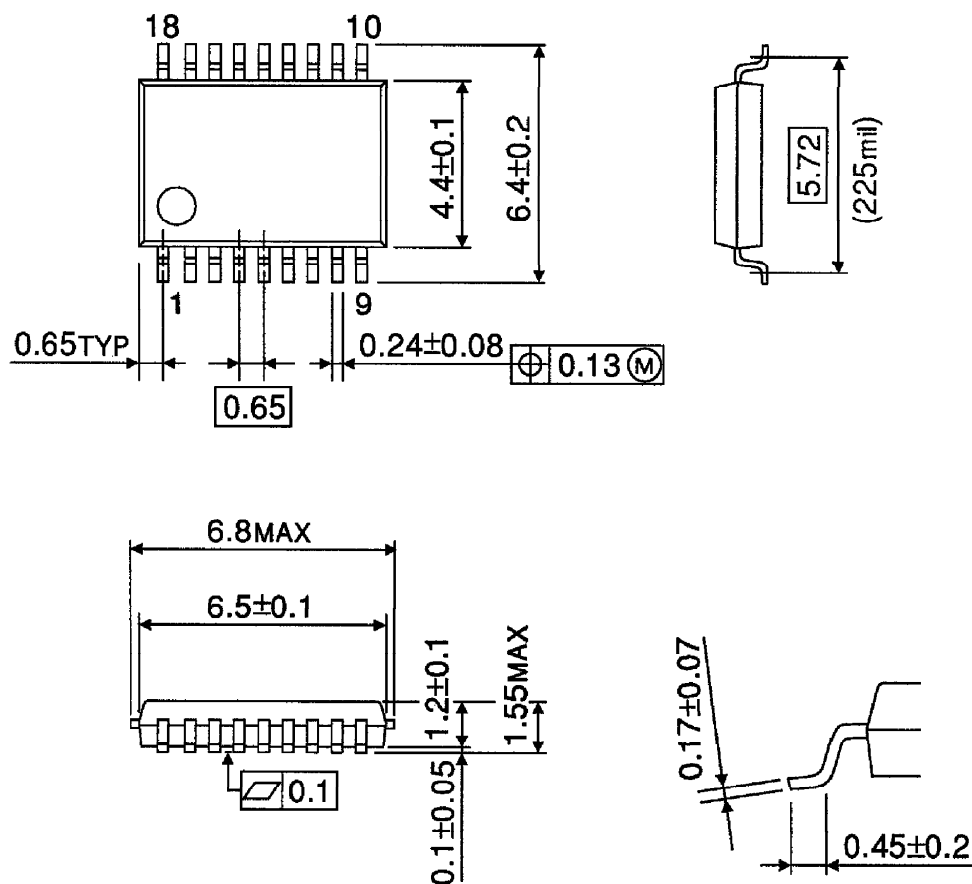




OUTLINE DRAWING

SSOP18-P-225-0.65

Unit : mm



Weight : 0.09g (Typ.)