

TD62593AFNG, TD62594AFNG, TD62597AFNG, TD62598AFNG

8CH SINGLE DRIVER : COMMON EMITTER

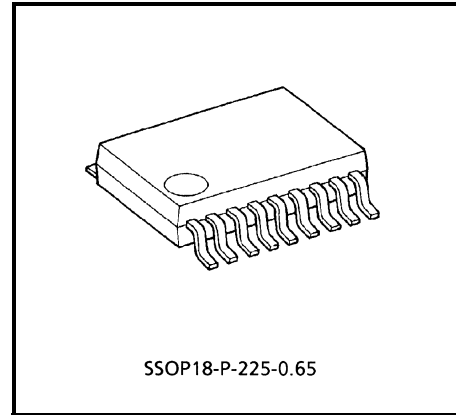
The TD62593, 4, 7, 8AFNG are comprised of eight NPN Transistor Arrays.

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

This devices are a product for the Pb free(Sn-Ag).

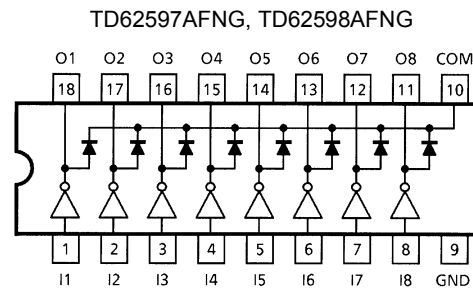
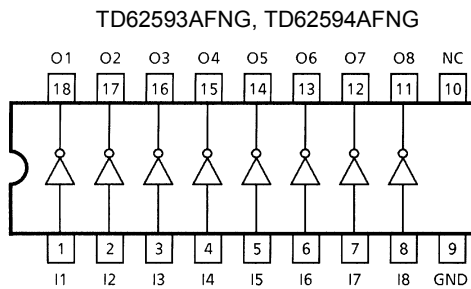
FEATURES

- Package Type : SSOP18pin (0.65 mm pitch)
- High Sustaining Voltage Output : 50 V (MIN)
- Low Saturation Voltage : $V_{CE(sat)} = 0.8 \text{ V}$
@ $I_{OUT} = 150 \text{ mA}$ Inputs Compatible with Various type Logic.
TD62593, TD62597AFNG : $R_{IN} = 2.7 \text{ k}\Omega$ TTL, 5 V CMOS
TD62594, TD62598AFNG : $R_{IN} = 10.5 \text{ k}\Omega$ 6~15 V PMOS, CMOS



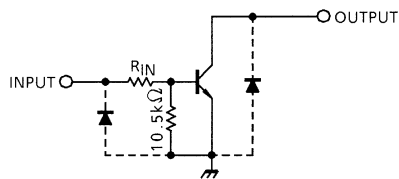
Weight: 0.09 g (Typ.)

PIN CONNECTION (TOP VIEW)



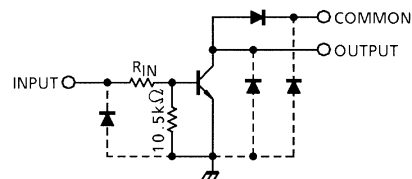
SCHEMATICS (EACH DRIVER)

TD62593AFNG, TD62594AFNG



TD62593AFNG $R_{IN}=2.7 \text{ k}\Omega$
TD62594AFNG $R_{IN}=10.5 \text{ k}\Omega$

TD62597AFNG, TD62598AFNG



TD62597AFNG $R_{IN}=2.7 \text{ k}\Omega$
TD62598AFNG $R_{IN}=10.5 \text{ k}\Omega$

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

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V _{CEO}	50	V
Collector-Base Voltage	V _{CBO}	50	V
Clamp Diode Reverse Voltage	V _R (Note 1)	50	V
Collector Current	I _C	200	mA / ch
Input Voltage	V _{IN}	-0.5~30	V
Power Dissipation	P _D (Note 2)	0.96	W
Operating Temperature	T _{opr}	-40~85	°C
Storage Temperature	T _{stg}	-55~150	°C

Note 1: Except TD62593AFNG, TD62594AFNG

Note 2: On Glass Epoxy PCB (50 × 50 × 1.6 mm Cu 40%)

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

CHARACTERISTIC		SYMBOL	CONDITION	MIN	TYP.	MAX	UNIT
Collector-Emitter Voltage		V _{CEO}		0	—	50	V
Collector-Base Voltage		V _{CBO}		0	—	50	V
Collector Current		I _C		0	—	150	mA / ch
Clamp Diode Reverse Voltage		V _R (Note 1)		7	—	50	V
Input Voltage		V _{IN}		0	—	25	V
Input Current		I _{IN}		0	—	10	mA
Input Voltage (Output On)	TD62593AFNG TD62597AFNG	V _{IN (ON)}		2.4	—	25	V
	TD62594AFNG TD62598AFNG			7.0	—	25	
Power Dissipation		P _D (Note 2)		—	—	0.4	W

Note 1: Except TD62593AFNG, TD62594AFNG

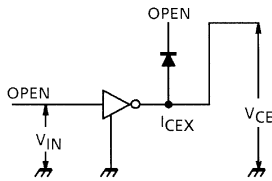
Note 2: On Glass Epoxy PCB (50 × 50 × 1.6 mm Cu 40%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

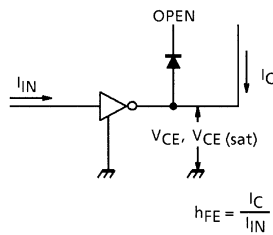
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Output Leakage Current		I _{CEX}	1	V _{CE} = 50 V, V _{IN} = 0	—	—	10	μA
Output Saturation Voltage		V _{CE (sat)}	2	I _C = 10 mA, I _{IN} = 0.4 mA	—	—	0.2	V
				I _C = 150 mA, I _{IN} = 3.0 mA	—	—	0.8	
DC Current Transfer Ratio		h _{FE}	2	V _{CE} = 10 V, I _C = 10 mA	50	—	—	
Input Current	TD62593AFNG TD62597AFNG	I _{IN (ON)}	3	V _{IN} = 2.4 V, I _C = 50 mA	—	—	0.9	mA
	TD62594AFNG TD62598AFNG			V _{IN} = 7.0 V, I _C = 50 mA	—	—	0.9	
Turn-On Delay		t _{ON}	4	V _{OUT} = 50 V, R _L = 330 Ω	—	0.1	—	μs
Turn-Off Delay		t _{OFF}			—	3.0	—	

TEST CIRCUIT

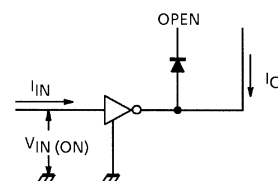
1. I_{CEX}



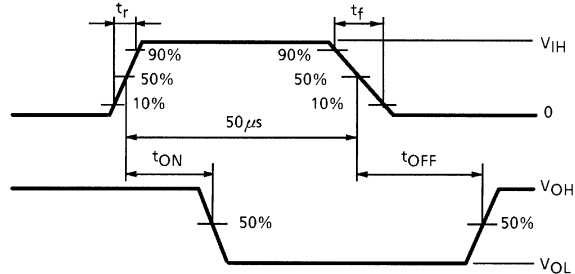
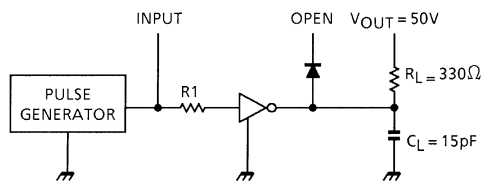
2. h_{FE} , $V_{CE} (sat)$



3. $I_{IN} (ON)$



4. 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 below

Input Condition

TYPE NUMBER	R_{IN}	V_{IH}
TD62593AFNG, TD62597AFNG	0 Ω	3 V
TD62594AFNG, TD62598AFNG	0 Ω	10 V

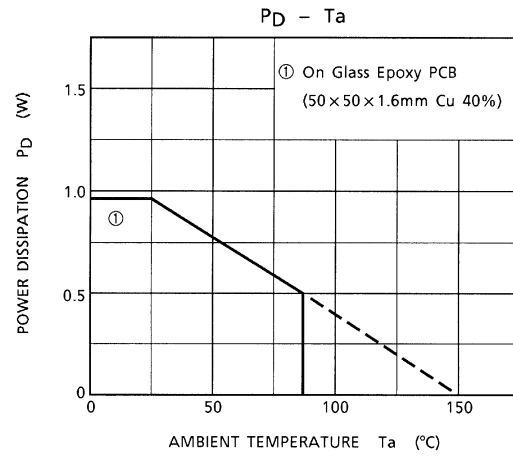
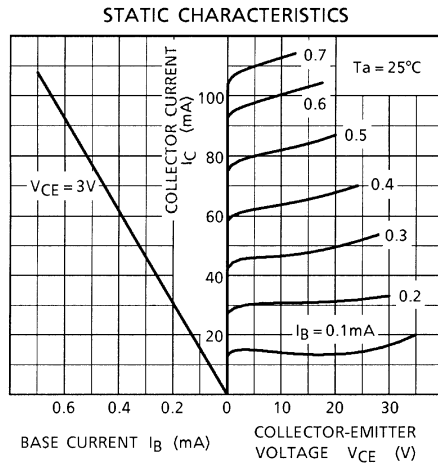
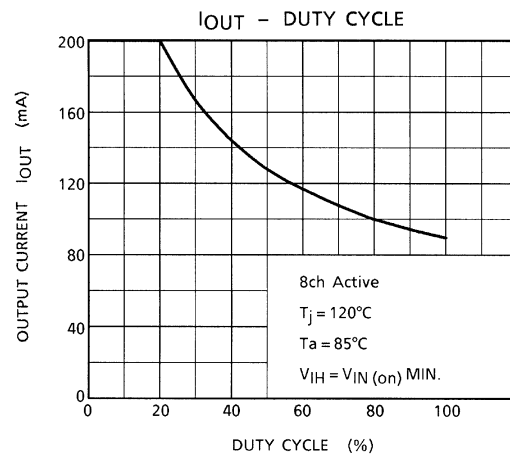
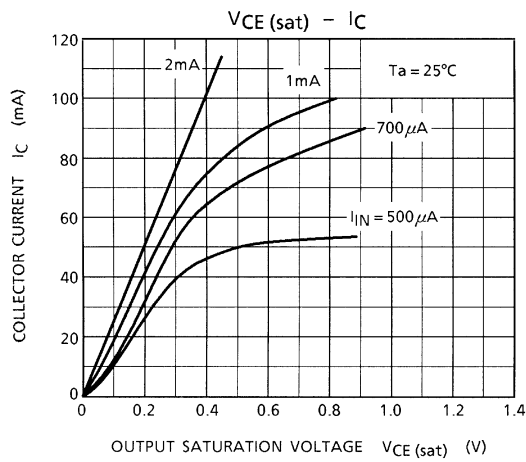
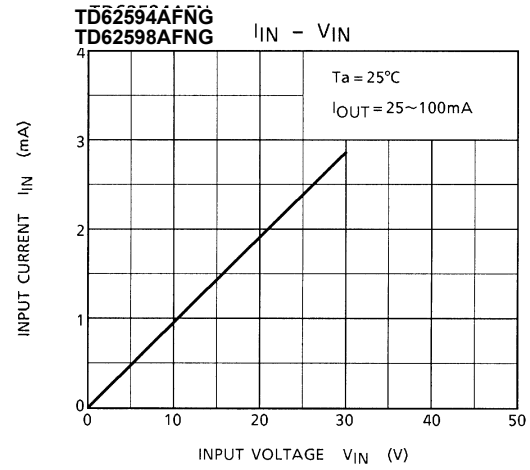
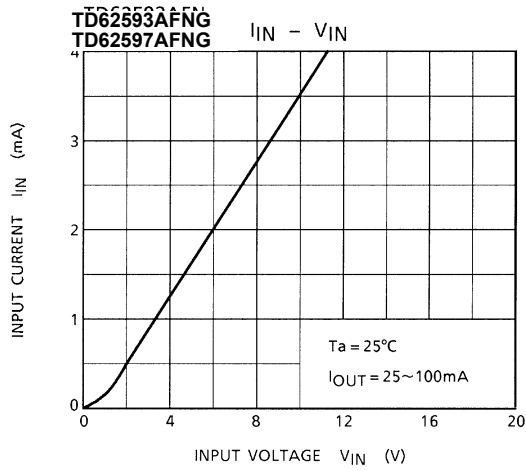
Note 3: C_L includes probe and jig capacitance

PRECAUTIONS for USING

This IC does not integrate protection circuits such as overcurrent and overvoltage protectors.

Thus, if excess current or voltage is applied to the IC, the IC may be damaged. Please design the IC so that excess current or voltage will not be applied to the IC.

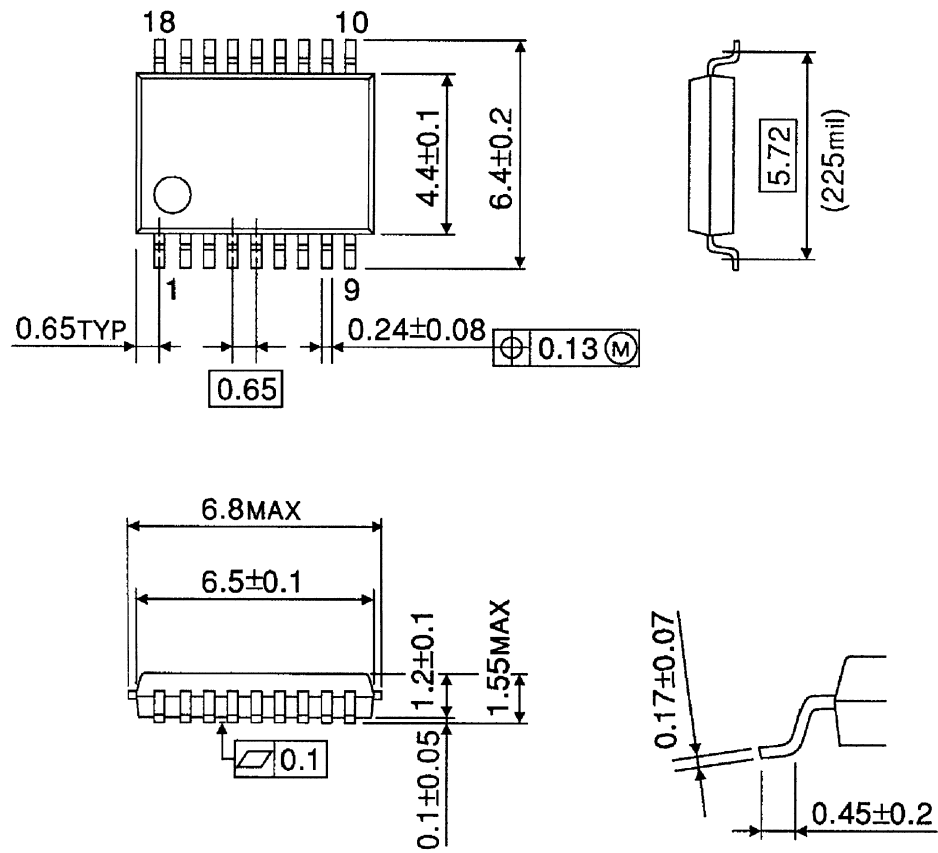
Utmost care is necessary in the design of the output line, VCC and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



PACKAGE DIMENSIONS

SSOP18-P-225-0.65

Unit: mm



Weight: 0.09 g (Typ.)

About solderability, following conditions were confirmed

- Solderability

- (1) Use of Sn-63Pb solder Bath

- solder bath temperature = 230°C
 - dipping time = 5 seconds
 - the number of times = once
 - use of R-type flux

- (2) Use of Sn-3.0Ag-0.5Cu solder Bath

- solder bath temperature = 245°C
 - dipping time = 5 seconds
 - the number of times = once
 - use of R-type flux

RESTRICTIONS ON PRODUCT USE

030619EBA

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