

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62706P-H, TD62706FA-H

6ch HIGH-VOLTAGE SOURCE-CURRENT DRIVER

The TD62706P-H and TD62706FA-H are comprised of six source current Transistor Array.

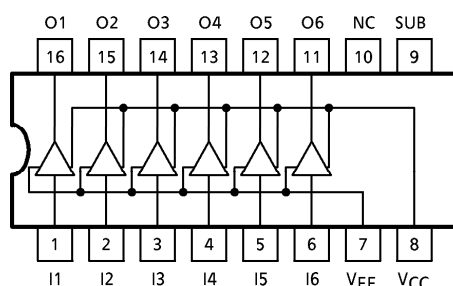
This driver is specifically designed for fluorescent display applications.

For proper operation, the substrate (SUB) must be connected to the most negative voltage.

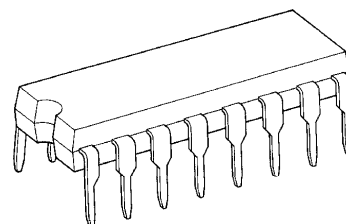
FEATURES

- Package Type
 - P-H Type : DIP16PIN
 - FA-H Type : SSOP16PIN
- High Output Voltage
 - : $V_{CC} - V_{OUT} = 60V$ (MIN)
- Output Current (Single Output)
 - : $I_{OUT} = -50mA$ (MAX)
- Input Compatible with Various Types of Logic
 - : $R_{IN} = 10k\Omega$
- Wide operating temperature range. : $T_{opr} = -40 \sim 105^{\circ}C$

PIN ASSIGNMENT (Top view)

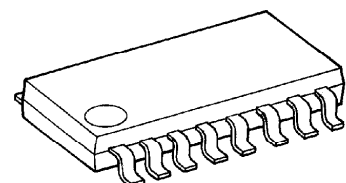


TD62706P-H



DIP16-P-300-2.54A

TD62706FA-H



SSOP16-P-225-1.00A

Weight

DIP16-P-300-2.54A : 1.11g (Typ.)
 SSOP16-P-225-1.00A : 0.14g (Typ.)

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Input Voltage	"H" Level	V _{IH}	1	V _{EE} = 0V	2.2	—	—	V
	"L" Level	V _{IL}		V _{EE} = 0V	—	—	0.8	
Input Current	"H" Level	I _{IH}	2	V _{EE} = 0V, V _{IN} = 2.4V	—	0.12	0.18	mA
	"L" Level	I _{IL}		V _{EE} = V _{IN} = 0V, V _{CC} = 25V	—	—	± 1	μA
Output Leakage Current		I _{CEX}	3	V _{EE} = 0V, V _{CC} = 25V V _{IN} = V _{IL} MAX., V _{OUT} = - 30V	—	—	- 100	μA
Collector-Emitter Saturation Voltage		V _{CE} (sat)	4	V _{EE} = 0V, V _{CC} = V _{CC} MIN. V _{IN} = V _{IH} MIN., I _{OUT} = - 40mA	—	—	V _{CC} - 2.5	V
Supply Current (Output On)		I _{CC} (ON)	1	V _{EE} = 0V, V _{CC} = 25V V _{IN} = V _{IH} MAX., OUTPUT = OPEN	—	—	25	mA
Turn-On Delay		t _{ON}	5	R _L = 1.4kΩ C _L = 15pF	—	0.2	—	μs
Turn-Off Delay		t _{OFF}			—	1.5	—	

RECOMMENDED OPERATING CONDITION (Ta = -40~105°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Power Supply Voltage	V _{CC}	V _{EE} = 0V		4.5	—	25	V
	V _{SUB}	V _{CC} = 0V		V _{OUT}	—	− 55	
Output Voltage	V _{OUT}	V _{CC} = 0V		0	—	− 55	V
Output Current	I _{OUT}	2 Circuits Parallel ON	TD62706P-H	0	—	− 40	mA / ch
			TD62706FA-H	0	—	− 40	
		4 Circuits Parallel ON	TD62706P-H	0	—	− 37	
			TD62706FA-H	0	—	− 30	
		6 Circuits Parallel ON	TD62706P-H	0	—	− 15	
			TD62706FA-H	0	—	− 25	
Input Voltage	V _{IN}	V _{EE} = 0V, V _{CC} = 25V		0	—	7	V
Power Dissipation	P _D	TD62706P-H		—	—	0.36	W
		TD62706FA-H when mounting		—	—	0.28	

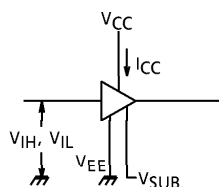
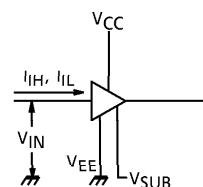
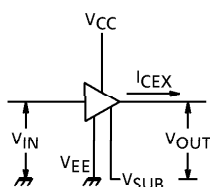
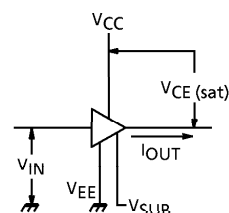
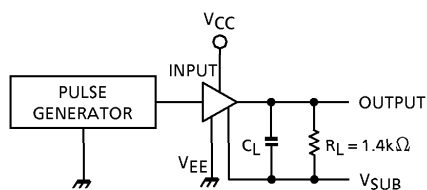
ELECTRICAL CHARACTERISTICS (Ta = 105°C) : TD62706P-H

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Input Voltage	"H" Level	V _{IH}	1	V _{EE} = 0V	1.8	—	—	V
	"L" Level	V _{IL}		V _{EE} = 0V	—	—	0.6	
Input Current	"H" Level	I _{IH}	2	V _{EE} = 0V, V _{IN} = 2.4V	—	0.12	0.18	mA
	"L" Level	I _{IL}		V _{EE} = V _{IN} = 0V, V _{CC} = 25V	—	—	± 10	μA
Output Leakage Current		I _{CEX}	3	V _{EE} = 0V, V _{CC} = 25V V _{IN} = V _{IL} MAX., V _{OUT} = -30V	—	—	-300	μA
Collector-Emitter Saturation Voltage		V _{CE} (sat)	4	V _{EE} = 0V, V _{CC} = V _{CC} MIN. V _{IN} = V _{IH} MIN., I _{OUT} = -40mA	—	—	V _{CC} - 2.5	V
Supply Current (Output On)		I _{CC} (ON)	1	V _{EE} = 0V, V _{CC} = 25V V _{IN} = V _{IH} MAX., OUTPUT = OPEN	—	—	25	mA
Turn-On Delay		t _{ON}	5	R _L = 1.4kΩ, Single circuit C _L = 15pF	—	0.4	—	μs
Turn-Off Delay		t _{OFF}			—	3.0	—	

ELECTRICAL CHARACTERISTICS (Ta = 105°C) : TD62706FA-H

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Input Voltage	"H" Level	V _{IH}	1	V _{EE} = 0V	1.8	—	—	V
	"L" Level	V _{IL}		V _{EE} = 0V	—	—	0.6	
Input Current	"H" Level	I _{IH}	2	V _{EE} = 0V, V _{IN} = 2.4V	—	0.12	0.18	mA
	"L" Level	I _{IL}		V _{EE} = V _{IN} = 0V, V _{CC} = 25V	—	—	± 10	μA
Output Leakage Current		I _{CEX}	3	V _{EE} = 0V, V _{CC} = 25V V _{IN} = V _{IL} MAX., V _{OUT} = -30V	—	—	-300	μA
Collector-Emitter Saturation Voltage		V _{CE} (sat)	4	V _{EE} = V _{SUB} = 0V, V _{CC} = V _{CC} MIN. V _{IN} = V _{IH} MIN., I _{OUT} = -25mA	—	—	V _{CC} - 1.1	V
Supply Current (Output On)		I _{CC} (ON)	1	V _{EE} = V _{SUB} = 0V, V _{CC} = 16V V _{IN} = V _{IH} MAX., OUTPUT = OPEN	—	—	10	mA
Turn-On Delay		t _{ON}	5	R _L = 1.4kΩ, Single circuit C _L = 15pF	—	0.4	—	μs
Turn-Off Delay		t _{OFF}			—	3.0	—	

TEST CIRCUIT

1. V_{IH} , V_{IL} , I_{CC} 2. I_{IH} , I_{IL} 3. I_{CEX} 4. $V_{CE(sat)}$ 5. t_{ON} , t_{OFF} 

$C_L = 15\text{pF}$
(Includes probe and jig capacitance)

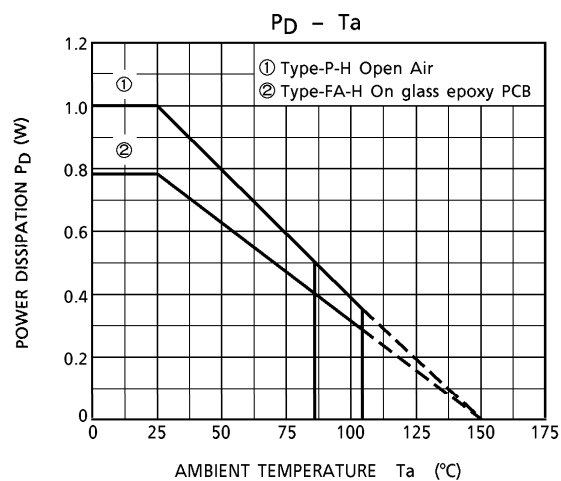
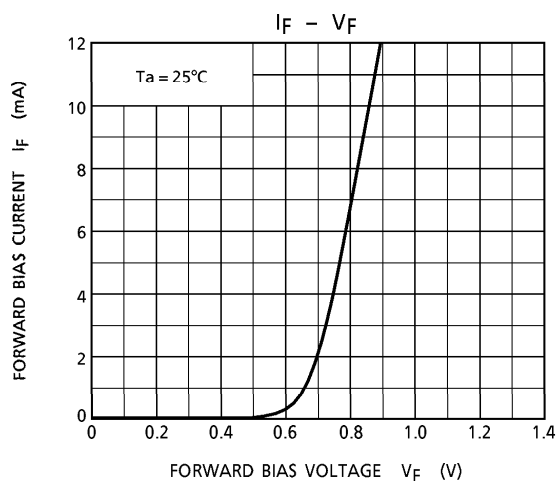
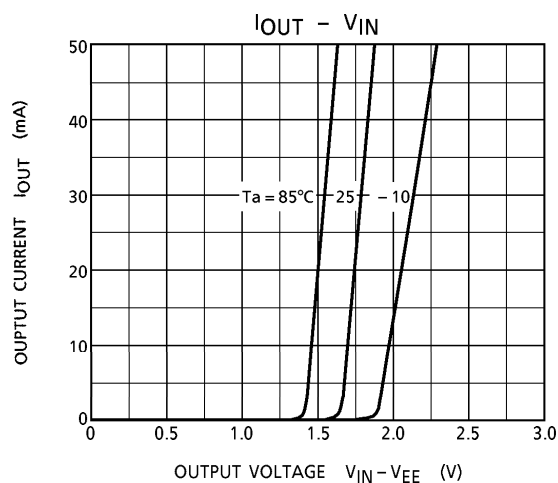
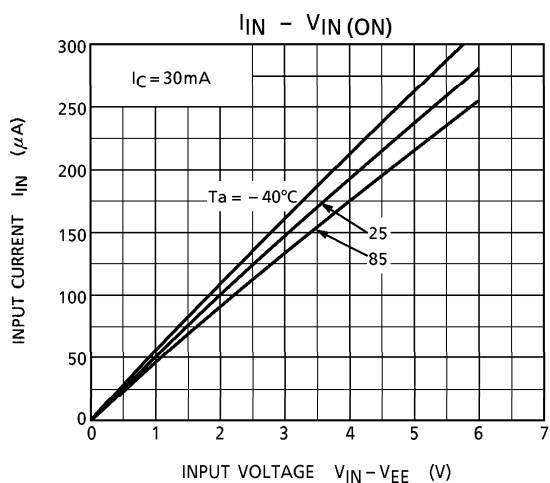
Input condition

	V_{IN}	V_{CC}	V_{SUB}
TD62706	0 – 3V	25V	– 30

V_{IN} : Pulse Width $50\mu\text{s}$
Duty Cycle 50%
 $t_r \leq 5\text{ns}$
 $t_f \leq 10\text{ns}$

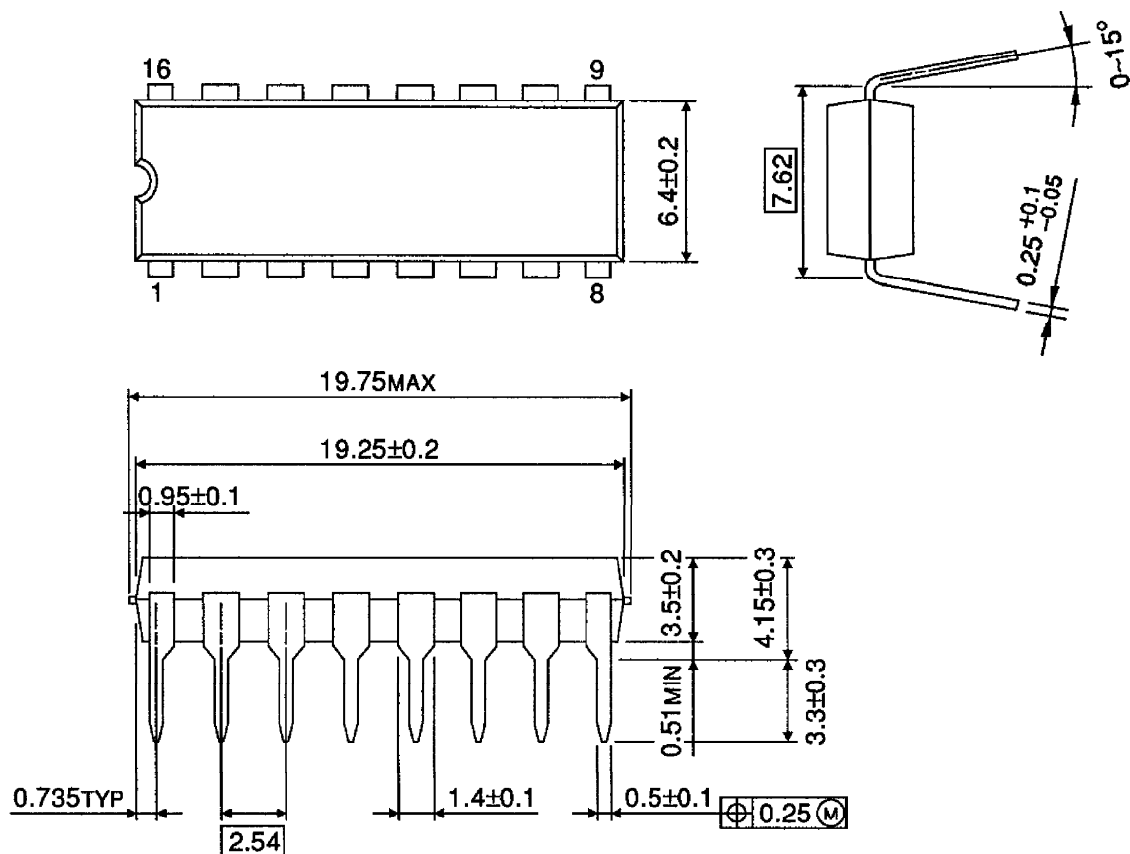
PRECAUTIONS for USING

Utmost care is necessary in the design of the output line, V_{CC} and GND (SUB, V_{EE}) line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



OUTLINE DRAWING
DIP16-P-300-2.54A

Unit : mm

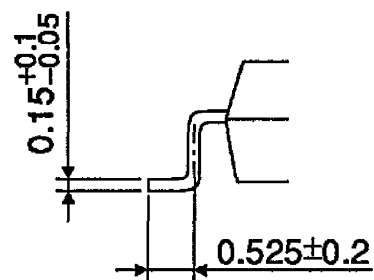
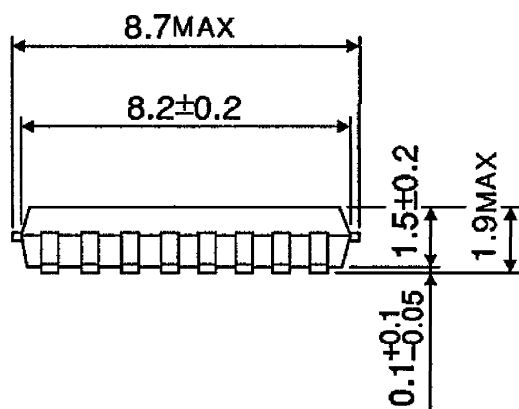
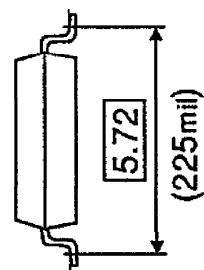
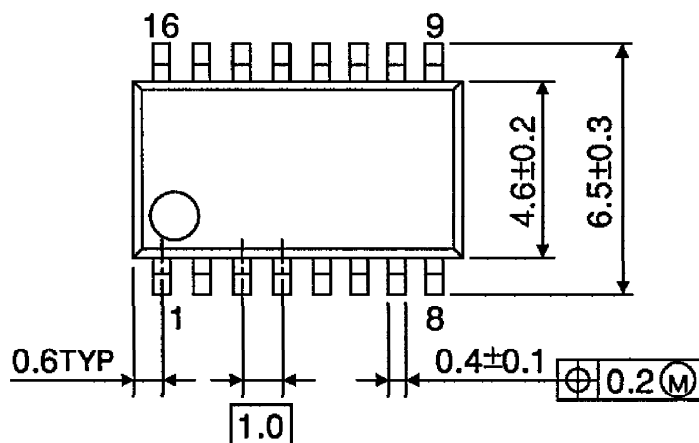


Weight : 1.11g (Typ.)

OUTLINE DRAWING

SSOP16-P-225-1.00A

Unit : mm



Weight : 0.14g (Typ.)

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