

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

**TD62783AP, TD62783F, TD62783AF
TD62784AP, TD62784F, TD62784AF**

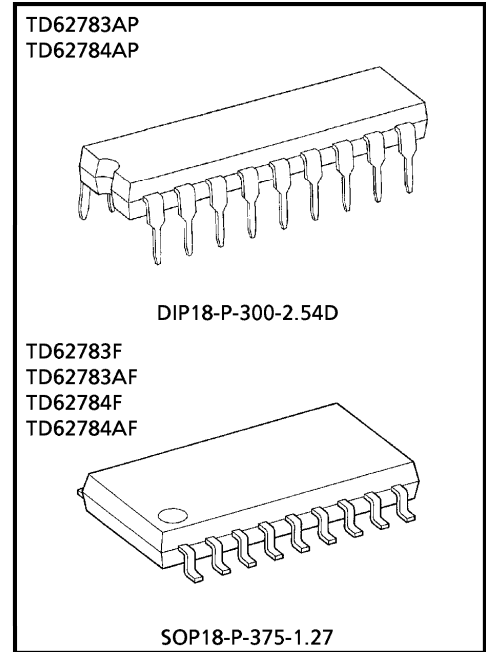
8CH HIGH-VOLTAGE SOURCE DRIVER

The TD62783AP/F/AF Series are comprised of eight source current Transistor Array.
These drivers are specifically designed for fluorescent display applications.
Applications include relay, hammer and lamp drivers.

FEATURES

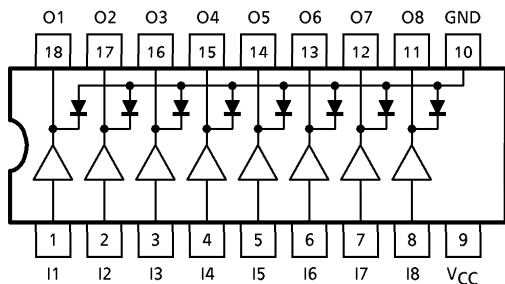
- High output voltage Type-AP, AF : $V_{CC} = 50V$ MIN.
Type-F : $V_{CC} = 35V$ MIN.
- Output current (single output) $I_{OUT} = -500mA$ MIN.
- Output clamp diodes
- Single supply voltage
- Input compatible with various types of logic
- Package Type-AP : DIP-18pin
- Package Type-F, AF : SOP-18pin

| TYPE | DESIGNATION |
|----------------|------------------|
| TD62783AP/F/AF | TTL, 5V CMOS |
| TD62784AP/F/AF | 6~15V PMOS, CMOS |

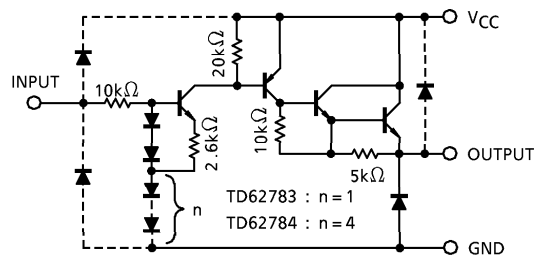


Weight
DIP18-P-300-2.54D : 1.47g (Typ.)
SOP18-P-375-1.27 : 0.41g (Typ.)

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 |
|-----------------------------|--------|--------------------------|----------|---------|
| Supply Voltage | AP, AF | V _{CC} | 50 | V |
| | F | | 35 | |
| Output Current | | I _{OUT} | - 500 | mA / ch |
| Input Voltage | | V _{IN} (Note 1) | 15 | V |
| | | V _{IN} (Note 2) | 30 | |
| Clamp Diode Reverse Voltage | AP, AF | V _R | 50 | V |
| | F | | 35 | |
| Clamp Diode Forward Current | | I _F | 500 | mA |
| Power Dissipation | AP | P _D (Note 3) | 1.47 | W |
| | F, AF | | 0.96 | |
| Operating Temperature | | T _{opr} | - 40~85 | °C |
| Storage Temperature | | T _{stg} | - 55~150 | °C |

(Note 1) Only TD62783AP / F / AF

(Note 2) Only TD62784AP / F / AF

(Note 3) Delated above 25°C in the proportion of 11.7W/°C (AP Type), 7.7W/°C (F, AF Type).

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

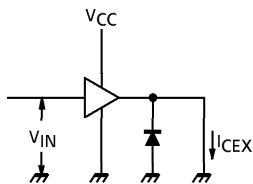
| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|-----------------------------|--------------------------|--------------------|---|--------------------------|------|-------|-------|---------|
| Supply Voltage | AP, AF | V _{CC} | — | — | — | 50 | V | |
| | F | | — | — | — | 35 | | |
| Output Current | | I _{OUT} | Ta = 85°C Tj = 120°C T _{pw} = 25ms | Duty = 10% 8 Circuits | — | — | - 260 | mA / ch |
| | | | | Duty = 50% 8 Circuits | — | — | - 59 | |
| | Duty = 10% 8 Circuits | | | — | — | - 180 | | |
| | Duty = 50% 8 Circuits | | | — | — | - 38 | | |
| Input Voltage | TD62783AP / F / AF | | V _{IN} | — | — | 12 | V | |
| | TD62784AP / F / AF | | | — | — | 24 | | |
| Input Voltage | Output On | TD62783AP / F / AF | V _{IN} (ON) | — | 2.0 | 5.0 | V | |
| | | TD62784AP / F / AF | | — | 4.5 | 12.0 | | 30 |
| | Output Off | TD62783AP / F / AF | V _{IN} (OFF) | — | 0 | — | 0.8 | |
| | | TD62784AP / F / AF | | — | 0 | — | 2.0 | |
| Clamp Diode Reverse Voltage | AP | V _R | — | — | — | 50 | V | |
| | F, AF | | — | — | — | 35 | | |
| Clamp Diode Forward Current | | I _F | — | — | — | 400 | mA | |
| Power Dissipation | AP | P _D | — | — | — | 0.52 | W | |
| | F, AF | | — | — | — | 0.35 | | |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

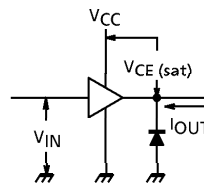
| CHARACTERISTIC | | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|-----------------------------|--------------------|-----------------------|---------------|---|------|------|------|---------|
| Output Leakage Current | | I _{CEX} | 1 | V _{CC} = V _{CC} MAX. V _{IN} = 0.4V Ta = 25°C | — | — | 100 | μA |
| Output Saturation Voltage | | V _{CE} (sat) | 2 | V _{IN} = V _{IN} (ON), I _{OUT} = - 350mA | — | — | 2.0 | V |
| | | | | V _{IN} = V _{IN} (ON), I _{OUT} = - 225mA | — | — | 1.9 | |
| | | | | V _{IN} = V _{IN} (ON), I _{OUT} = - 100mA | — | — | 1.8 | |
| Input Current | TD62783AP / F / AF | I _{IN} (ON) | 3 | V _{IN} = 2.4V | — | 36 | 52 | μA |
| | | | | V _{IN} = 3.85V | — | 180 | 260 | |
| | TD62784AP / F / AF | | | V _{IN} = 5V | — | 92 | 130 | |
| | | | | V _{IN} = 12V | — | 790 | 1130 | |
| Input Voltage | TD62783AP / F / AF | V _{IN} (ON) | 4 | V _{CE} = 2.0V | — | — | 2.0 | V |
| | TD62784AP / F / AF | | | I _{OUT} = - 350mA | — | — | 4.5 | |
| | TD62783AP / F / AF | V _{IN} (OFF) | | I _{OUT} = - 500μA | 0.8 | — | — | |
| | TD62784AP / F / AF | | | | 2.0 | — | — | |
| Supply Current | | I _{CC} (ON) | 3 | V _{IN} = V _{IN} (ON), V _{CC} = 50V | — | — | 2.5 | mA / ch |
| Clamp Diode Reverse Current | AP, AF | I _R | 5 | V _R = 50V | — | — | 50 | μA |
| | F | | | V _R = 35V | — | — | 50 | |
| Clamp Diode Forward Voltage | | V _F | 6 | I _F = 350mA | — | — | 2.0 | V |
| Turn-On Delay | | t _{ON} | 7 | V _{CC} = V _{CC} MAX. R _L = 125Ω C _L = 15pF, R _L = 88Ω (F) | — | 0.15 | — | μs |
| Turn-Off Delay | | t _{OFF} | | | — | 1.8 | — | |

TEST CIRCUIT

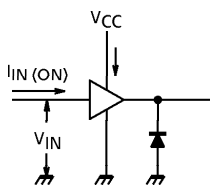
1. I_{CEX}



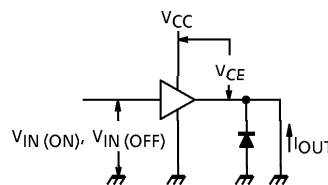
2. $V_{CE(sat)}$



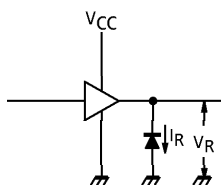
3. $I_{IN(ON)}, I_{CC}$



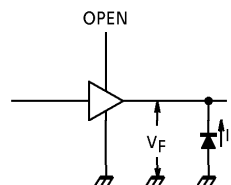
4. $V_{IN(ON)}, V_{IN(OFF)}$



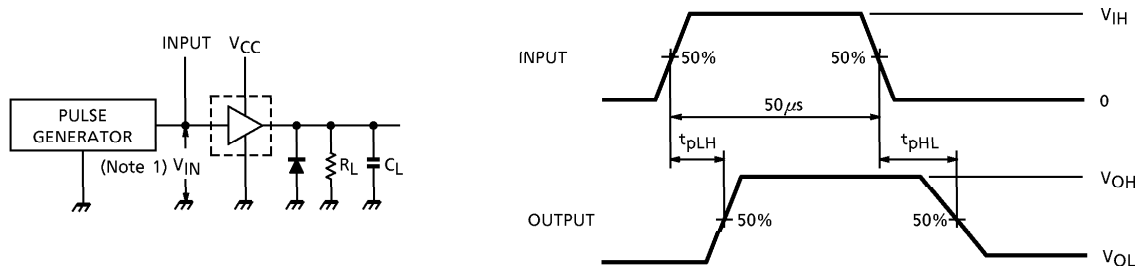
5. I_R



6. V_F



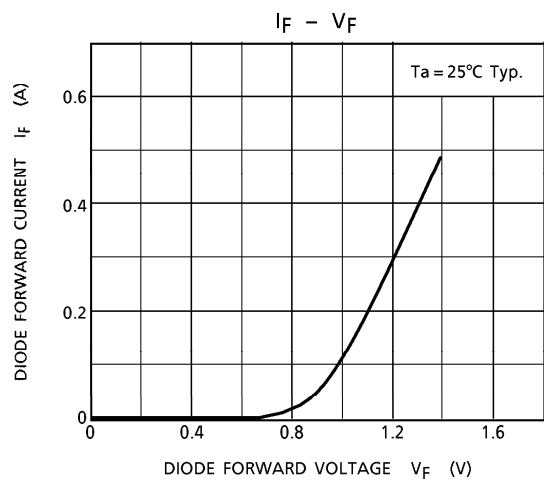
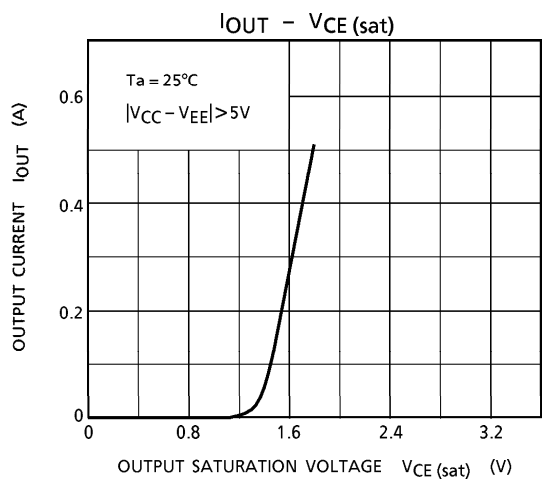
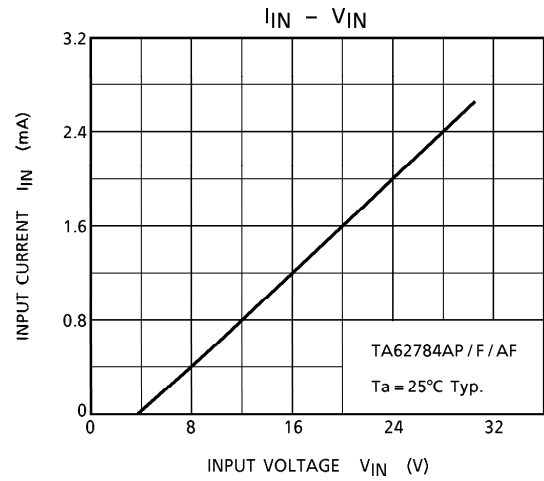
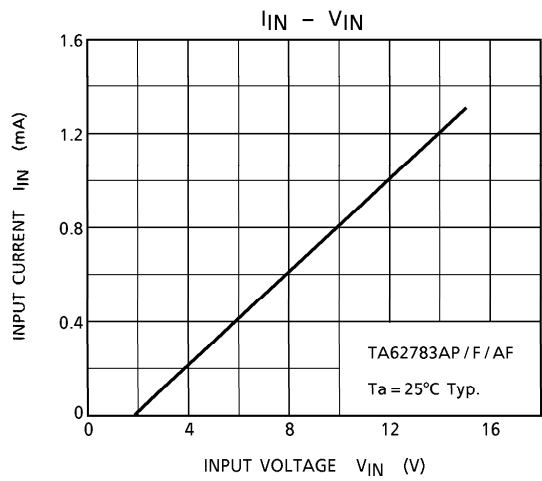
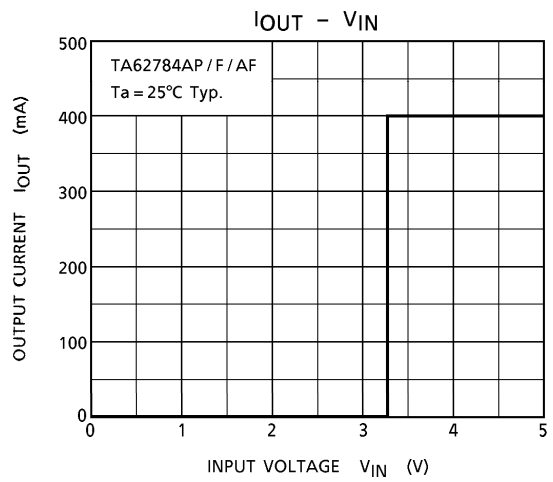
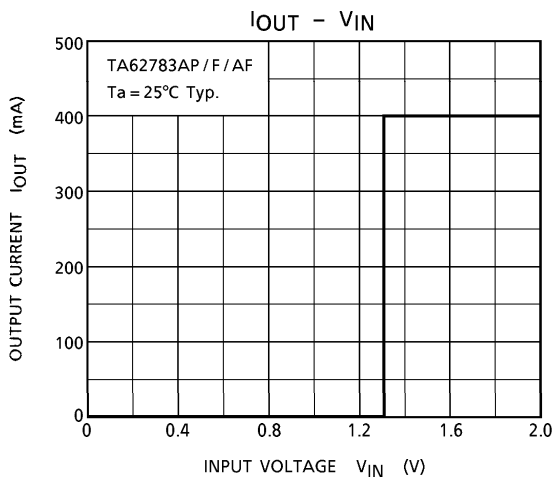
7. t_{ON}, t_{OFF}

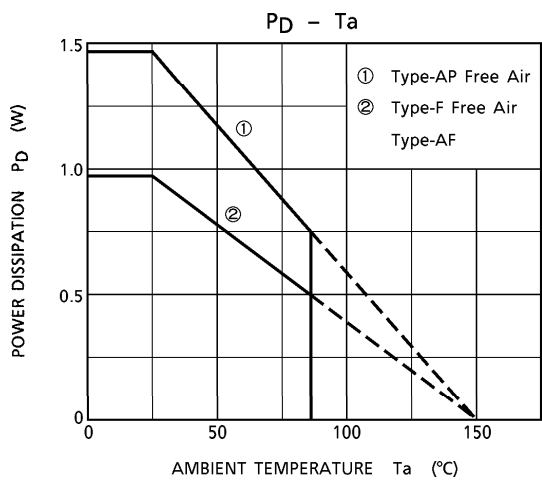


(Note 1) Pulse width $50\mu s$, duty cycle 10%
 Output impedance 50Ω , $t_r \leq 5ns$, $t_f \leq 10ns$
 (Note 2) C_L includes probe and jig capacitance

PRECAUTIONS for USING

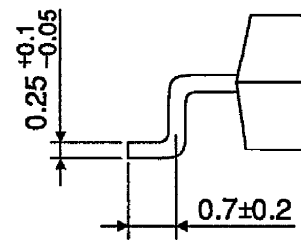
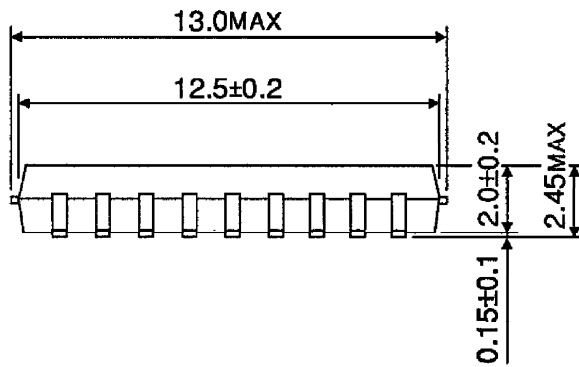
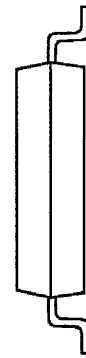
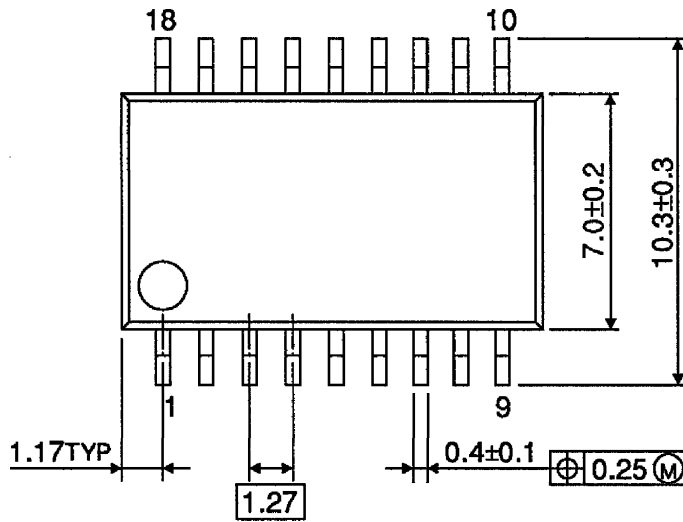
Utmost care is necessary in the design of the output line, V_{CC} and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.





OUTLINE DRAWING
SOP18-P-375-1.27

Unit : mm



Weight : 0.41g (Typ.)