

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

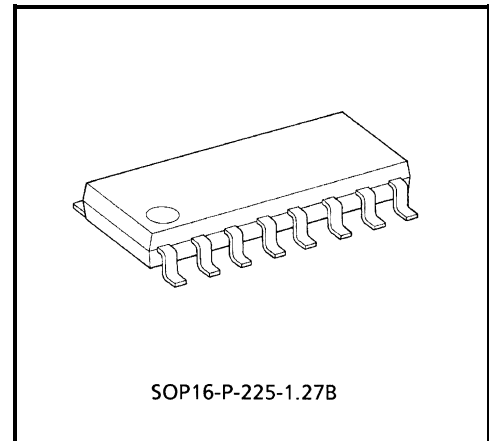
TD62503FB, TD62504FB

7CH SINGLE DRIVER: COMMON EMITTER

The TD62503FB and TD62504FB are comprised of seven or five NPN transistor arrays.
Applications include relay, hammer, lamp and display (LED) drivers.

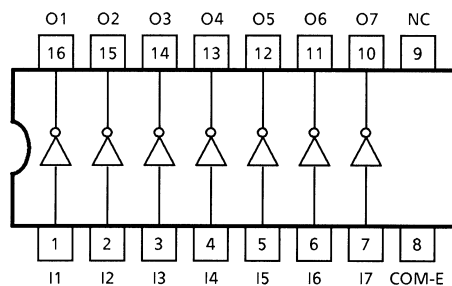
FEATURES

- Output current (single output) 200 mA / ch (Max)
- High sustaining voltage output 35 V (Min)
- Low saturation voltage $V_{CE(sat)} = 0.8\text{ V} @ I_{OUT} = 150\text{ mA}$
- Inputs compatible with various types of logic.
- TD62503FB : $R_{IN} = 2.7\text{ k}\Omega$ TTL, 5 V CMOS
- TD62504FB : $R_{IN} = 10.5\text{ k}\Omega$ 6~15 V PMOS, CMOS
- Package type : SOP-16 pin

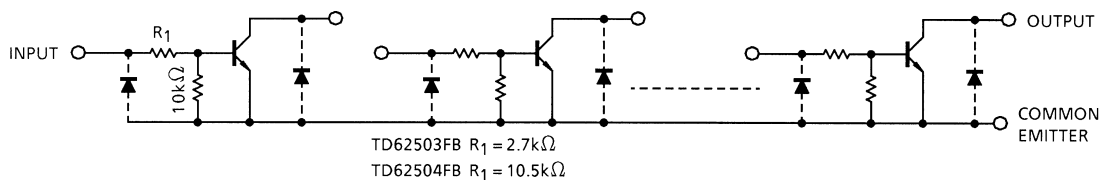


Weight: 0.16 g (Typ.)

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



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}	35	V
Collector-Base Voltage	V _{CBO}	50	V
Collector Current	I _C	200	mA / ch
Input Voltage	V _{IN}	-0.5~30	V
Power Dissipation	P _D (Note)	0.625	W
Operating Temperature	T _{opr}	-40~85	°C
Storage Temperature	T _{stg}	-55~150	°C

Note: On PCB (30 × 30 × 1.6 mm Cu 50%)
 Delated above 25°C in the proportion of 5.0 mW / °C.

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Collector-Emitter Voltage	V _{CEO}	—	0	—	35	V
Collector-Base Voltage	V _{CBO}	—	0	—	50	V
Collector Current	I _C	—	0	—	150	mA / ch
Input Voltage	V _{IN}	—	0	—	25	V
Power Dissipation	P _D	(Note)	—	—	0.325	W

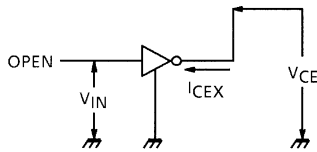
Note: On PCB (30 × 30 × 1.6 mm Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C Unless otherwise noted)

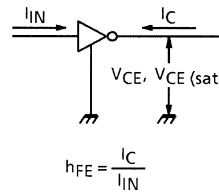
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Output Leakage Current	I _{CEX}	1	V _{CE} = 25 V, V _{IN} = 0 V	—	—	10	μA
Collector-Emitter Saturation Voltage	V _{CE (sat)}	2	I _{IN} = 1 mA, I _C = 10 mA	—	—	0.2	V
			I _{IN} = 3 mA, I _C = 150 mA	—	—	0.8	
DC Current Transfer Ratio	h _{FE}	2	V _{CE} = 10 V, I _C = 10 mA	50	—	—	—
Input Voltage (Output On)	TD62503FB	3	I _{IN} = 1 mA, I _C = 10 mA	2.4	3.4	4.2	V
	TD62504FB			7.5	11.5	15	
Input Voltage (Output Off)	TD62503FB	—	—	0.6	0.8	1.0	
	TD62504FB			1.1	1.6	1.9	
Turn-On Delay	t _{ON}	4	V _{OUT} = 35 V, R _L = 220 Ω C _L = 15 pF	—	50	—	ns
Turn-Off Delay	t _{OFF}			—	200	—	

TEST CIRCUIT

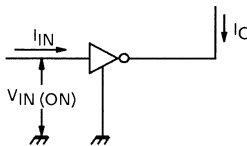
1. I_{CEX}



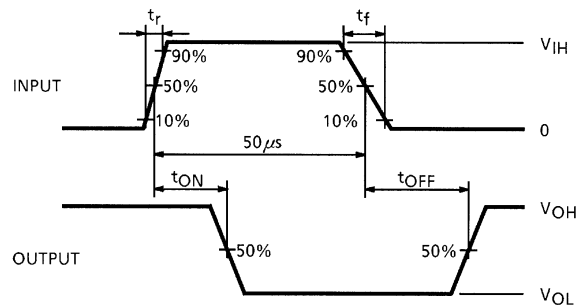
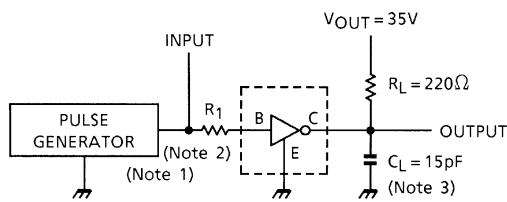
2. h_{FE}, V_{CE} (sat)



3. V_{IN} (ON)



4. t_{ON}, t_{OFF}



Note 1: Pulse Width 50 μs, Duty Cycle 10%
 Output Impedance 50 Ω, t_r ≤ 5 ns, t_f ≤ 10 ns
 Note 2: See below

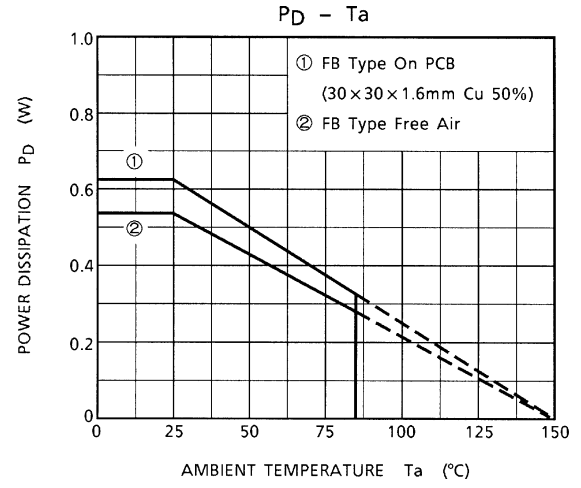
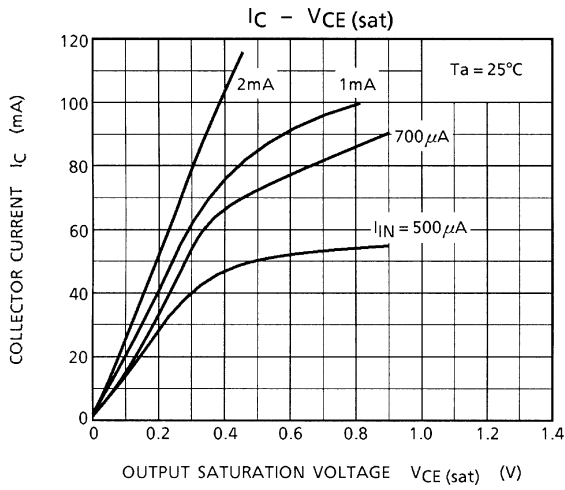
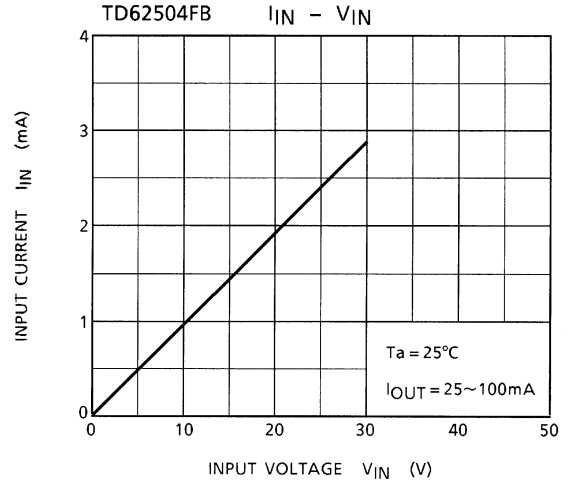
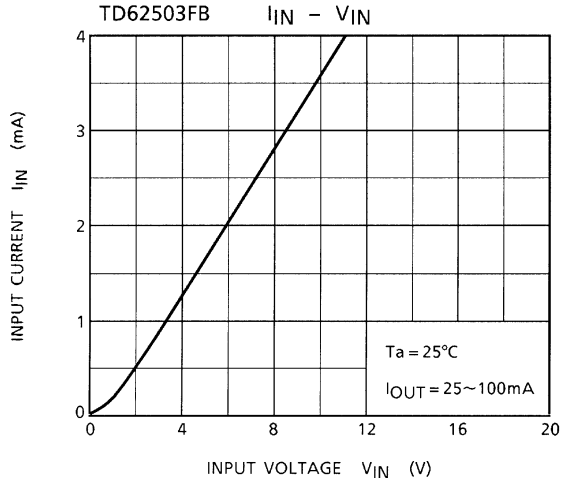
INPUT CONDITION

TYPE NUMBER	R _{IN}	V _{IH}
TD62503FB	0 Ω	3 V
TD62504FB	0 Ω	10 V

Note 3: C_L includes probe and jig capacitance

PRECAUTIONS for USING

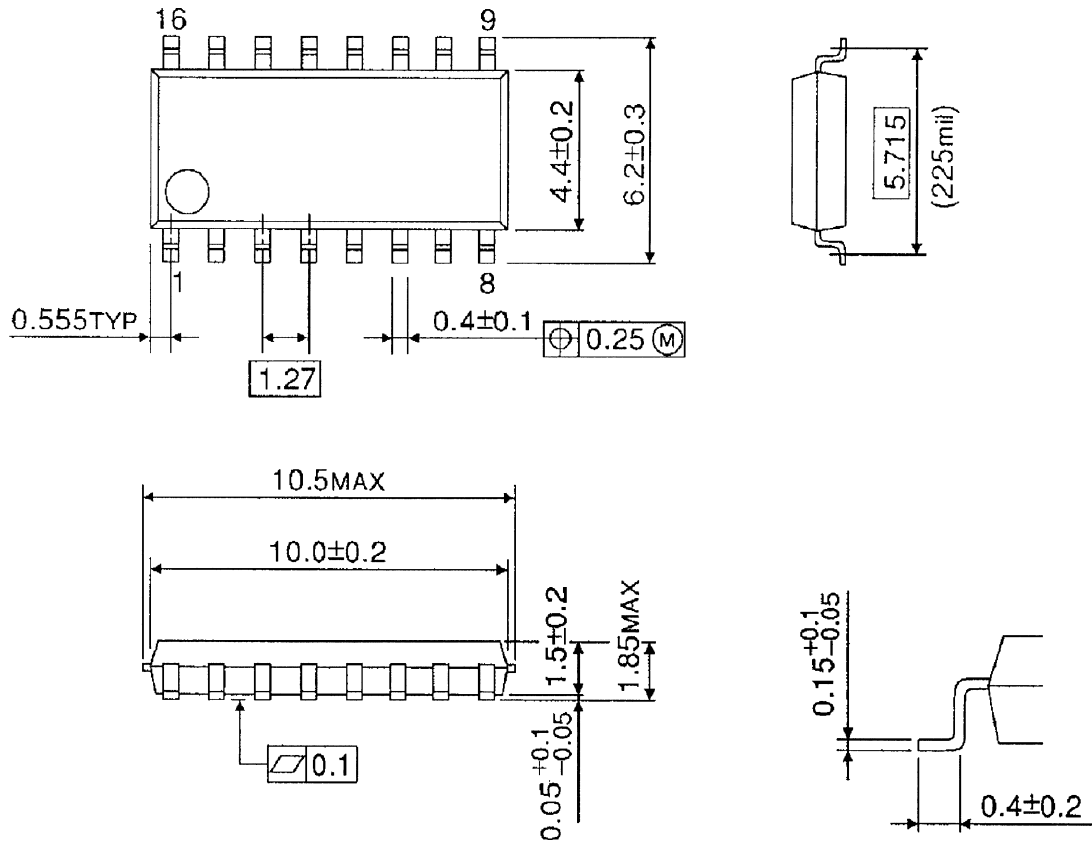
This IC does not integrate protection circuits such as overcurrent and overvoltage protectors. Thus, if excess current or voltage is applied to the IC, the IC may be damaged. Please design the IC so that excess current or voltage will not be applied to the IC. Utmost care is necessary in the design of the output line, V_{CC} and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



PACKAGE DIMENSIONS

SOP16-P-225-1.27B

Unit: mm



Weight: 0.16 g (Typ.)

RESTRICTIONS ON PRODUCT USE

000707EBA

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