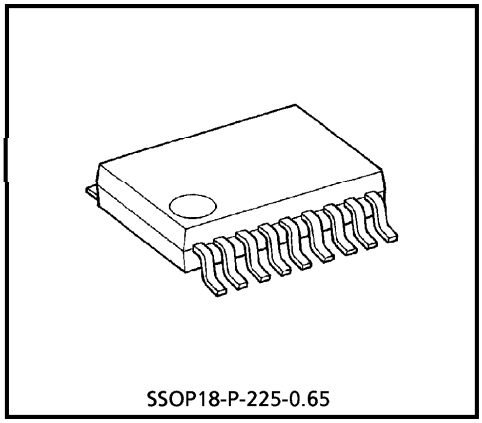
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62786AFN

8ch HIGH-VOLTAGE SOURCE-CURRENT DRIVER

The TD62786AFN is eight Channel Non-Inverting Source current Transistor Array. All units feature integral clamp diodes for switching inductive loads. Applications include relay, hammer and lamp drivers.



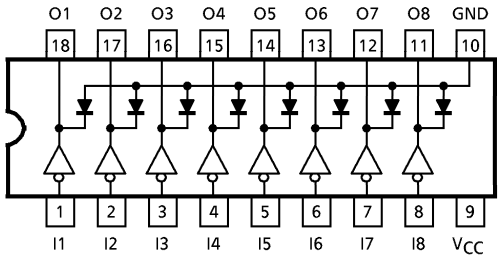
SSOP18-P-225-0.65

Weight : 0.09g (Typ.)

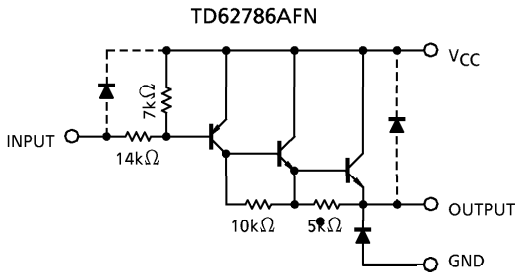
FEATURES

- Package Type : SSOP18 PIN
- High Output Voltage : $V_{CE\ (SUS)}$ = 50V (Min.)
- Output Current (Single Output) : I_{OUT} = − 500mA / ch (Max.)
- Low Level Active Input
- Output Clamp Diodes
- Input Compatible with TTL, 5V CMOS
- Single Supply Voltage

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



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

961001EBA2

MAXIMUM RATING (Ta = 25°C, V_{CC} = 0V)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{CC} - V_{GND}$	50	V
Output Sustaining Voltage	$V_{CE\ (SUS)}$	− 50	V
Output Current	I_{OUT}	− 500	mA / ch
Input Voltage	V_{IN}	− 30 ~ 0.5	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, V_{CC} = 0V)

CHARACTERISTIC	SYMBOL	CONDITION		MIN.	TYP.	MAX.	UNIT
Supply Voltage	$V_{CC} - V_{GND}$			—	—	50	V
Output Sustaining Voltage	$V_{CE\ (SUS)}$			—	—	− 50	V
Output Current	I_{OUT} (*)	DC 1 Circuit		—	—	− 350	mA / ch
		T_{pw} = 25ms, T_j = 120°C, Ta = 85°C, 8 Circuits	Duty = 10%	0	—	− 180	
			Duty = 50%	0	—	− 38	
Input Voltage	V_{IN}			− 30	—	0	V
Clamp Diode Reverse Voltage	V_R			—	—	50	V
Clamp Diode Forward Current	I_F			—	—	350	mA
Power Dissipation	P_D (*)			—	—	0.4	W

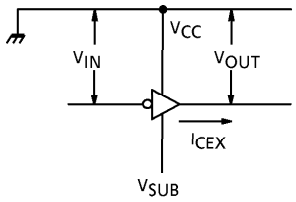
(*) On Class Epoxy PCB (50 × 50 × 1.6mm Cu 40%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 0V)

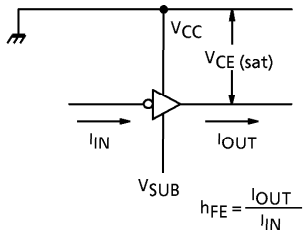
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current		I_{CEX}	1	$V_{OUT} = V_{GND} = -50V$ Ta = 85°C	—	—	−100	μA
Output Saturation Voltage		$V_{CE\ (sat)}$	2	$V_{IN} = V_{IL}$ MAX. $I_{OUT} = -100mA$	—	—	−1.8	V
				$V_{IN} = V_{IL}$ MAX. $I_{OUT} = -350mA$	—	—	−2.0	
DC Current transfer Ratio		h_{FE}	2	V_{CC} = 0V, V_{CE} = 3V $I_{OUT} = -350mA$	1000	—	—	
Input Voltage	"H"Level	V_{IN}	4		−1.2	—	0	V
	"L"Level				−30	—	−2.8	
Input Current		$I_{IN\ (ON)}$	3	V_{CC} = 5.5V, V_{IN} = 0.4V	—	—	−0.4	mA
Clamp Diode Reverse Current		I_R	—	$V_R = V_R$ MAX., Ta = 85°C	—	—	100	μA
Clamp Diode Forward Voltage		V_F	—		—	—	2.0	V
Turn-On Delay		t_{ON}	5	$V_{OUT} = -50V$, $R_L = 125\Omega$ C_L = 15pF	—	0.2	—	μs
Turn-Off Delay		t_{OFF}			—	1.0	—	

TEST CIRCUIT

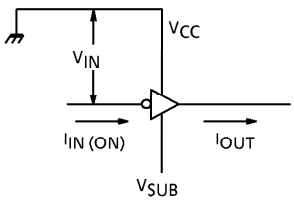
1. I_{CEX}



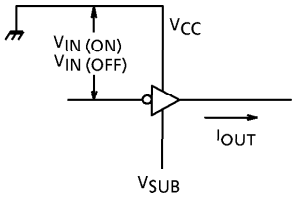
2. $V_{CE\ (sat)}$, h_{FE}



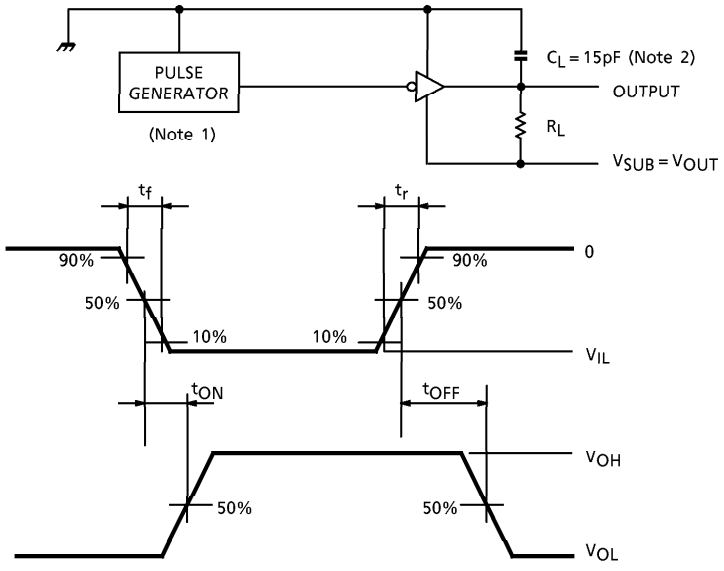
3. $I_{IN\ (ON)}$



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



5. t_{ON}, t_{OFF}



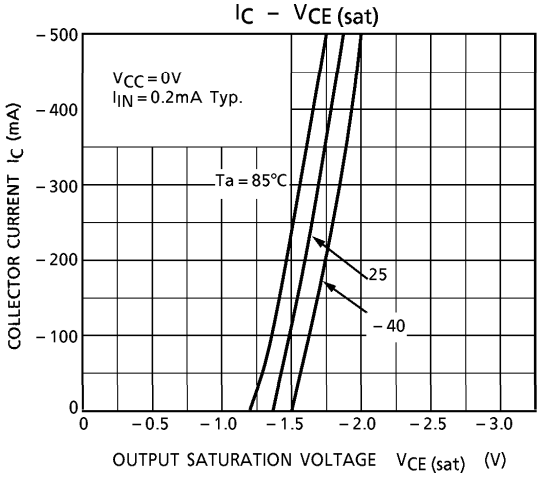
(Note 1) Pulse Width 50μs, Duty Cycle 10%
Output Impedance 50Ω, $t_r \leqq$ 10ns, $t_f \leqq$ 5ns

(Note 2) C_L includes probe and jig capacitance

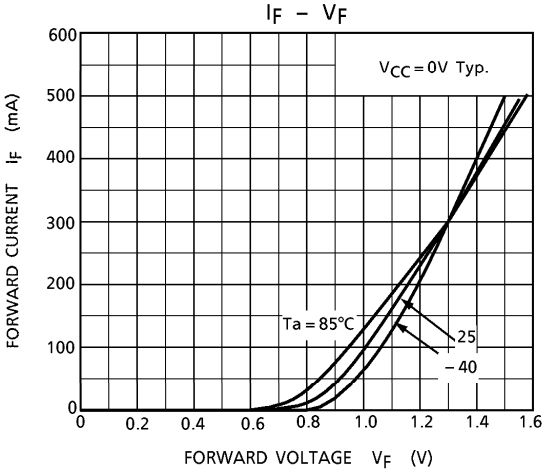
PRECAUTIONS for USING

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.

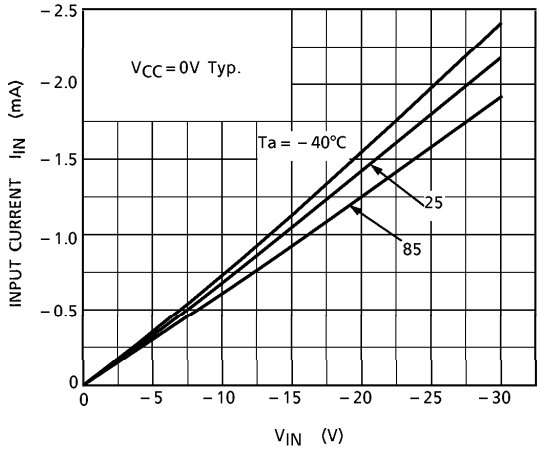
I_C – $V_{CE\,(sat)}$



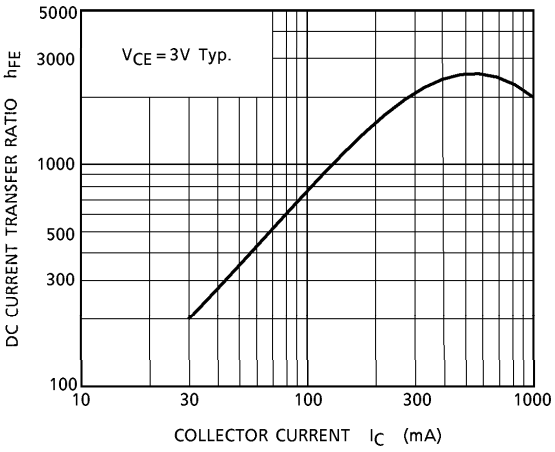
I_F – V_F



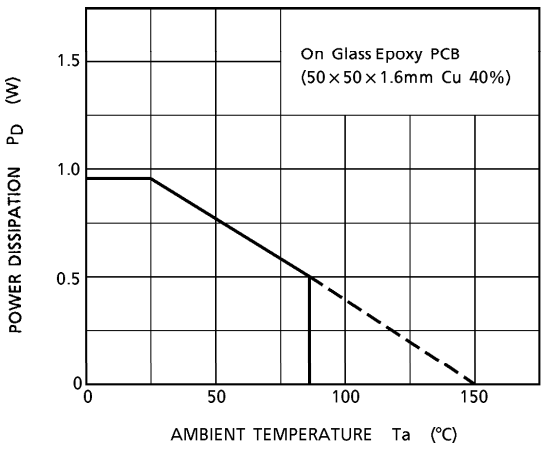
I_{IN} – V_{IN}



h_{FE} – I_C

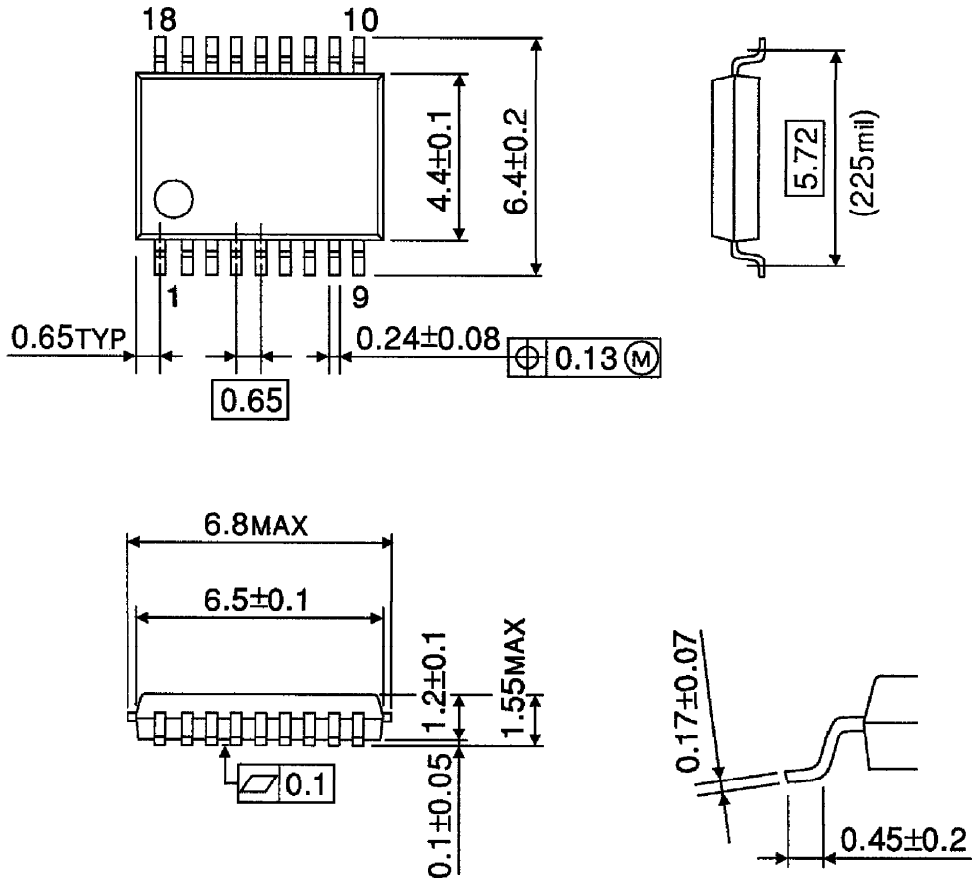


P_D – Ta



OUTLINE DRAWING

SSOP18-P-225-0.65 Unit : mm



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