

7 CIRCUIT DARLINGTON TRANSISTOR ARRAY

FEATURES

- Output Current : 500mA Max.
- High Sustaining Voltage Outputs : 50V Min.
- Output Clamp Diodes.
- Input Resistor : 2.7KΩ
- Inputs Compatible With TTL or 5V CMOS devices.
- PKG Type BP : DIP-16 Pin, BF : SOP-16 Pin

DESCRIPTION:

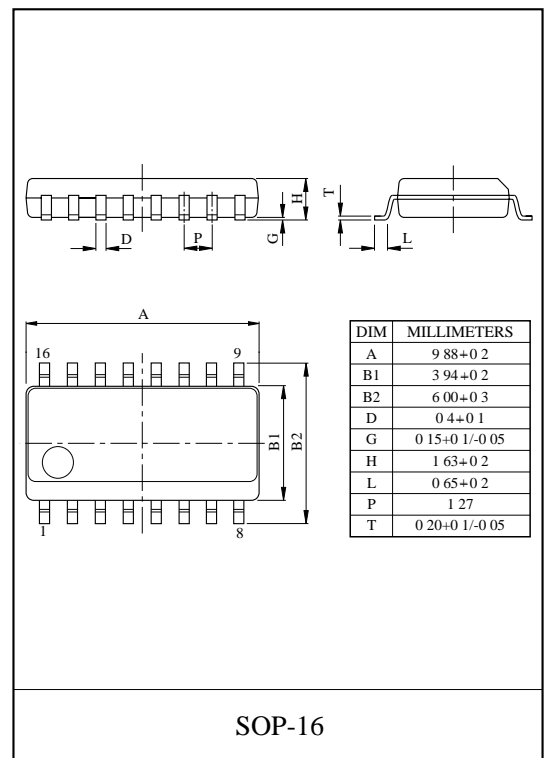
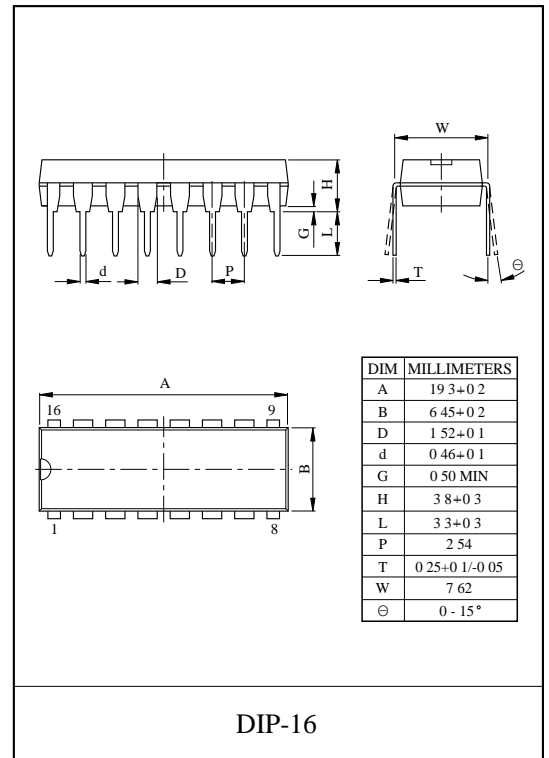
The FD62003AP/AF are high-voltage, high-current darlington transistor array comprised of seven NPN darlington pairs. All units feature internal clamp diodes for switching inductive loads.

APPLICATION :

- Relay Driver.
- Hammer Driver.
- Lamp and LED Display Driver.
- Line driver and Logic buffer.

MAXIMUM RATINGS (Ta=25°C, unless otherwise noted)

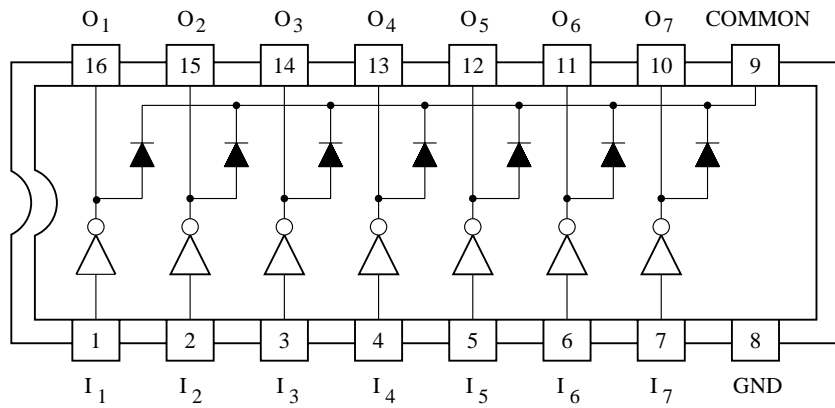
CHARACTERISTIC		SYMBOL	RATING	UNIT
Output Sustaining Voltage		$V_{CE(SUS)}$	50	V
Output Current		I_{OUT}	500	mA
Input Voltage		V_{IN}	-0.5 ~ +30	V
Clamp Diode	Reverse Voltage	V_R	50	V
	Forward Current	I_F	500	mA
GND Terminal Current		I_{GND}	2.5	A
Power Dissipation	BP	P_D	1.47	W
	BF		0.54	W
Operating Temperature		T_{opr}	-20 ~ 85	°C
Storage Temperature		T_{stg}	-65 ~ 150	°C



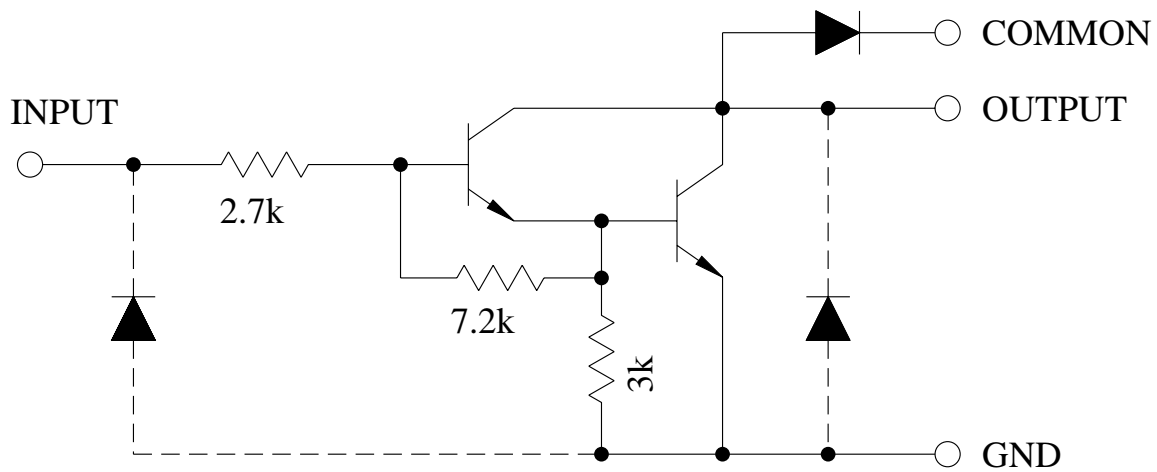


FD62003BP/BF

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)





FD62003BP/BF

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

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Sustaining Voltage	$V_{CE(SUS)}$		0	-	50	V
Output Current	I_{OUT}	$T_{PW}=25ms, DF=10\%, 7$ Circuits	0	-	400	mA
		$T_{PW}=25ms, DF=30\%, 7$ Circuits	0	-	200	
Input Voltage	V_{IN}		0	-	30	V
Clamp Diode Reverse Voltage	V_R		-	-	50	V
Clamp Diode Forward Current	I_F		-	-	400	mA
Power Dissipation	AP	P_D	-	-	0.52	W
	AF				$T_a=T_{opr(max)}$ *	

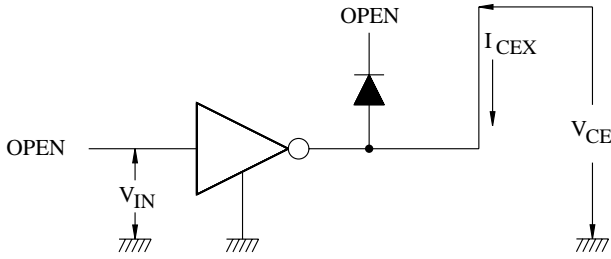
* : on glass epoxy PCB (30 X 30 X 1.6mm Cu50%)

ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise noted)

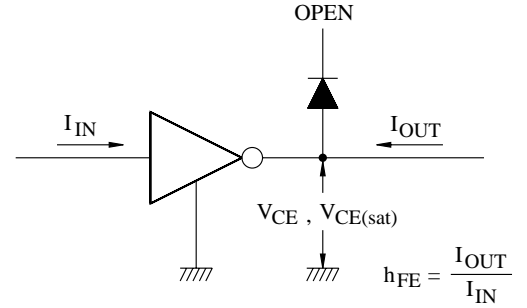
CHARACTERISTICS	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leak Current	I_{CEX}	1	$V_{CE}=50V, T_a=25^\circ C$	-	-	50	μA
			$V_{CE}=50V, T_a=85^\circ C$	-	-	100	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	2	$I_{OUT}=350mA, I_{IN}=500\mu A$	-	1.2	1.6	V
			$I_{OUT}=200mA, I_{IN}=350\mu A$	-	1.0	1.3	
			$I_{OUT}=100mA, I_{IN}=250\mu A$	-	0.9	1.1	
Input Current	$I_{IN(ON)}$	3	$V_{IN}=3.85V$	-	0.93	1.35	mA
	$I_{IN(OFF)}$	4	$I_{OUT}=500mA, T_a=70^\circ C$	50	65	-	μA
Input Voltage	$V_{IN(ON)}$	5	$V_{CE}=2V, I_{OUT}=200mA$	-	-	2.4	V
			$V_{CE}=2V, I_{OUT}=250mA$	-	-	2.7	
			$V_{CE}=2V, I_{OUT}=300mA$	-	-	3.0	
DC Current Transfer Ratio	h_{FE}	2	$V_{CE}=2V, I_{OUT}=350mA$	1000	-	-	
Clamp Diode Reverse Current	I_R	6	$V_R=50V, T_a=25^\circ C$	-	-	50	μA
			$V_R=50V, T_a=70^\circ C$	-	-	100	
Clamp Diode Forward Voltage	V_F	7	$I_F=350mA$	-	1.7	2.0	V
Input Capacitance	C_{IN}		$V_{IN}=0, f=1MHZ$	-	15	25	pF
Turn-ON Delay	t_{ON}	8	$V_{OUT}=50V, R_L=163\Omega$ $C_L=15pF$	-	0.25	1	μs
Turn-OFF Delay	t_{OFF}			-	0.25	1	

TEST CIRCUIT

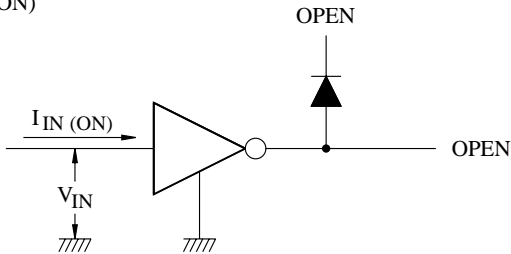
1. I_{CEX}



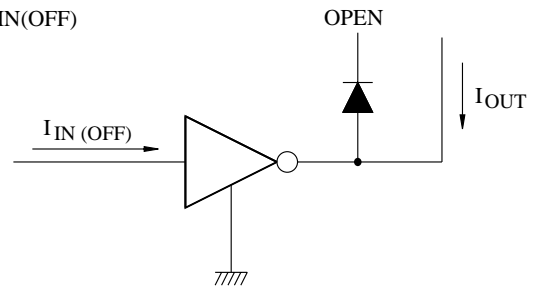
2. $V_{CE(sat)}, h_{FE}$



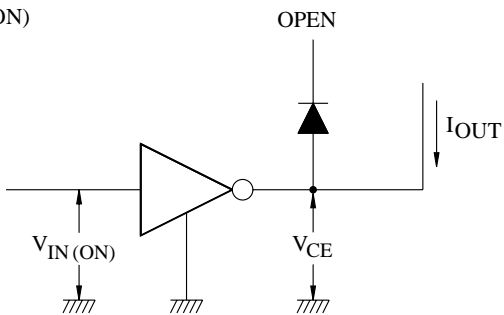
3. $I_{IN(ON)}$



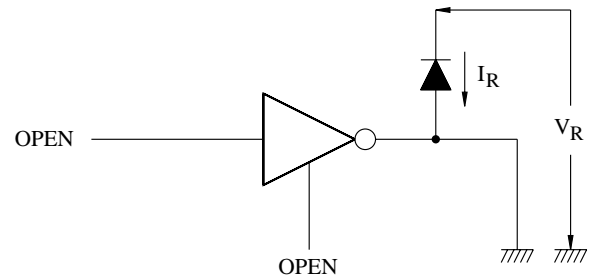
4. $I_{IN(OFF)}$



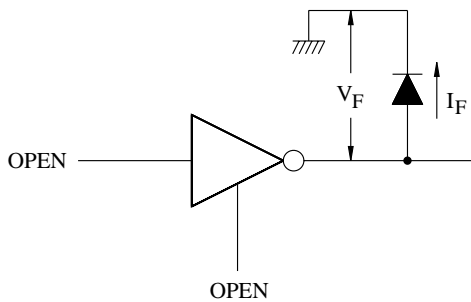
5. $V_{IN(ON)}$



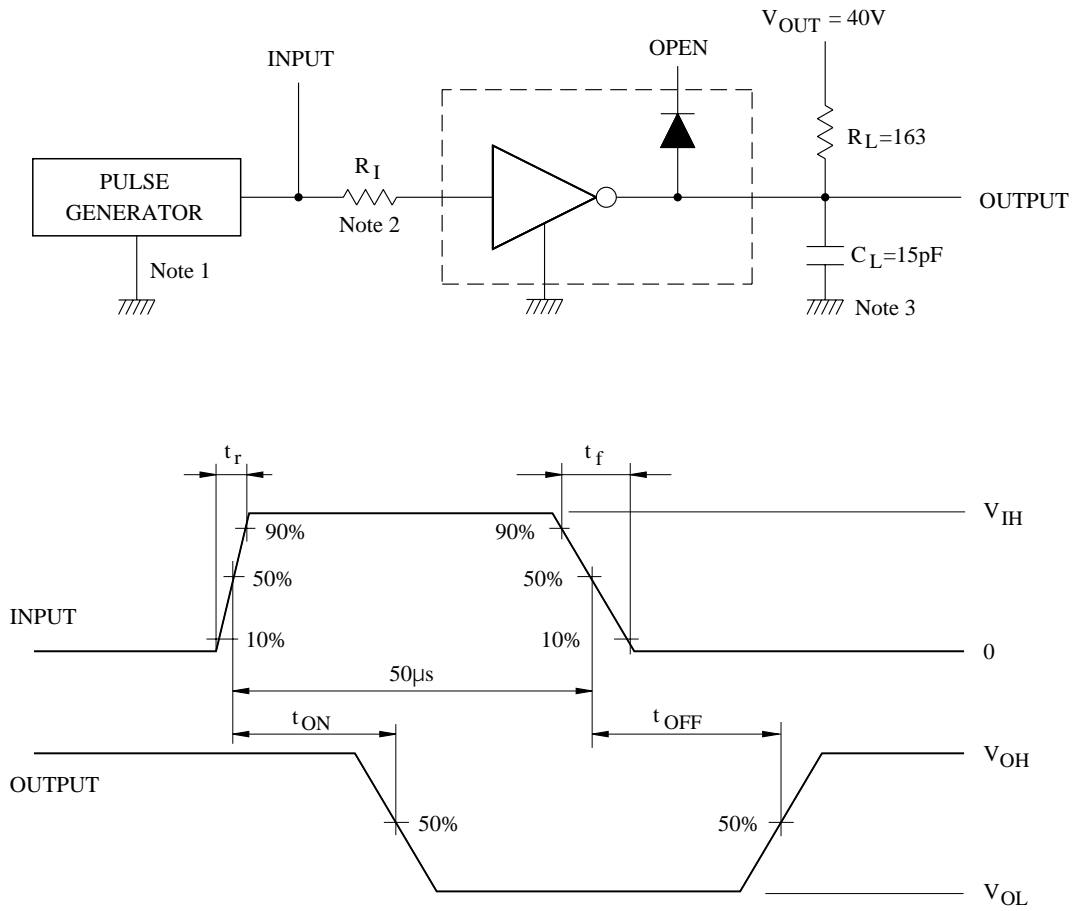
6. I_R



7. V_F



8. t_{ON} , t_{OFF}



Notes : 1. Pulse Width $50\ \mu\text{s}$, Duty Cycle 10%
Output Impedance $50\ \Omega$, $t_r \leq 5\text{ns}$, $t_f \leq 10\text{ns}$

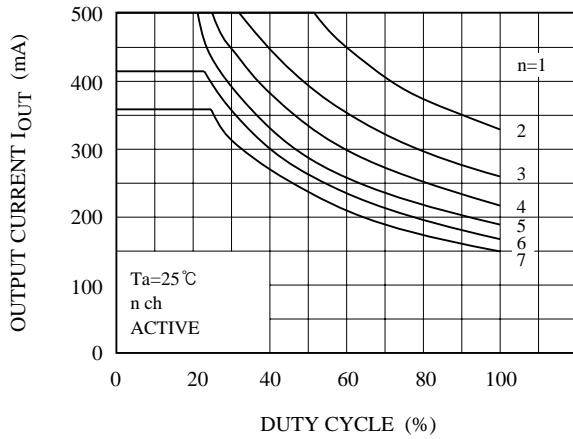
2. See below

Input Conditions

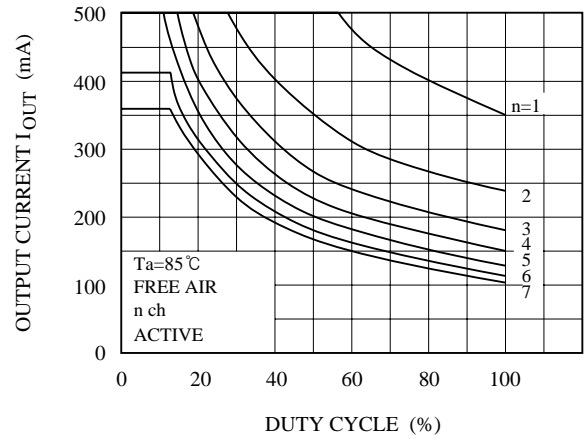
Type Number	R_I	V_{IH}
FD62003BP/BF	0	3V

3. C_L includes probe and Jig capacitance.

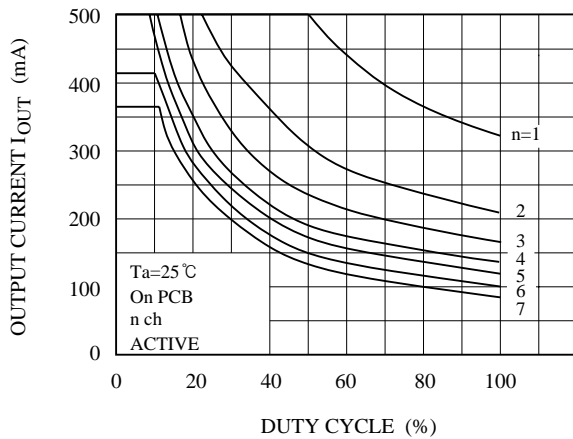
I_{OUT} - DUTY CYCLE



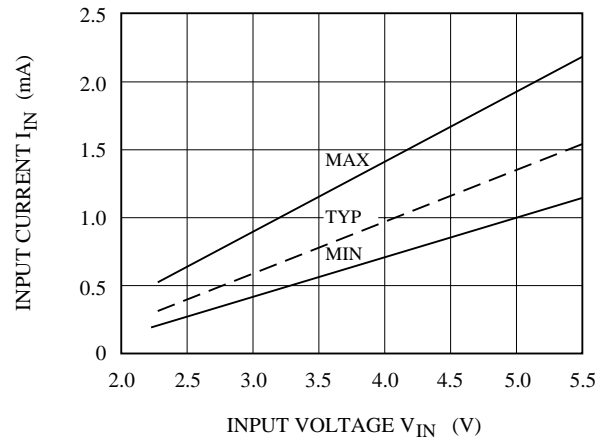
I_{OUT} - DUTY CYCLE



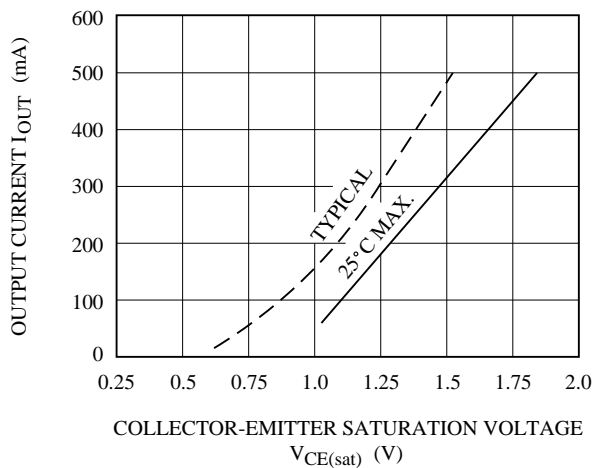
I_{OUT} - DUTY CYCLE



I_{IN} - V_{IN}



I_{OUT} - $V_{CE(sat)}$



P_D - T_a

