



# NPN POWER DARLINGTON TRANSISTOR ARRAY

**D76A3D**

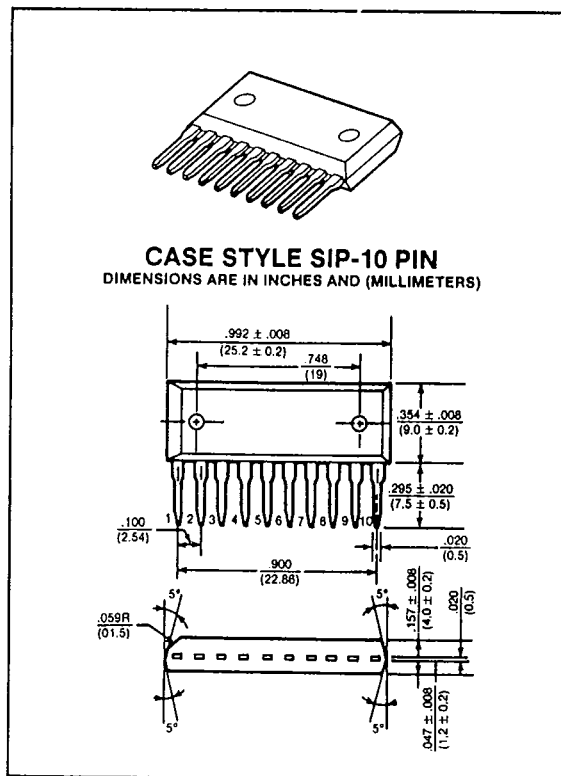
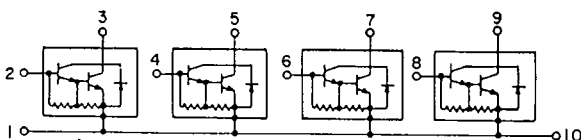
100 VOLTS  
3 AMP, 4.0 WATTS

Designed for high power switching applications, hammer drive, pulse motor drive and inductive load drive applications.

**Features:**

- High reliability small-sized available (4 in 1)
- Epoxy single-inline package (10 pin)
- High collector power dissipation:  $P_D = 4W @ T_A = 25^\circ C$  (Four device action)
- High collector current:  $I_C = 3A$  (Max.)
- High DC current gain:  
 $h_{FE} = 2000$  (Min.) @  $V_{CE} = 2V, I_C = 1.5A$

ARRAY CONFIGURATION



maximum ratings ( $T_A = 25^\circ C$ ) (unless otherwise specified)

RATING	SYMBOL	D76A3D	UNITS
Collector-Emitter Voltage	$V_{CEO}$	100	Volts
Collector-Base Voltage	$V_{CBO}$	120	Volts
Emitter Base Voltage	$V_{EBO}$	6	Volts
Collector Current — Continuous	$I_C$	3	A
Peak	$I_{CM}$	6	A
Base Current — Continuous	$I_B$	0.5	A
Collector Power Dissipation (One Device Action, $T_A = 25^\circ C$ )	$P_D$	2.0	Watts
Collector Power Dissipation (Four Device Action, $T_A = 25^\circ C$ )	$P_D$	4.0	Watts
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ C$

**thermal characteristics**

Thermal Resistance, Junction to Ambient (Four Device Action)	$\Sigma R_{\theta JA}$	31.3	$^\circ C/W$
Maximum Lead Temperature for Soldering Purpose: 1/8" from Case for 5 Seconds	$T_L$	260	$^\circ C$

electrical characteristics ( $T_A = 25^\circ\text{C}$ ) (unless otherwise specified)

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
Collector-Emitter Breakdown Voltage ( $I_C = 10\text{mA}$ , $I_B = 0$ )	$V_{BR(CEO)}$	100	—	—	Volts
Collector-Base Breakdown Voltage ( $I_C = 1\text{mA}$ , $I_E = 0$ )	$V_{BR(CBO)}$	120	—	—	Volts
Collector Cutoff Current ( $V_{CB} = 120\text{V}$ , $I_E = 0$ )	$I_{CBO}$	—	—	10	$\mu\text{A}$
Collector Cutoff Current ( $V_{CE} = 100\text{V}$ , $I_B = 0$ )	$I_{CEO}$	—	—	10	$\mu\text{A}$
Emitter Cutoff Current ( $V_{EB} = 6\text{V}$ , $I_C = 0$ )	$I_{EBO}$	—	—	2.5	mA

on characteristics

DC Current Gain ( $I_C = 1.5\text{A}$ , $V_{CE} = 2\text{V}$ ) ( $I_C = 3\text{A}$ , $V_{CE} = 2\text{V}$ )	$h_{FE}$	2000 1000	— —	12000 —	—
Collector-Emitter Saturation Voltage ( $I_C = 1.5\text{A}$ , $I_B = 3\text{mA}$ )	$V_{CE(sat)}$	—	—	1.5	Volts
Base-Emitter Saturation Voltage ( $I_C = 1.5\text{A}$ , $I_B = 3\text{mA}$ )	$V_{BE(sat)}$	—	—	2.0	Volts

switching characteristics

Turn-on Time	$V_{CC} = 30\text{V}$ $I_{B1} = -I_{B2} = 3\text{mA}$ Duty Cycle = 1%	$t_{on}$	—	0.3	—	$\mu\text{s}$
Storage Time		$t_{stg}$	—	2	—	
Fall Time		$t_f$	—	0.4	—	

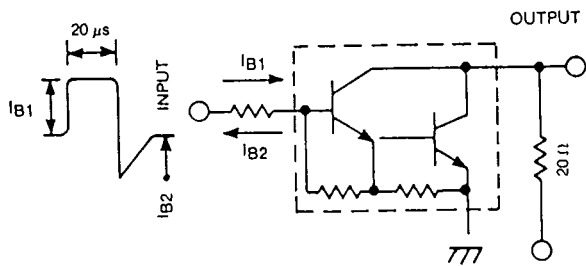


FIG. 1. SWITCHING TIME TEST CIRCUIT

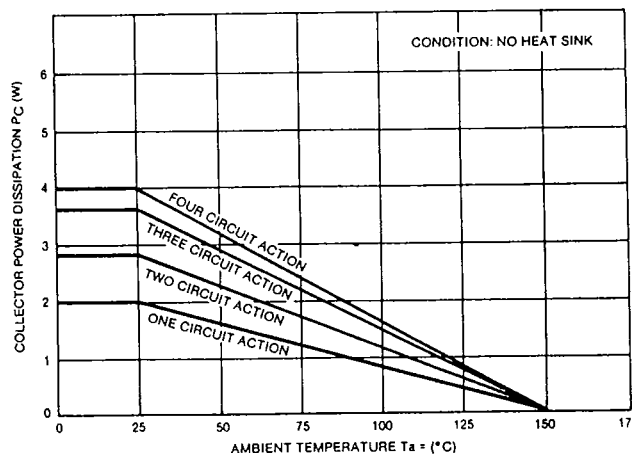


FIG. 2. TOTAL COLLECTOR POWER DISSIPATION



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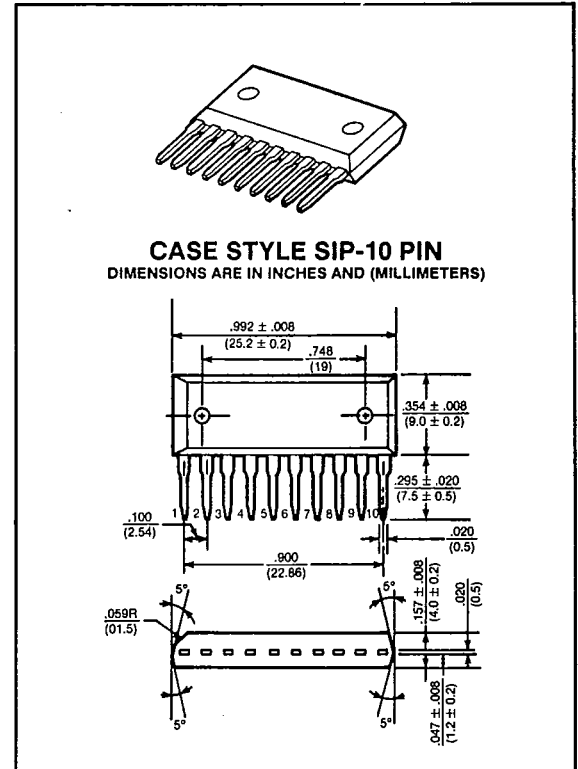
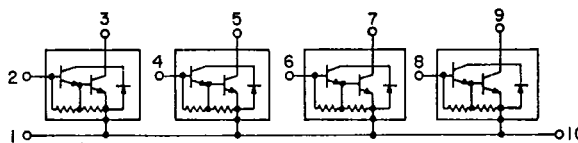
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