



NPN/PNP POWER DARLINGTON TRANSISTOR ARRAY

D78FY4D

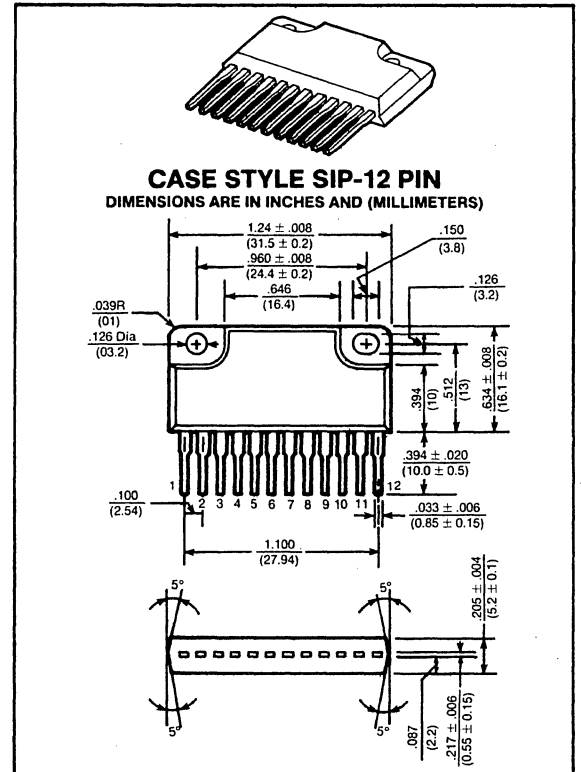
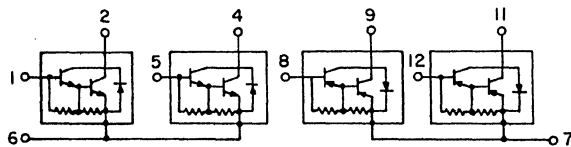
**80 VOLTS
4 AMP, 25 WATTS**

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 with heat sink (12 pin)
- High collector power dissipation: $P_D = 5W @ T_A = 25^\circ C$ (Four device action)
- High collector current: $I_C = \pm 4A$ (Max.)
- High DC current gain:
 $h_{FE} = 2000$ (Min.) @ $V_{CE} = \pm 2V, I_C = \pm 1A$

ARRAY CONFIGURATION



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

RATING	SYMBOL	D78FY4D	UNITS
Collector-Emitter Voltage	V_{CEO}	80	Volts
Collector-Base Voltage	V_{CBO}	100	Volts
Emitter Base Voltage	V_{EBO}	5	Volts
Collector Current — Continuous	I_C	4	A
Peak	I_{CM}	6	A
Base Current — Continuous	I_B	0.4	A
Maximum Forward Current	I_{FM}	3	A
Surge Current (1 sec)	I_{FSM}	6	A
Reverse Voltage	V_R	80	A
Collector Power Dissipation (One Device Action, $T_A = 25^\circ C$)	P_D	3.0	Watts
Collector Power Dissipation (Four Device Action)	P_D	5.0 25	Watts
Isolation Voltage (Between Fin to 1 ~ 12 pin)	V_{isol}	1000	Volts
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

thermal characteristics

Thermal Resistance, Junction to Case (Four Device Action)	$\Sigma R_{\theta JC}$	5.0	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction to Ambient (Four Device Action)	$\Sigma R_{\theta JA}$	25	$^{\circ}\text{C}/\text{W}$
Maximum Lead Temperature for Soldering Purpose: $\frac{1}{8}$ " from Case for 5 Seconds	T_L	260	$^{\circ}\text{C}$

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

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
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off characteristics

Collector-Emitter Breakdown Voltage ($I_C = 10\text{mA}$, $I_B = 0$)	$V_{BR(CEO)}$	80	—	—	Volts
Collector-Base Breakdown Voltage ($I_C = 1\text{mA}$, $I_E = 0$)	$V_{BR(CBO)}$	100	—	—	Volts
Collector Cutoff Current ($V_{CB} = 100\text{V}$, $I_E = 0$)	I_{CBO}	—	—	20	μA
Collector Cutoff Current ($V_{CE} = 80\text{V}$, $I_B = 0$)	I_{CEO}	—	—	20	μA
Emitter Cutoff Current ($V_{EB} = 5\text{V}$, $I_C = 0$)	I_{EBO}	—	—	2.5	mA

on characteristics

DC Current Gain ($I_C = 1\text{A}$, $V_{CE} = 2\text{V}$) ($I_C = 3\text{A}$, $V_{CE} = 2\text{V}$)	h_{FE}	2000 1000	— —	— —	—
Collector-Emitter Saturation Voltage ($I_C = 3\text{A}$, $I_B = 6\text{mA}$)	$V_{CE(sat)}$	—	—	1.5	Volts
Base-Emitter Saturation Voltage ($I_C = 3\text{A}$, $I_B = 6\text{mA}$)	$V_{BE(sat)}$	—	—	2.0	Volts

switching characteristics

Turn-on Time	$V_{CC} = 30\text{V}$ $I_{B1} = -I_{B2} = 6\text{mA}$ Duty Cycle = 1%	t_{on}	—	0.2	—	μs
Storage Time		t_{stg}	—	1.5	—	
Fall Time		t_f	—	0.6	—	

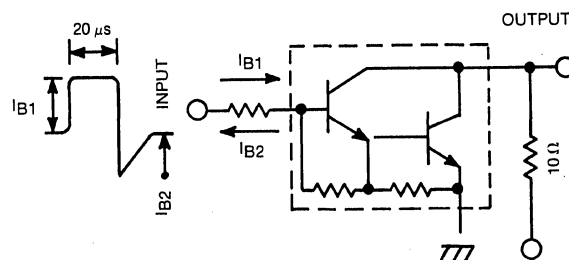


FIG. 1 SWITCHING TIME TEST CIRCUIT