NPN POWER DARLINGTON TRANSISTOR ARRAY

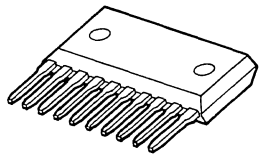
D76FI4D

60 VOLTS
4 AMP, 4 WATTS

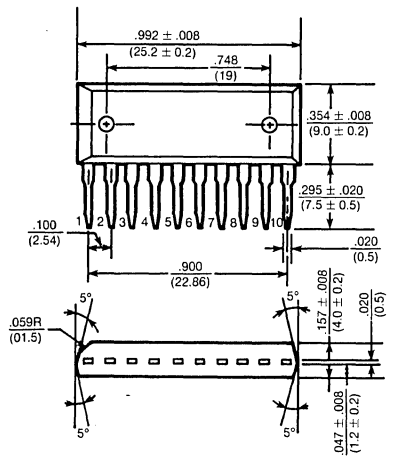
Designed for high power switching applications, hammer drive, pulse motor drive and inductive load drive applications.

Features:

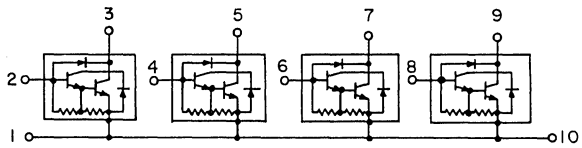
- High reliability small-sized available (4 in 1)
- Epoxy single-inline package (10 pin)
- High collector power dissipation: P_D = 4W @ T_A = 25°C (Four device action)
- High collector current: I_C = 4A (Max.)
- High DC current gain: h_{FE} = 2000 (Min.) @ V_{CE} = 2V, I_C = 1A



CASE STYLE SIP-10 PIN
DIMENSIONS ARE IN INCHES AND (MILLIMETERS)



ARRAY CONFIGURATION



maximum ratings (T_A = 25°C) (unless otherwise specified)

RATING	SYMBOL	D76FI4D	UNITS
Collector-Emitter Voltage	V_{CEO}	60 ± 10	Volts
Collector-Base Voltage	V_{CBO}	60 ± 10	Volts
Emitter Base Voltage	V_{EBO}	6	Volts
Collector Current — Continuous Peak	I_C I_{CM}	4 6	A
Base Current — Continuous	I_B	.5	A
Collector Power Dissipation (One Device Action, T_A = 25°C)	P_D	2.0	Watts
Collector Power Dissipation (Four Device Action, T_A = 25°C)	P_D	4.0	Watts
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	°C

thermal characteristics

Thermal Resistance, Junction to Ambient (Four Device Action)	$\Sigma R_{\theta JA}$	31.3	°C/W
Maximum Lead Temperature for Soldering Purpose: ⅛" from Case for 5 Seconds	T_L	260	°C

electrical characteristics (T_A = 25°C) (unless otherwise specified)

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
off characteristics					
Collector-Emitter Breakdown Voltage (I_C = 10mA, I_B = 0)	$V_{BR(CEO)}$	50	60	70	Volts
Collector-Base Breakdown Voltage (I_C = 10mA, I_E = 0)	$V_{BR(CBO)}$	50	60	70	Volts
Collector Cutoff Current (V_{CB} = 45V, I_E = 0)	I_{CBO}	—	—	10	μA
Collector Cutoff Current (V_{CE} = 45V, I_B = 0)	I_{CEO}	—	—	10	μA
Emitter Cutoff Current (V_{EB} = 6V, I_C = 0)	I_{EBO}	0.6	—	2.0	mA
second breakdown					
Second Breakdown with Base Foward Biased	FBSOA	SEE FIGURE 13			
on characteristics					
DC Current Gain (I_C = 1A, V_{CE} = 2V) (I_C = 3A, V_{CE} = 2V)	h_{FE}	2000 1000	— —	15000 —	—
Collector-Emitter Saturation Voltage (I_C = 3, I_B = 10mA)	$V_{CE(sat)}$	—	—	1.5	Volts
Base-Emitter Saturation Voltage (I_C = 3A, I_B = 10mA)	$V_{BE(sat)}$	—	—	2.0	Volts
switching characteristics					
Turn-on Time	V_{CC} = 30V I_{B1} = -I_{B2} = 10mA Duty Cycle = 1%	t_{on}	—	0.2	—	μs
Storage Time		t_{stg}	—	3.0	—	
Fall Time		t_f	—	0.5	—	

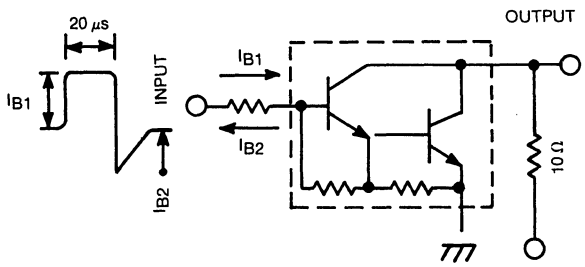


FIG. 1 SWITCHING TIME TEST CIRCUIT

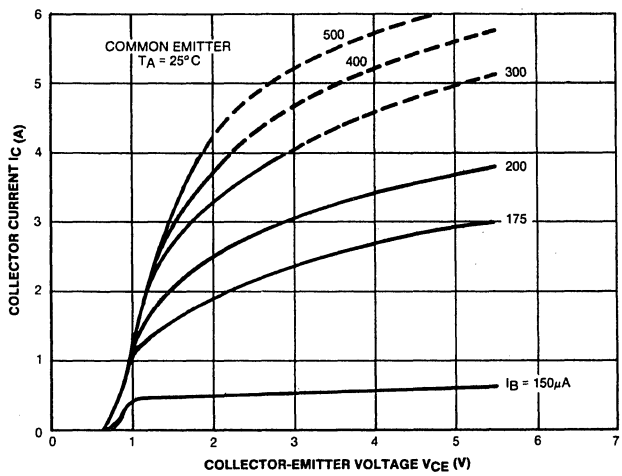


FIG. 2 I_C — V_{CE}

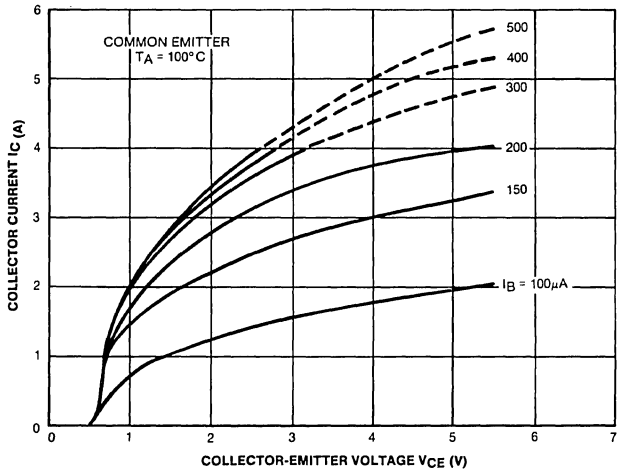


FIG. 3 I_C — V_{CE}

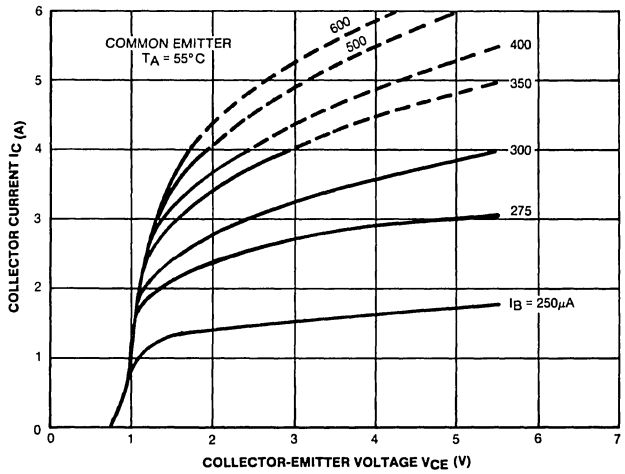


FIG. 4 I_C — V_{CE}

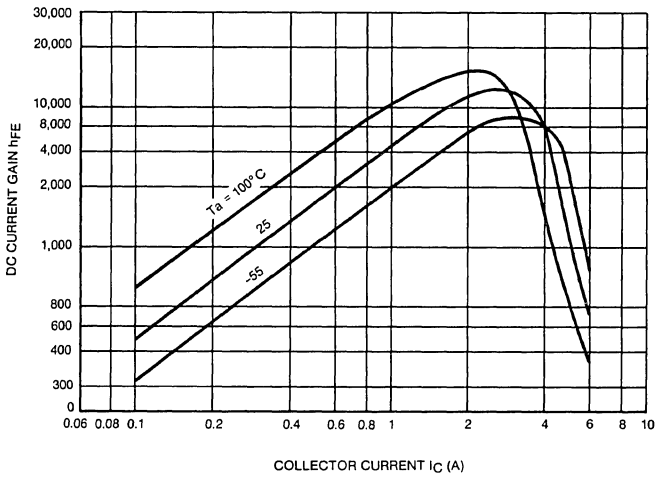


FIG. 5 h_{FE} - I_C

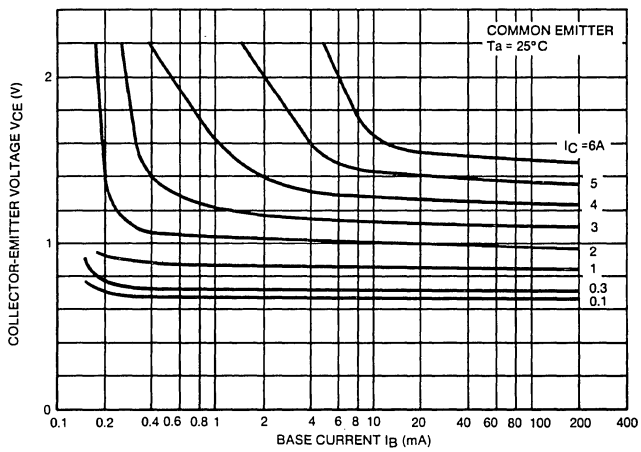


FIG. 6 I_B - V_{CE}

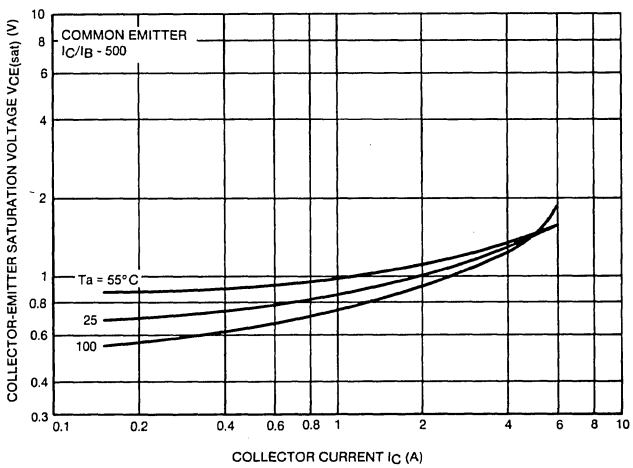


FIG. 7 $V_{CE(sat)}$ - I_C

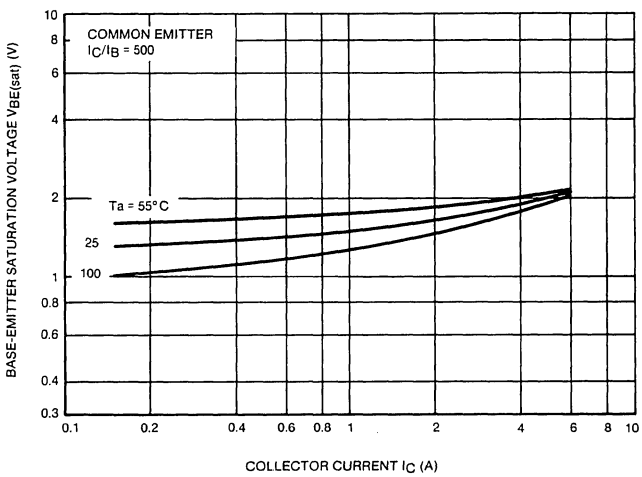


FIG. 8 $V_{BE(sat)}$ - I_C

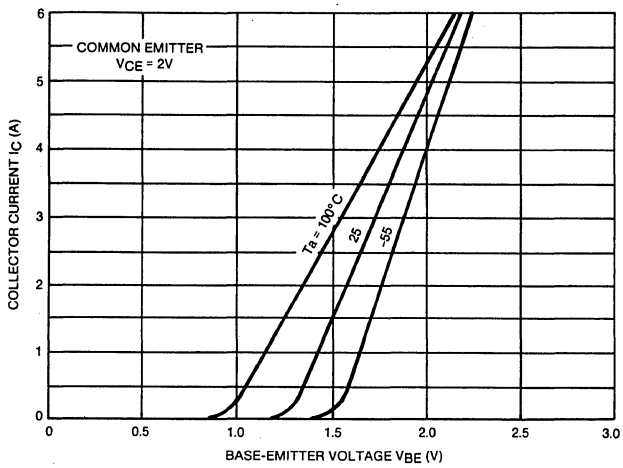


FIG. 9 IC - VBE

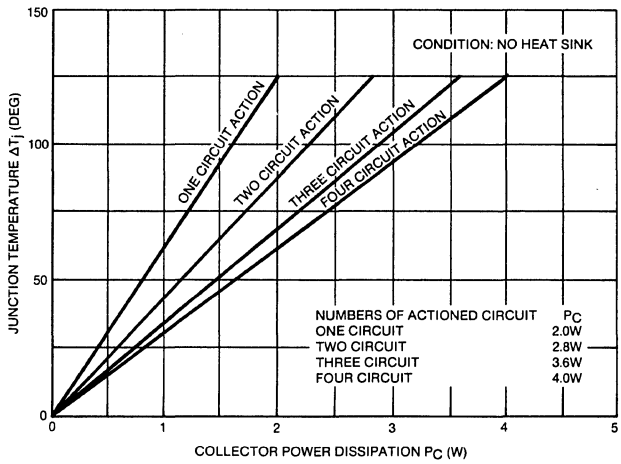


FIG. 10

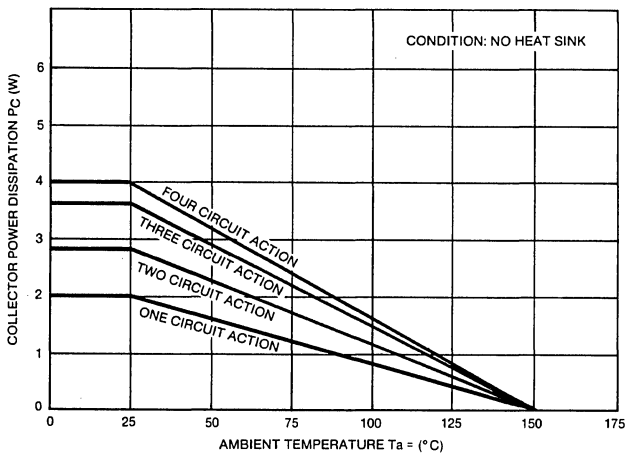


FIG. 11 TOTAL COLLECTOR POWER DISSIPATION

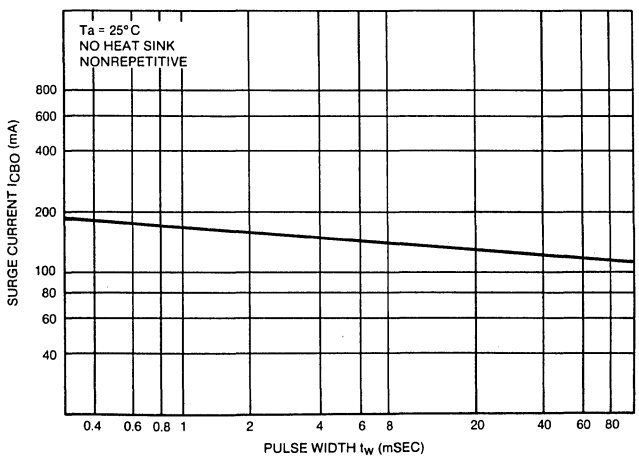


FIG. 12 ICBO VERSUS tw

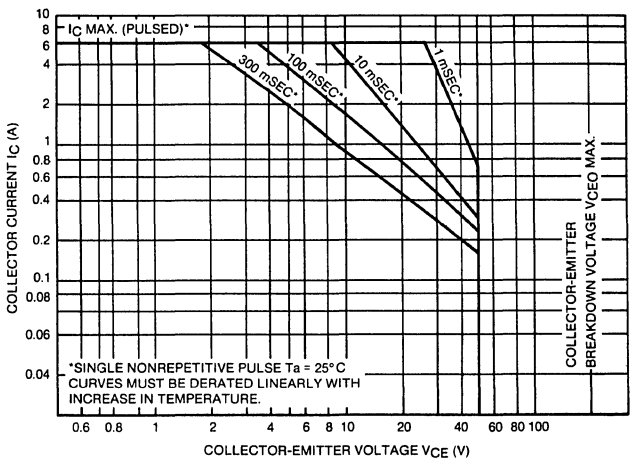


FIG. 13 SAFE OPERATING AREA