NPN POWER DARLINGTON TRANSISTORS

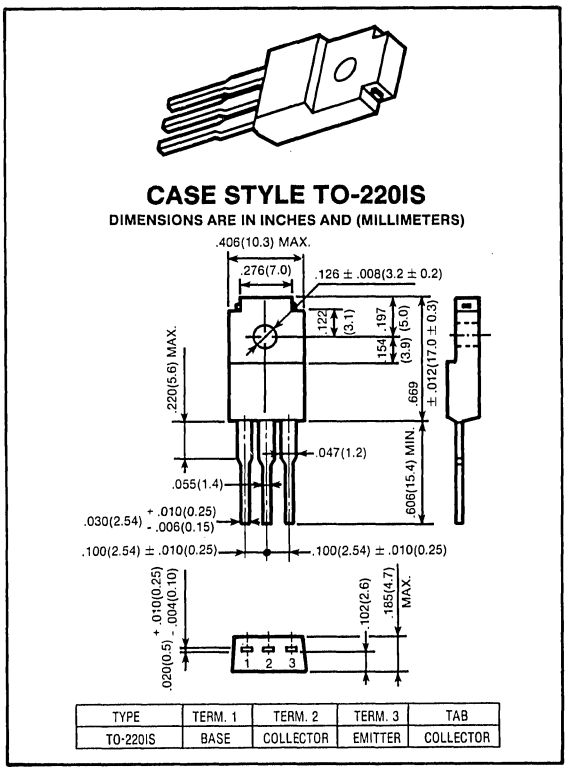
D54H6D

250 VOLTS
6 AMP, 25 WATTS

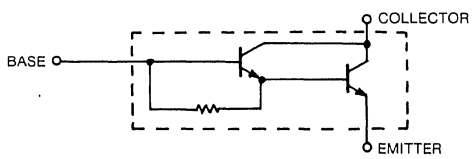
Designed for igniter applications, high voltage switching applications.

Features:

- High DC Current Gain:
  h_{FE} = 2000 (Min.) (at V_{CE} = 2V, I_C = 2A)
- Isolated TO-220 package.



EQUIVALENT CIRCUIT



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

RATING	SYMBOL	D54H6D	UNITS
Collector-Emitter Voltage	V_{CEO}	250	Volts
Collector-Base Voltage	V_{CBO}	300	Volts
Emitter Base Voltage	V_{EBO}	5	Volts
Collector Current — Continuous	I_C	6	A
Base Current — Continuous	I_B	1	A
Total Power Dissipation @ T_A = 25°C @ T_C = 25°C	P_D P_D	2.0 25	Watts
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	°C

thermal characteristics

Maximum Lead Temperature for Soldering Purposes: 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 Sustaining Voltage (I_C = 0.5A, L = 40mH)	$V_{CEO(sus)}$	250	—	—	Volts
Collector Cutoff Current (V_{CB} = 300V)	I_{CBO}	—	—	0.5	mA
Emitter Cutoff Current (V_{EB} = 5V)	I_{EBO}	—	—	0.5	mA
second breakdown					
Second Breakdown with Base Forward Biased	FBSOA	SEE FIGURE 4			
on characteristics					
DC Current Gain (I_C = 2A, V_{CE} = 2V) (I_C = 4A, V_{CE} = 2V)	h_{FE}	2000 200	— —	— —	—
Collector-Emitter Saturation Voltage (I_C = 4A, I_B = 0.04A)	$V_{CE(sat)}$	—	—	2.0	Volts
Base-Emitter Saturation Voltage (I_C = 4A, I_B = 0.04A)	$V_{BE(sat)}$	—	—	2.5	Volts
switching characteristics					
Turn-on Time	V_{CC} = 100V	t_{on}	—	1	—	μs
Storage Time	I_{B1} = I_{B2} = 0.04A	t_{stg}	—	8	—	
Fall Time	Duty Cycle ≤ 1%	t_f	—	5	—	

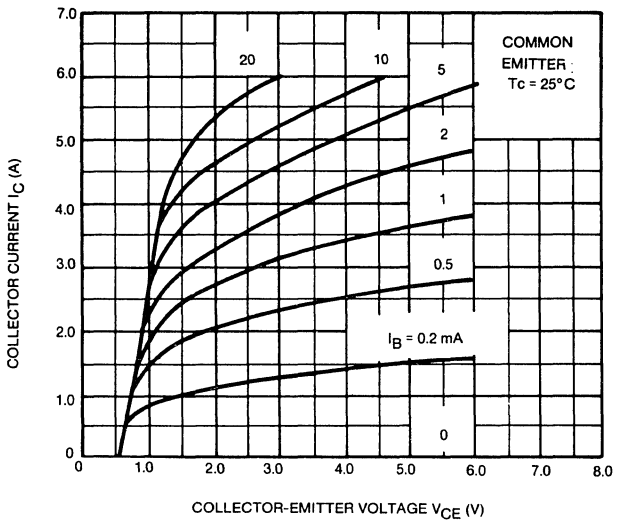


FIG. 1 I_C - V_{CE}

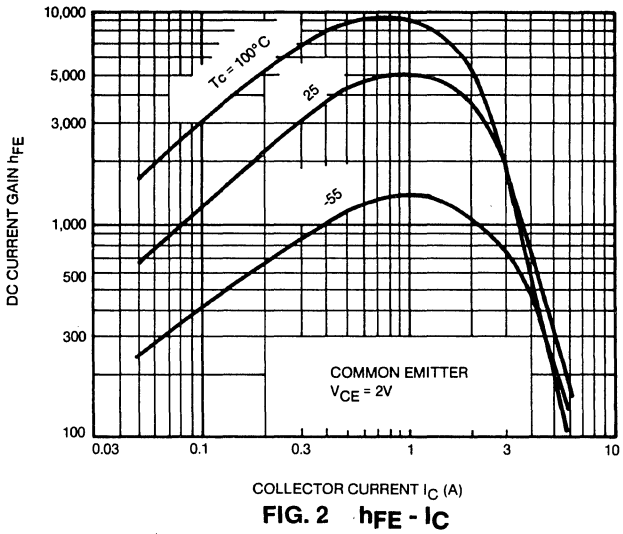


FIG. 2 h_{FE} - I_C

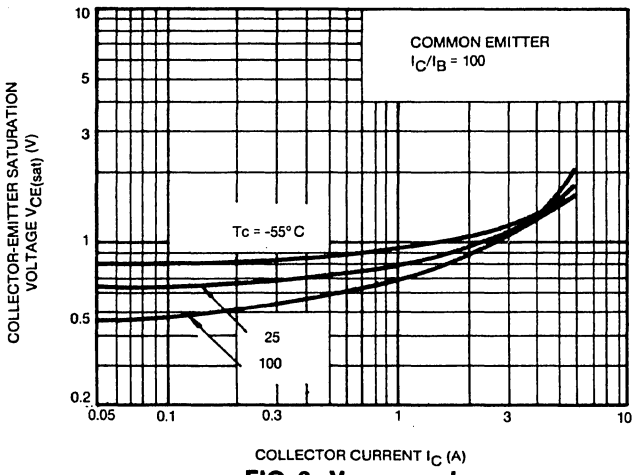


FIG. 3 $V_{CE(sat)}$ - I_C

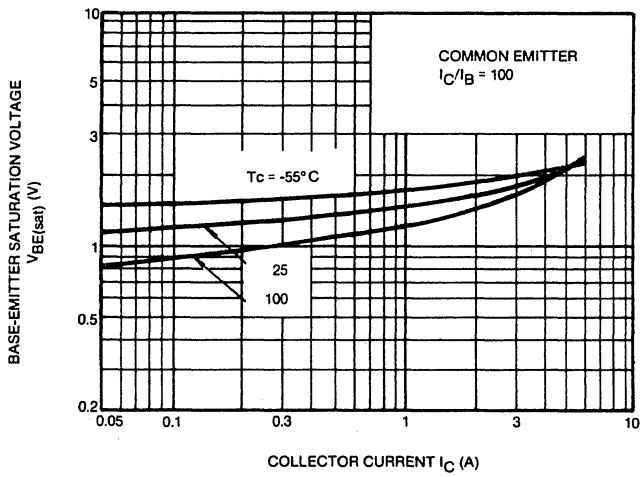


FIG. 5 $V_{BE(sat)}$ - I_C

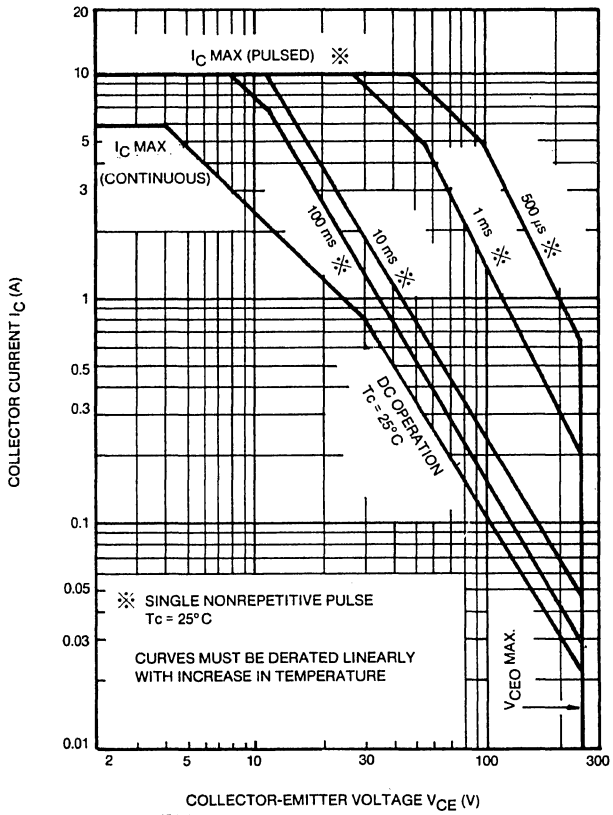


FIG. 4 SAFE OPERATING AREA