NPN POWER TRANSISTORS

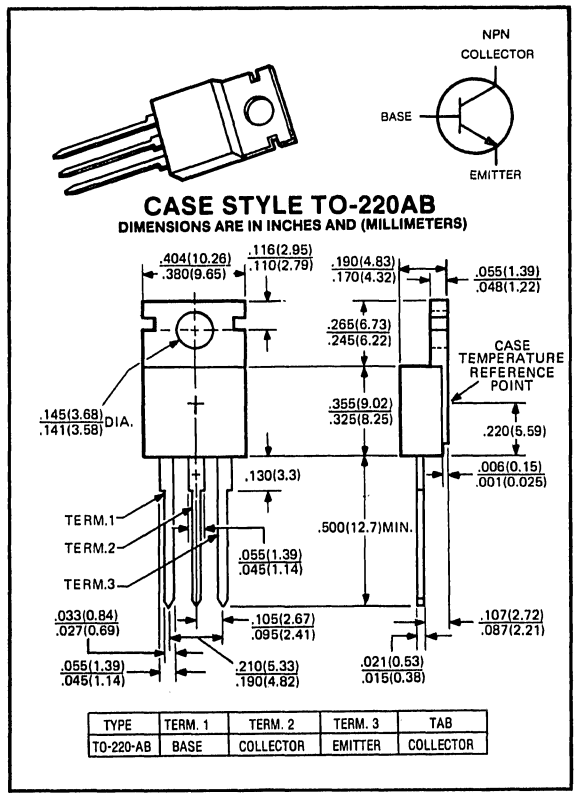
2N6487

60 VOLTS
15 AMP, 75 WATTS

These are designed for use in general-purpose amplifier and switching applications.

Features:

- DC Current Gain specified to 15 Amperes
  h_{FE} = 20-150 @ I_C = 5.0 A
  = 5.0 (Min) @ I_C = 15 A
- Collector-Emitter Sustaining Voltage —
  $V_{CEO(sus)}$ = 60 V (Min)
- TO-220AB Compact Package



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

RATING	SYMBOL	2N6487	UNITS
Collector-Emitter Voltage	V_{CEO}	60	Volts
Collector-Base Voltage	V_{CBO}	70	Volts
Emitter Base Voltage	V_{EBO}	5	Volts
Collector Current — Continuous	I_C	15	A
Base Current — Continuous	I_B	5	A
Total Power Dissipation @ T_C = 25°C Derate above 25°C	P_D	75 0.6	Watts W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150	°C

thermal characteristics

Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	70	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.67	°C/W
Maximum Lead Temperature for Soldering Purposes: ⅛" from Case for 5 Seconds	T_L	260	°C

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

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
off characteristics					
Collector-Emitter Sustaining Voltage (I_C = 200mA, I_B = 0)	$V_{CEO(sus)}$	60	—	—	Volts
Collector-Emitter Sustaining Voltage (I_C = 200mA, V_{BE} = -1.5V)	V_{CEX}	70	—	—	Volts
Collector Cutoff Current (V_{CE} = 30V, I_B = 0)	I_{CEO}	—	—	1	mA
Collector Cutoff Current (V_{CE} = 60V, $V_{EB(OFF)}$ = -1.5V, T_C = 150°C)	I_{CEX}	—	—	5	mA
Emitter Cutoff Current (V_{EB} = 5V, I_C = 0)	I_{EBO}	—	—	1	mA
second breakdown					
Second Breakdown with Base Forward Biased	FBSOA	SEE FIGURE 5			
on characteristics					
DC Current Gain (I_C = 5A, V_{CE} = 4V) (I_C = 15A, V_{CE} = 4V)	h_{FE}	20 5	— —	150 —	—
Collector-Emitter Saturation Voltage (I_C = 5A, I_B = .5A) (I_C = 15A, I_B = 5A)	$V_{CE(sat)}$	— —	— —	1.3 3.5	V V
Base-Emitter Voltage (I_C = 5A, V_{CE} = 4V) (I_C = 15A, V_{CE} = 4V)	$V_{BE(on)}$	— —	— —	1.3 3.5	V

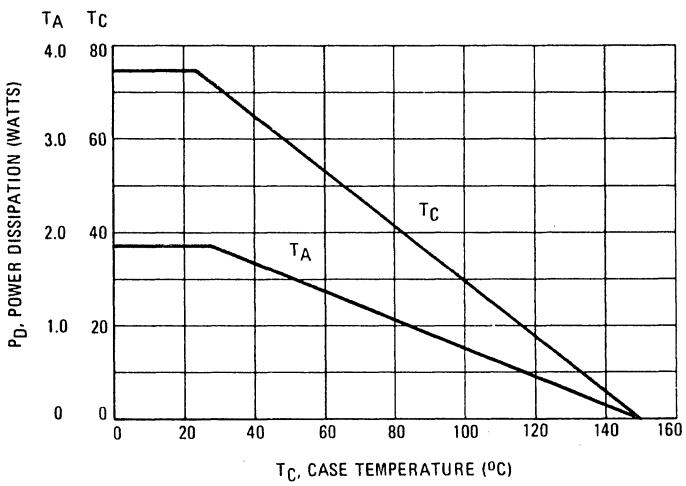
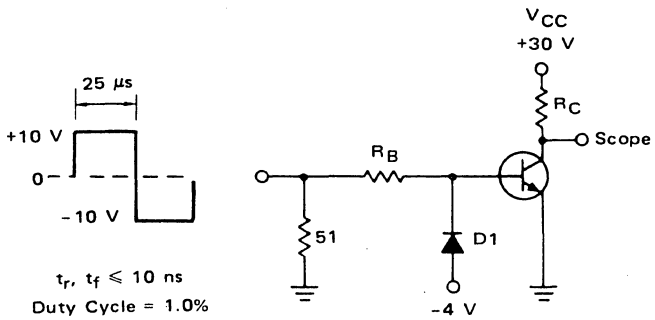


FIGURE 1 – POWER DERATING



RB and RC varied to obtain desired current levels.
For PNP reverse all polarities.

D1 must be fast recovery type, e.g.;
MBD5300 used above $I_B \approx$ 100 mA
MSD6100 used below $I_B \approx$ 100 mA

FIGURE 2 – SWITCHING TIME TEST CIRCUIT

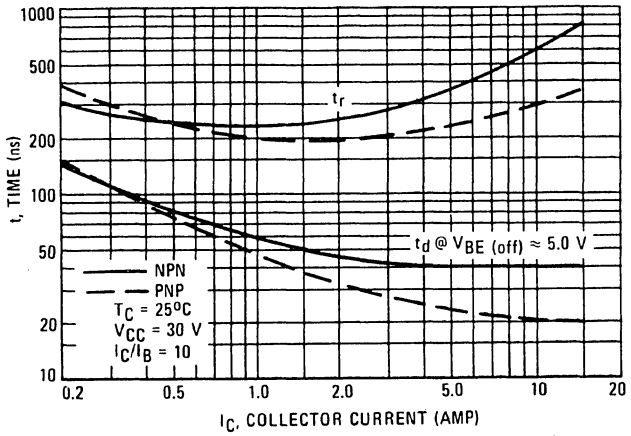


FIGURE 3 – TURN-ON TIME

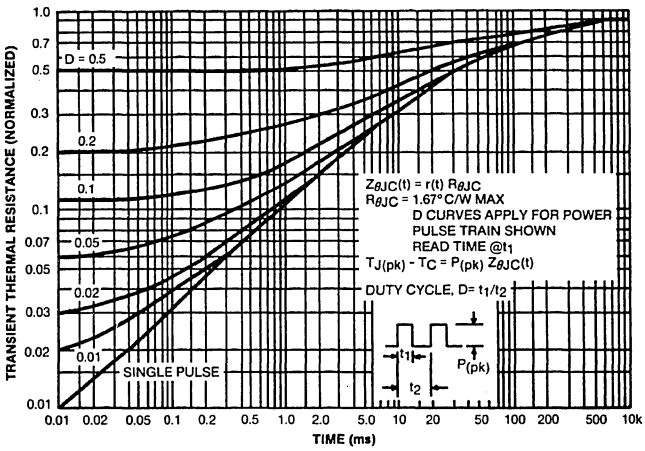


FIGURE 4 - THERMAL RESPONSE

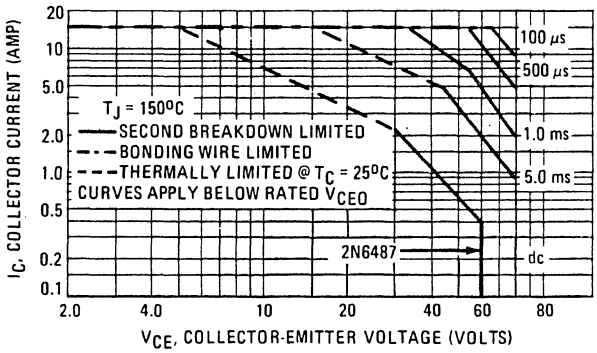


FIGURE 5 – ACTIVE-REGION SAFE OPERATING AREA

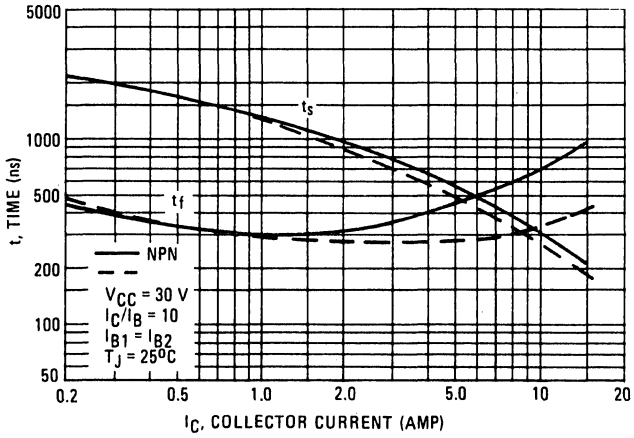


FIGURE 6 – TURN-OFF TIME

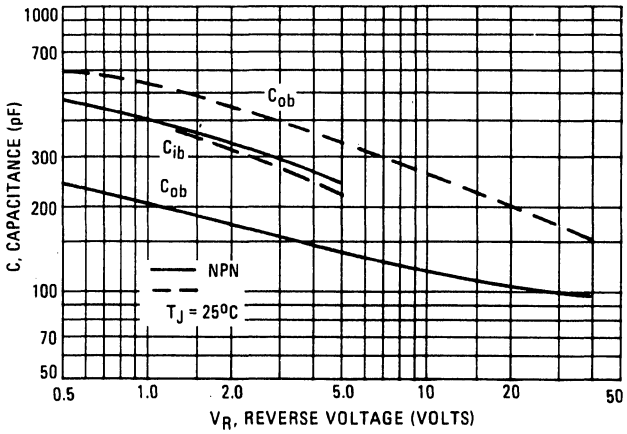


FIGURE 7 – CAPACITANCES

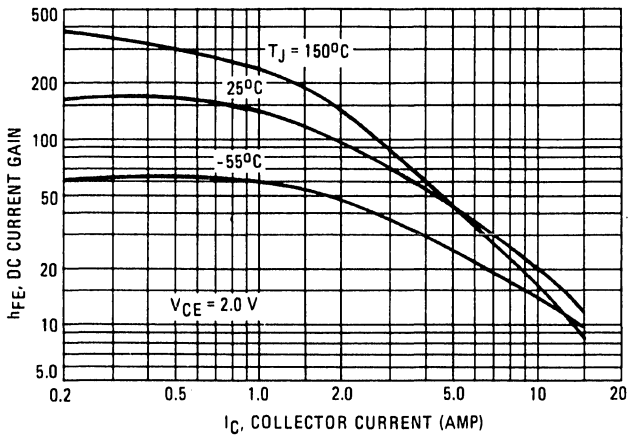


FIGURE 8 – DC CURRENT GAIN

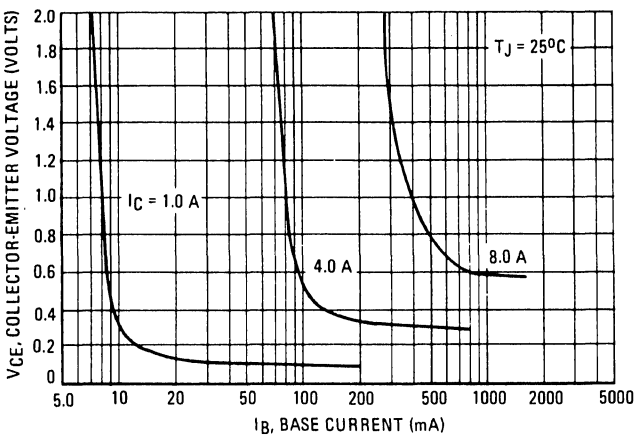


FIGURE 9 – COLLECTOR SATURATION REGION

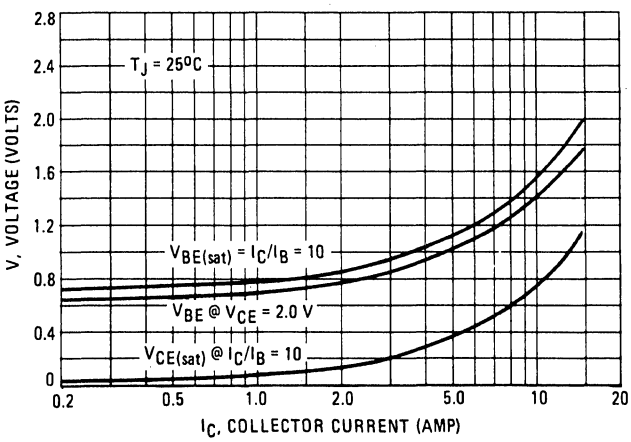


FIGURE 10 – "ON" VOLTAGES