

SILICON PLANAR EPITAXIAL POWER TRANSISTORS

General purpose P-N-P transistors, in TO-202 plastic envelopes, recommended for driver stages in hi-fi amplifiers and television circuits.

N-P-N complements are BD825, BD827 and BD829. Matched pairs can be supplied.

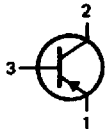
QUICK REFERENCE DATA

		BD826	BD828	BD830
Collector-base voltage	$-V_{CBO}$	max. 45	60	100 V
Collector-emitter voltage	$-V_{CEO}$	max. 45	60	80 V
Collector-emitter voltage	$-V_{CER}$	max. 45	60	100 V
Collector current (peak value)	$-I_{CM}$	max.	1,5	A
Total power dissipation at $T_{amb} = 25\text{ }^{\circ}\text{C}$ (free air) at $T_{mb} = 50\text{ }^{\circ}\text{C}$	P_{tot}	max.	2	W
	P_{tot}	max.	8	W
Junction temperature	T_j	max.	150	$^{\circ}\text{C}$
D.C. current gain $-I_C = 150\text{ mA}; -V_{CE} = 2\text{ V}$	h_{FE}		40 to 250	
Transition frequency $-I_C = 50\text{ mA}; -V_{CE} = 5\text{ V}$	f_T	typ.	75	MHz

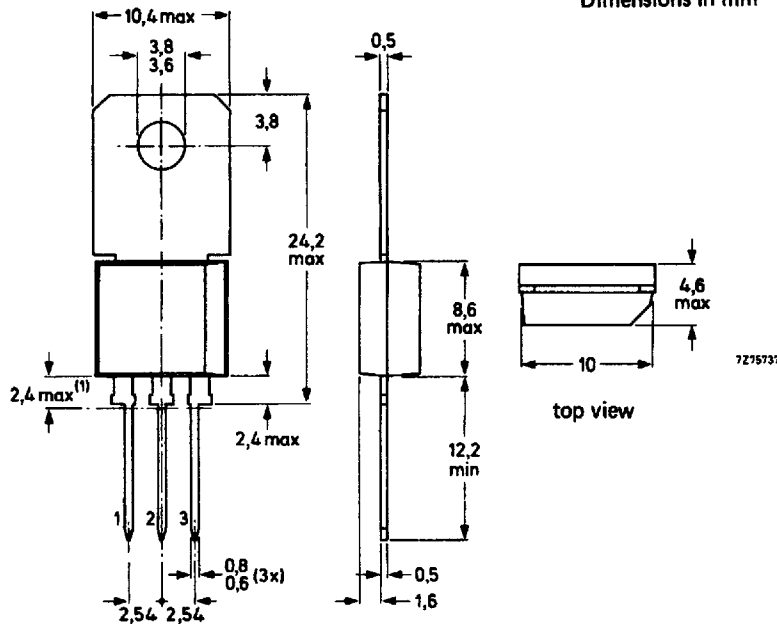
MECHANICAL DATA

Fig. 1 TO-202.

Collector connected to mounting base.



(1) Plastic flash allowed within this zone.



Dimensions in mm

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

			BD826	BD828	BD830
Collector-base voltage (open emitter)	$-V_{CBO}$	max.	45	60	100 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	45	60	80 V
Collector-emitter voltage ($R_{BE} = 1\text{ k}\Omega$)	$-V_{CER}$	max.	45	60	100 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5	5	5 V
Collector current (d.c.)	$-I_C$	max.		1	A
Collector current (peak value)	$-I_{CM}$	max.		1,5	A
Total power dissipation					
$T_{amb} = 25\text{ }^\circ\text{C}$ (free air)	P_{tot}	max.		2	W
$T_{mb} = 50\text{ }^\circ\text{C}$	P_{tot}	max.		8	W
Storage temperature	T_{stg}		-65 to +150		$^\circ\text{C}$
Junction temperature	T_j	max.		150	$^\circ\text{C}$
THERMAL RESISTANCE					
From junction to ambient in free air	$R_{th\ j-a}$	=		62,5	K/W
From junction to mounting base	$R_{th\ j-mb}$	=		12,5	K/W

CHARACTERISTICS $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Collector cut-off current

 $I_E = 0; -V_{CB} = 30\text{ V}$ $-I_{CBO} < 100\text{ nA}$ $I_E = 0; -V_{CB} = 30\text{ V}; T_j = 125\text{ }^\circ\text{C}$ $-I_{CBO} < 10\text{ }\mu\text{A}$

Emitter cut-off current

 $I_C = 0; -V_{EB} = 5\text{ V}$ $-I_{EBO} < 10\text{ }\mu\text{A}$

D.C. current gain

 $-I_C = 5\text{ mA}; -V_{CE} = 2\text{ V}$ $h_{FE} > 25$ $-I_C = 150\text{ mA}; -V_{CE} = 2\text{ V}$ $h_{FE} \quad 40\text{ to }250$ $-I_C = 500\text{ mA}; -V_{CE} = 2\text{ V}$ $h_{FE} > 25$

Collector-emitter saturation voltage

 $-I_C = 500\text{ mA}; -I_B = 50\text{ mA}$ $-V_{CEsat} < 0,5\text{ V}$

Base-emitter voltage

 $-I_C = 500\text{ mA}; -V_{CE} = 2\text{ V}$ $-V_{BE} < 1\text{ V}$ Transition frequency at $f = 35\text{ MHz}$ $-I_C = 50\text{ mA}; -V_{CE} = 5\text{ V}$ $f_T \quad \text{typ.} \quad 75\text{ MHz}$

D.C. current gain ratio of matched complementary pairs

 $|I_C| = 150\text{ mA}; |V_{CE}| = 2\text{ V}$ $h_{FE1}/h_{FE2} \quad \text{typ.} \quad 1,3$
 $< \quad 1,6$

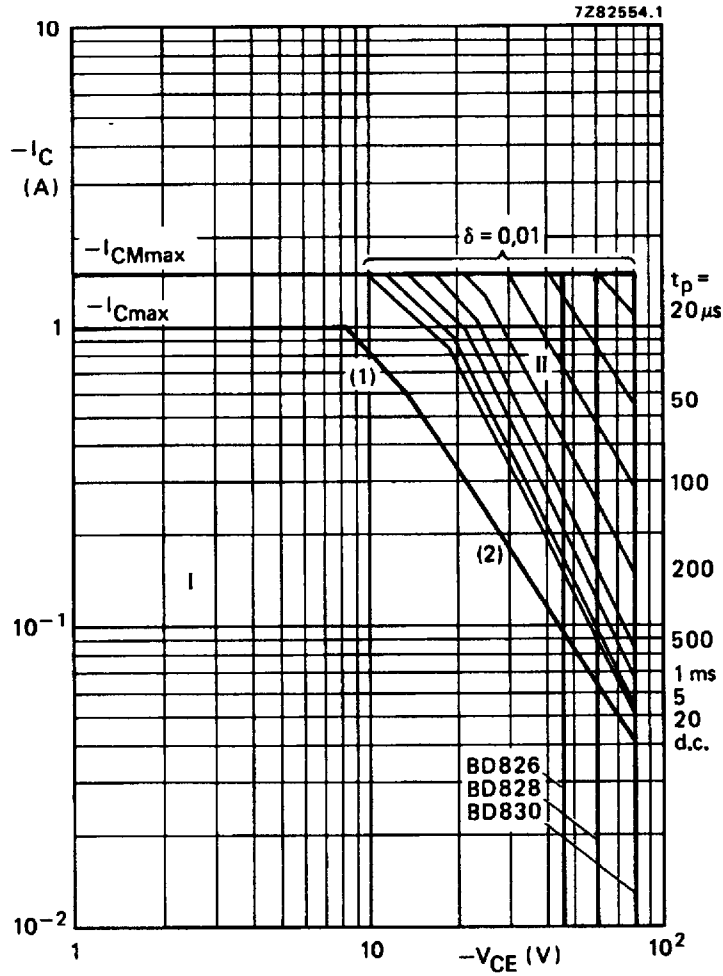


Fig. 2 Safe Operating Area, $T_{mb} \leq 25^\circ\text{C}$.

- I Region of permissible d.c. operation.
- II Permissible extension for repetition pulse operation.
- (1) $P_{tot\ max}$ and $P_{peak\ max}$ lines.
- (2) Second-breakdown limits.

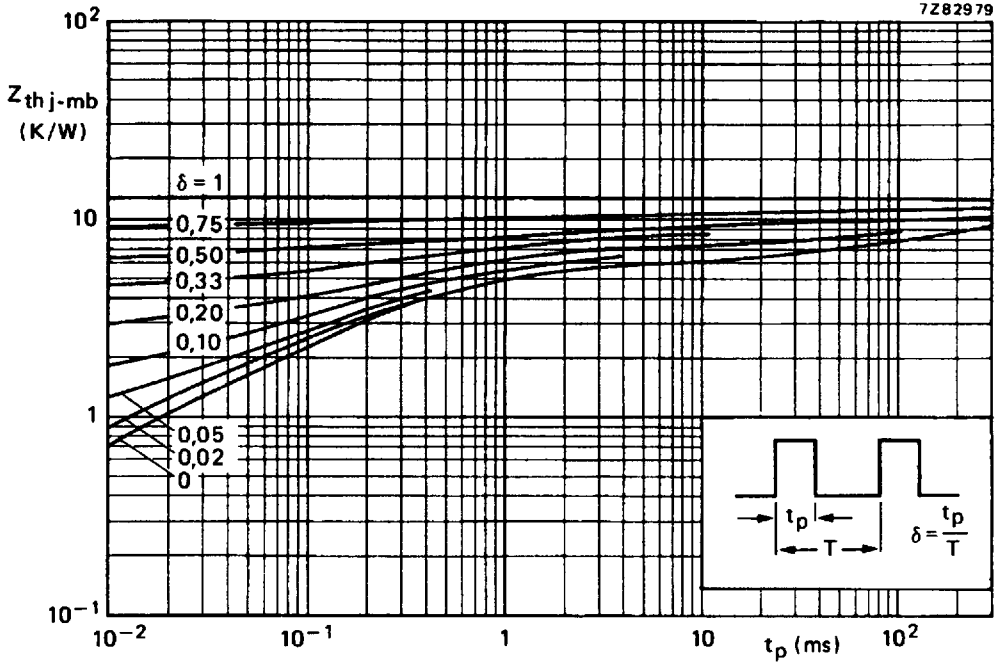


Fig. 3 Pulse power rating chart.

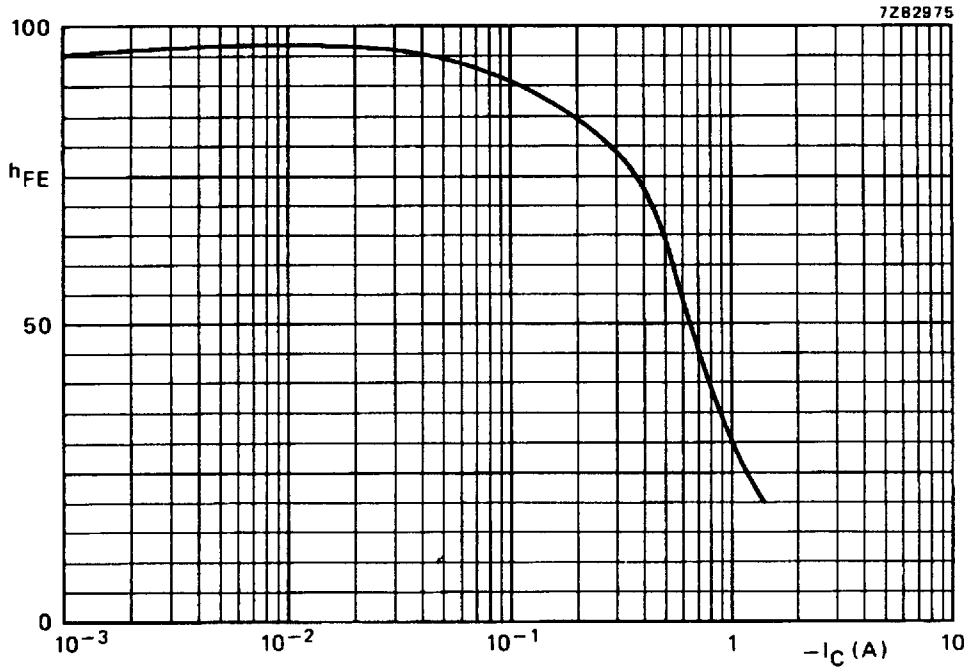


Fig. 4 Typical values d.c. current gain. $-V_{CE} = 2$ V; $T_{amb} = 25$ °C.

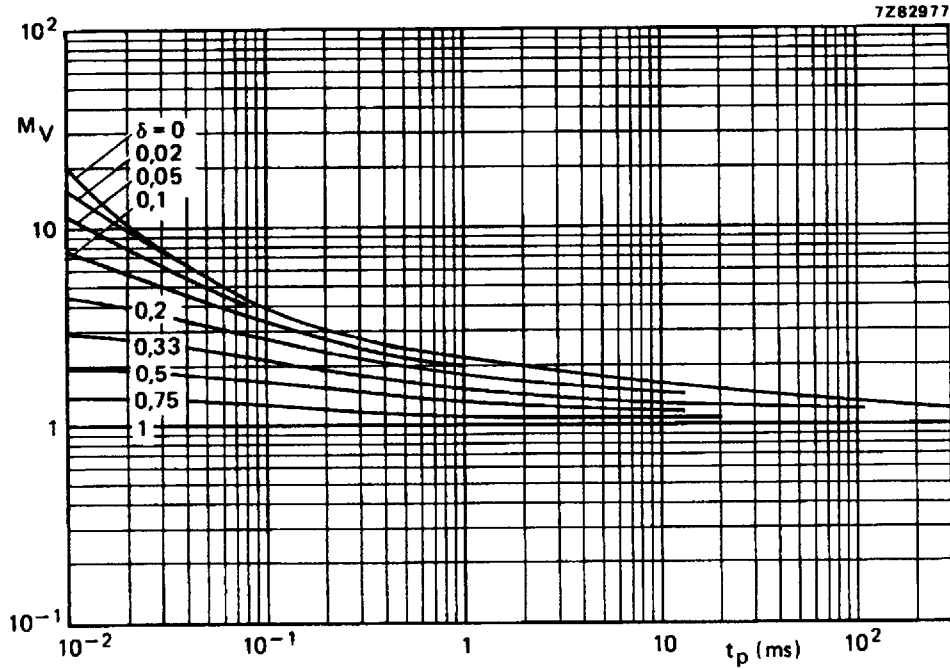


Fig. 5 S.B. voltage multiplying factor at I_{Cmax} level.

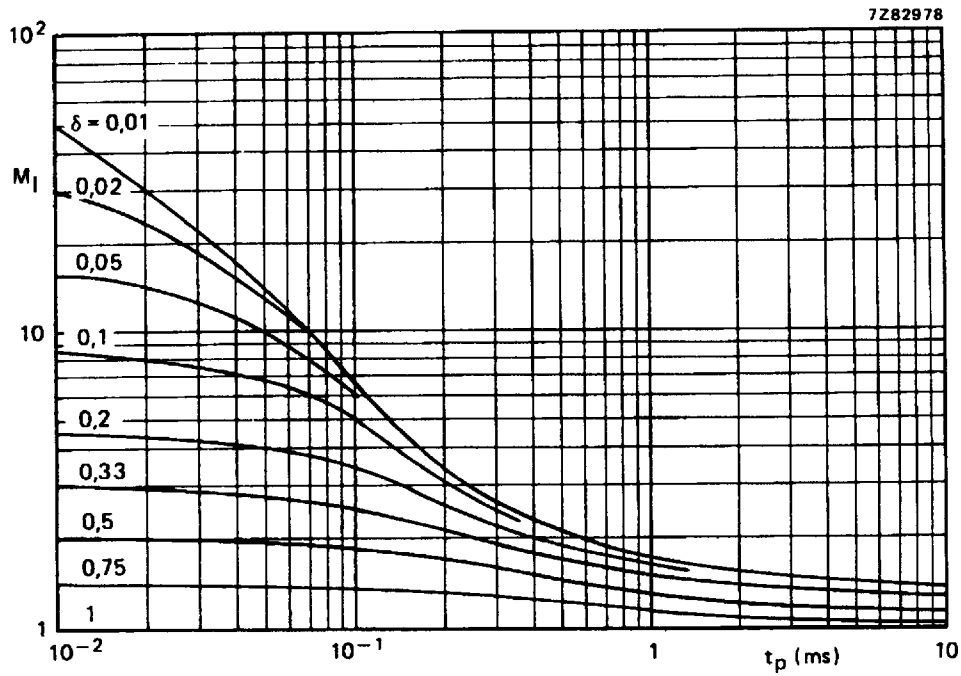


Fig. 6 S.B. current multiplying factor at V_{CE0max} level.

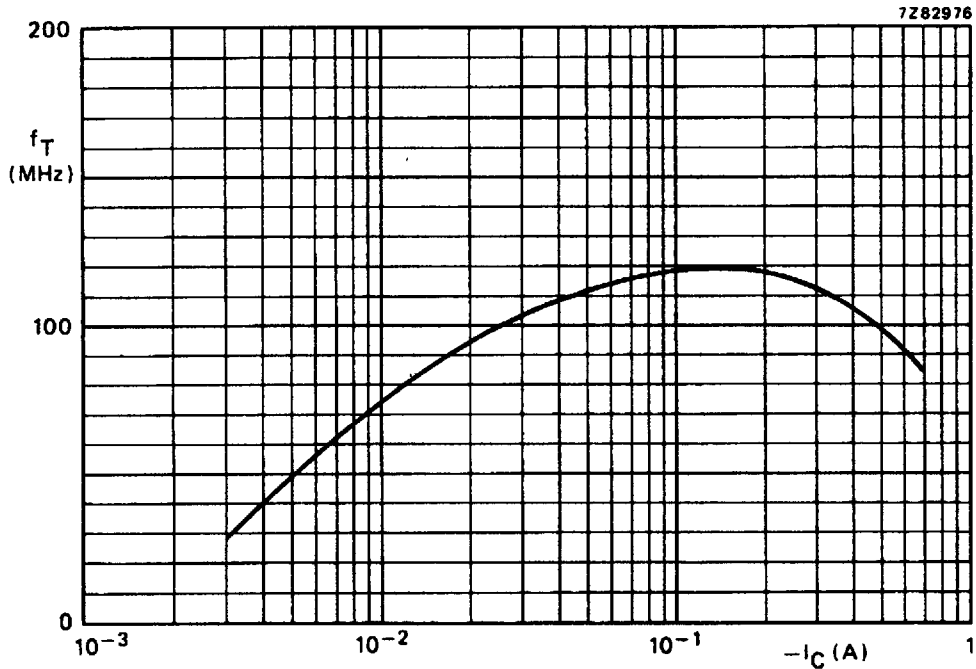


Fig. 7 Typical values transition frequency at $-V_{CE} = 5$ V; $f = 35$ MHz; $T_{amb} = 25$ °C.

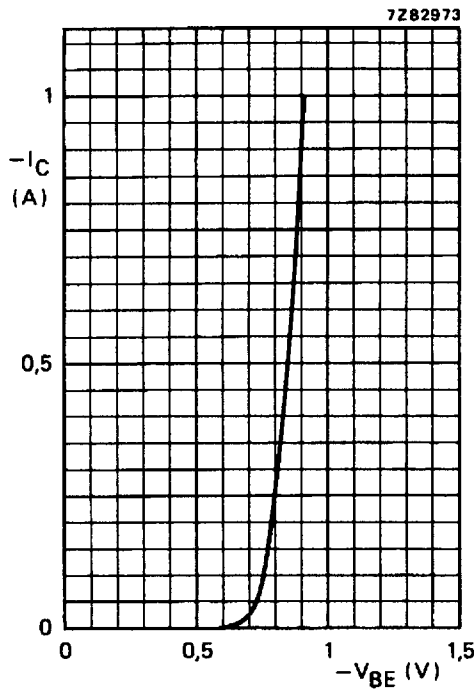


Fig. 8 Typical values. $-V_{CE} = 2$ V; $T_{amb} = 25$ °C.

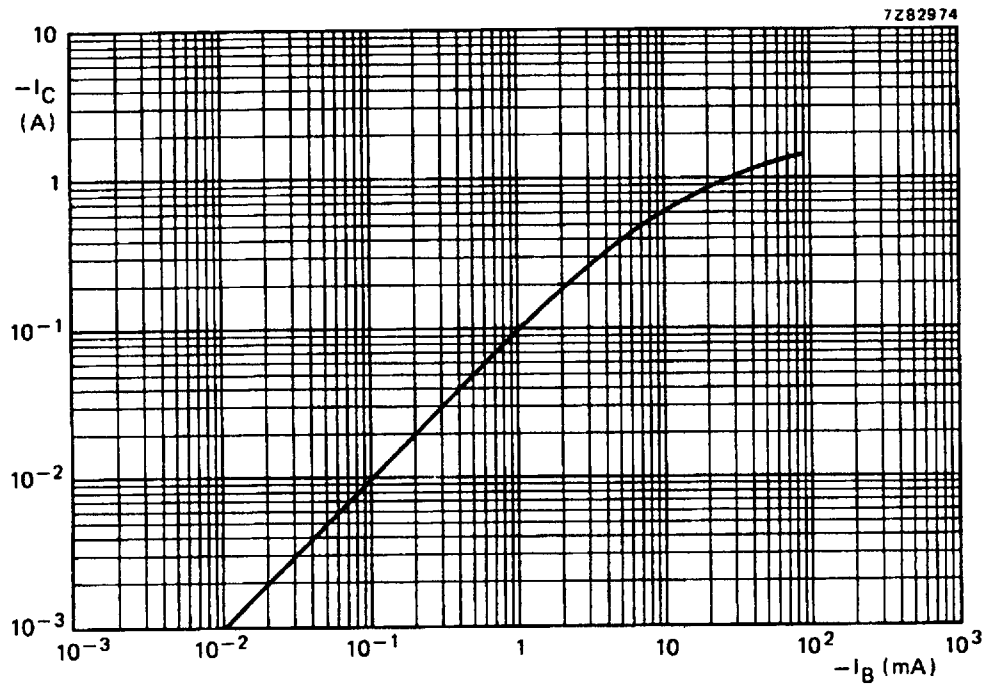


Fig. 9 Typical values at $-V_{CE} = 2$ V; $T_{amb} = 25$ °C.