

SILICON PLANAR EPITAXIAL POWER TRANSISTORS

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

P-N-P complements are BD826, BD828 and BD830. Matched pairs can be supplied.

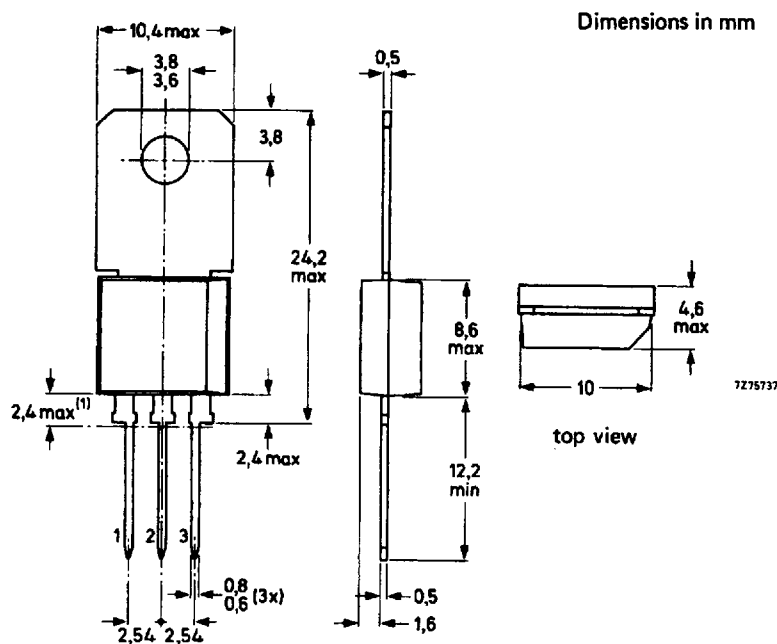
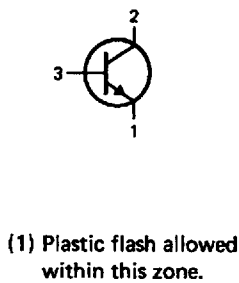
QUICK REFERENCE DATA

		BD825	BD827	BD829
Collector-base voltage	V_{CBO} max.	45	60	100 V
Collector-emitter voltage	V_{CEO} max.	45	60	80 V
Collector-emitter voltage ($R_{BE} = 1 \text{ k}\Omega$)	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.	250	MHz

MECHANICAL DATA

Fig. 1 TO-202.

Collector connected to mounting base



RATINGS

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

			BD825	BD827	BD829
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
Collector current (d.c.)	I_C	max.		1,0	A
Collector current (peak)	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 currents** $I_E = 0; V_{CB} = 30\text{ V}$ $I_{CBO} < 100\text{ nA}$ $I_E = 0; V_{CB} = 30\text{ V}; T_j = 125\text{ }^\circ\text{C}$ $I_{CBO} < 10\text{ }\mu\text{A}$ **Emitter cut-off current** $I_C = 0; V_{EB} = 5\text{ V}$ $I_{EBO} < 10\text{ }\mu\text{A}$ **D.C. current gain** $I_C = 5\text{ mA}; V_{CE} = 2\text{ V}$ $h_{FE} > 25$ $I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$ $h_{FE} 40\text{ to }250$ $I_C = 500\text{ mA}; V_{CE} = 2\text{ V}$ $h_{FE} > 25$ **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 $f = 35\text{ MHz}$** $I_C = 50\text{ mA}; V_{CE} = 5\text{ V}$ $f_T \text{ typ. } 250\text{ MHz}$ **D.C. current gain ratio of matched complementary pairs** $|I_C| = 150\text{ mA}; |V_{CE}| = 2\text{ V}$ $h_{FE1}/h_{FE2} \text{ typ. } 1,3$
 $< 1,6$

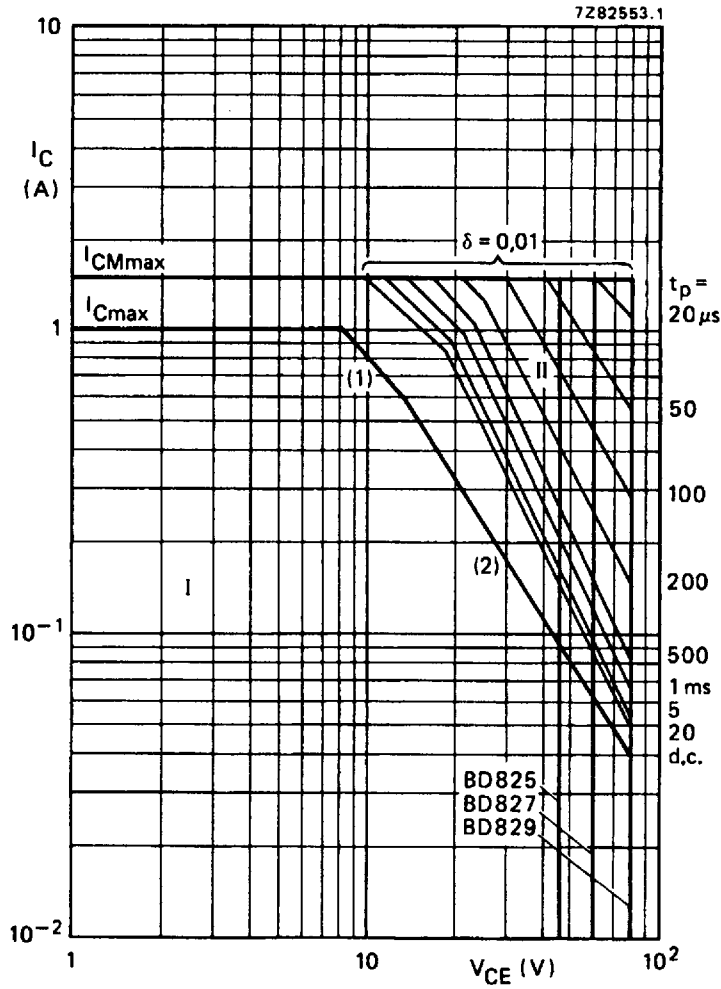


Fig. 2 Safe Operating Area, $T_{mb} \leq 25^\circ\text{C}$.

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

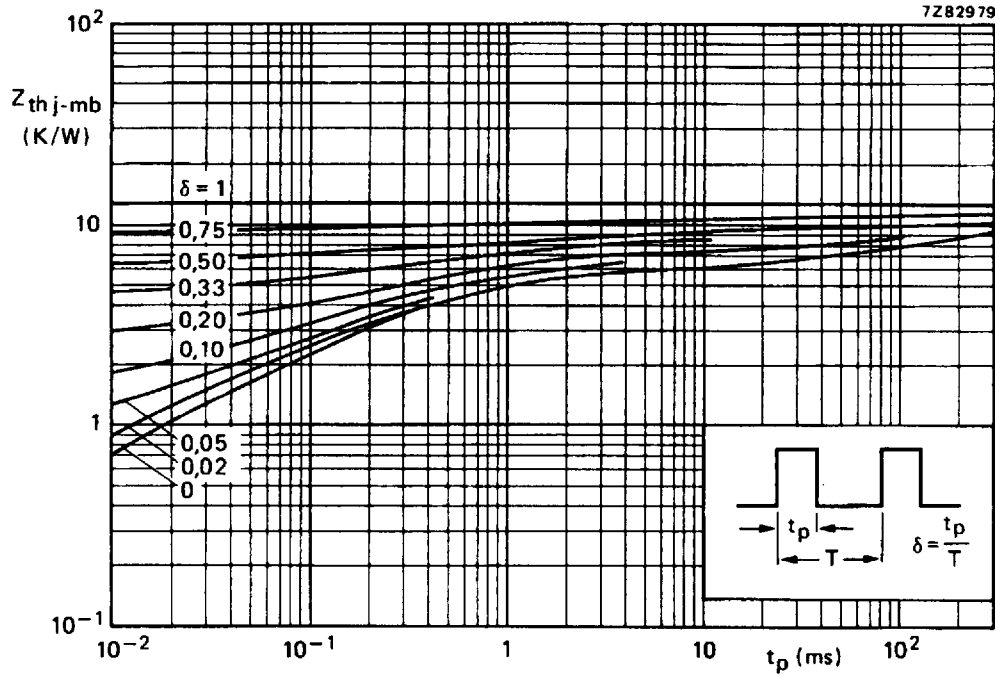


Fig. 3 Pulse power rating chart.

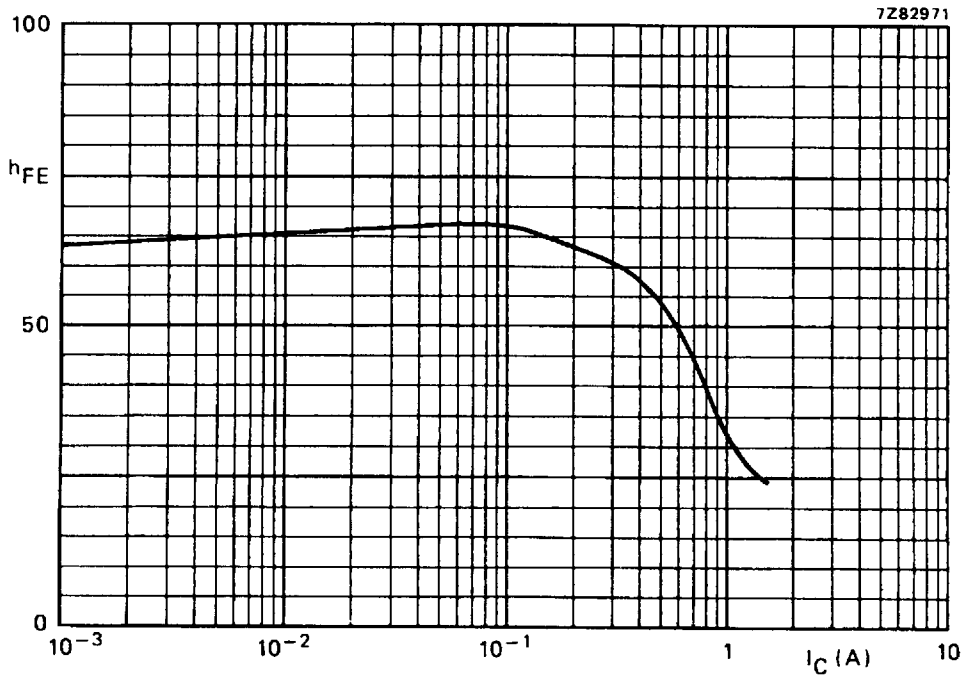


Fig. 4 Typical values d.c. current gain. $V_{CE} = 2$ V; $T_{amb} = 25$ °C.

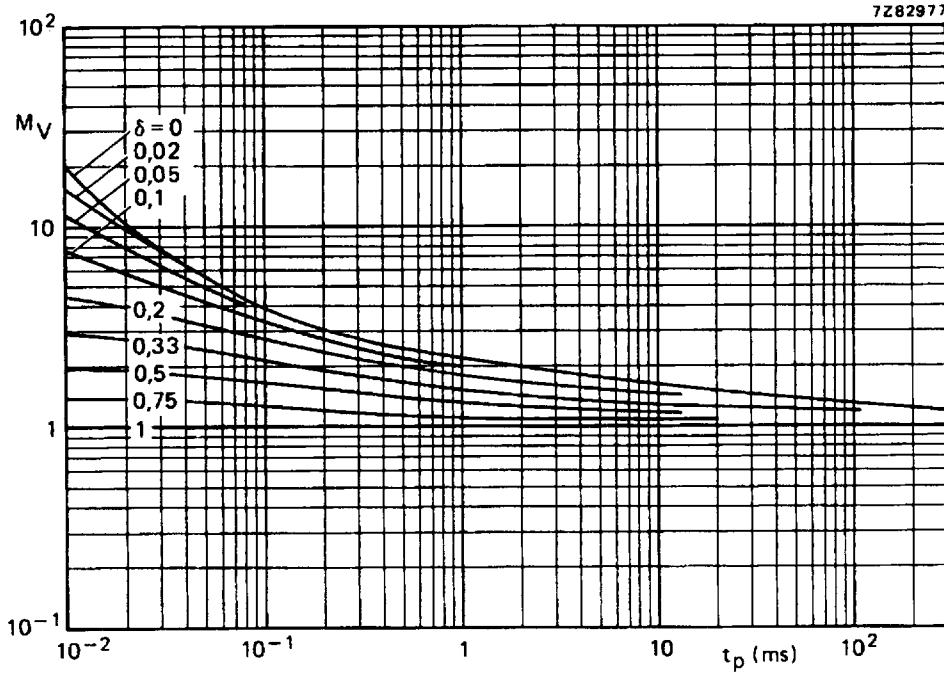


Fig. 5 S.B. voltage multiplying factor at I_{Cmax} level.

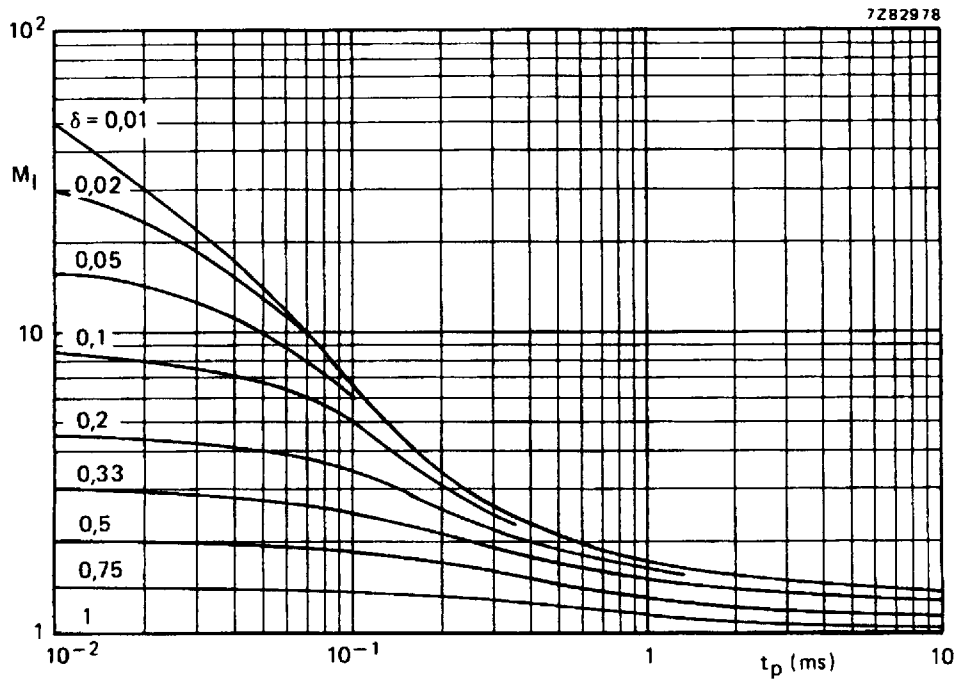


Fig. 6 S.B. current multiplying factor at V_{CE0max} level.

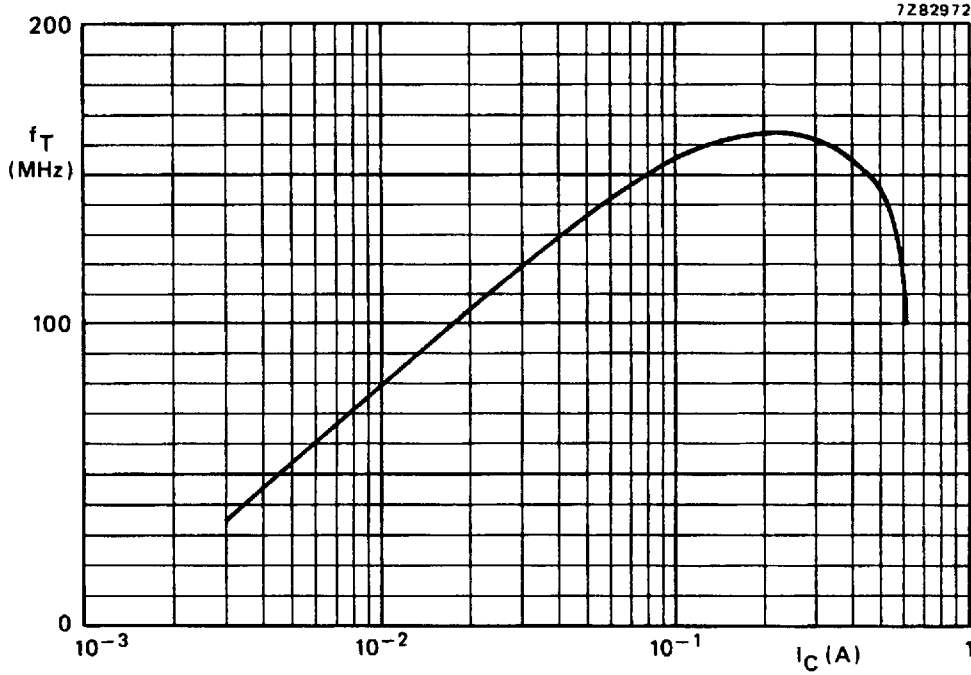


Fig. 7 Typical values transition frequency. $V_{CE} = 5\text{ V}$; $f = 35\text{ MHz}$; $T_{amb} = 25\text{ }^\circ\text{C}$.

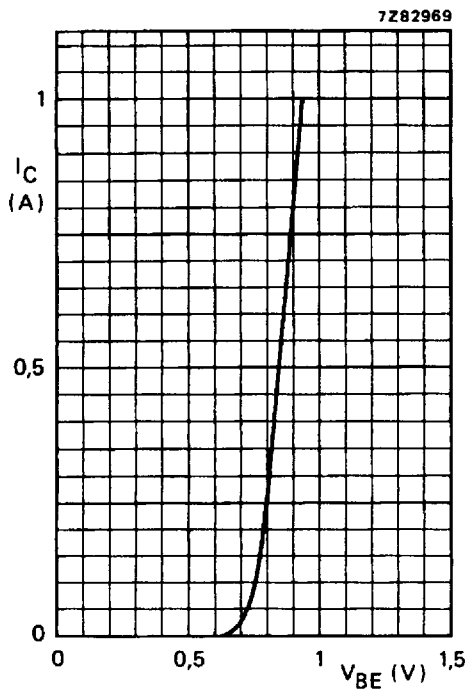


Fig. 8 Typical values. $V_{CE} = 2\text{ V}$; $T_{amb} = 25\text{ }^\circ\text{C}$.

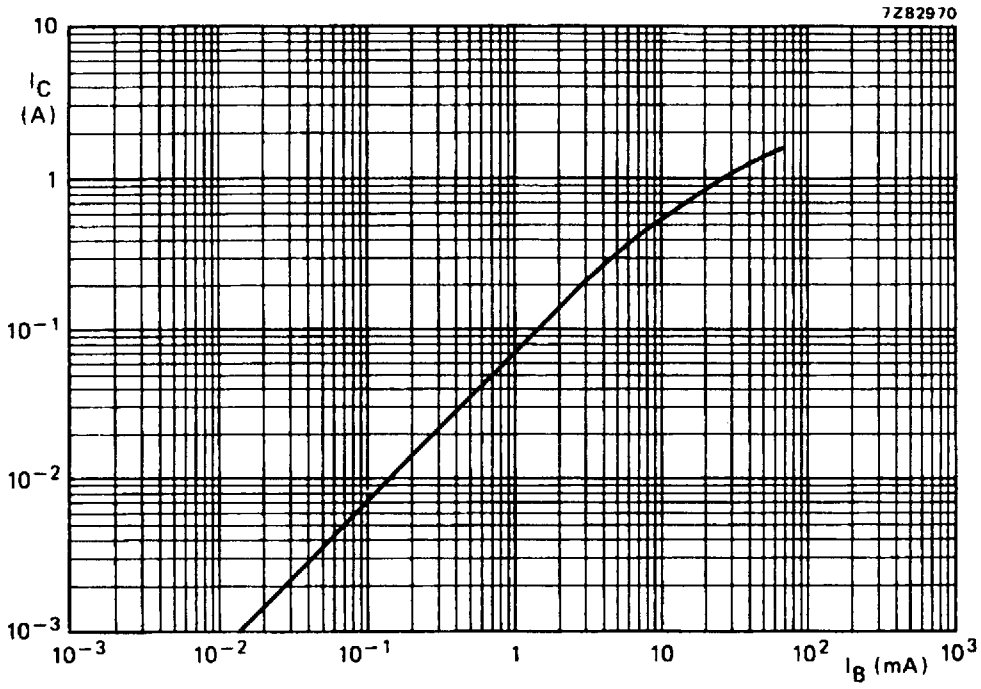


Fig. 9 Typical values at $V_{CE} = 2$ V; $T_{amb} = 25$ °C: