

## SILICON DARLINGTON POWER TRANSISTORS

N-P-N epitaxial base transistors in monolithic Darlington circuit for audio output stages and general purpose amplifier and switching applications. TO-220 plastic envelope. P-N-P complements are BDT64; BDT64A; BDT64B and BDT64C.

### QUICK REFERENCE DATA

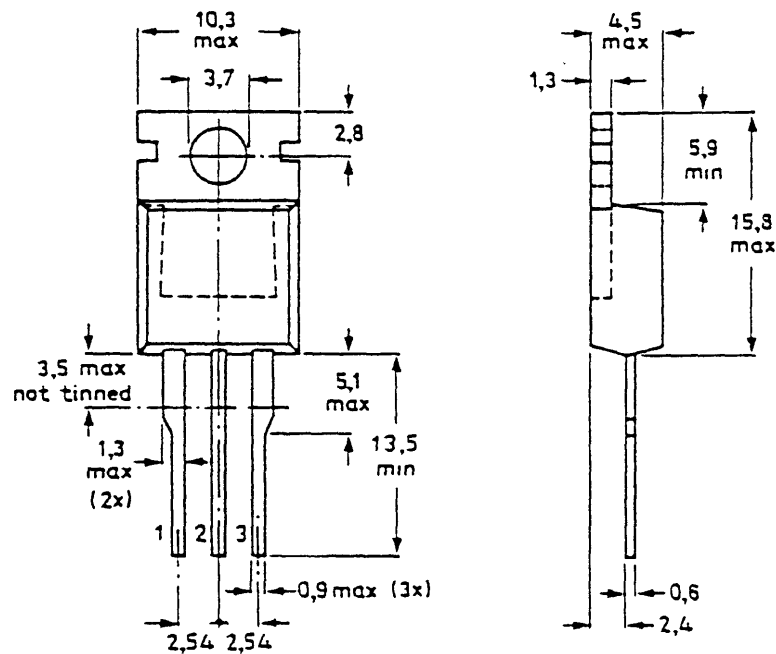
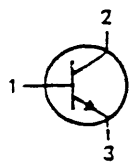
			BDT65	65A	65B	65C
Collector-base voltage (open emitter)	$V_{CBO}$	max.	60	80	100	120 V
Collector-emitter voltage (open base)	$V_{CEO}$	max.	60	80	100	120 V
Emitter-base voltage (open collector)	$V_{EBO}$	max.	5	5	5	5 V
Collector current (d.c.)	$I_C$	max.	12			A
Total power dissipation up to $T_{mb} = 25\text{ }^\circ\text{C}$	$P_{tot}$	max.	125			W
Junction temperature	$T_j$	max.	150			$^\circ\text{C}$
D.C. current gain $I_C = 5\text{ A}; V_{CE} = 4\text{ V}$	$h_{FE}$	>	1000			

### MECHANICAL DATA

Dimensions in mm

Fig. 1 TO-220AB.

Collector connected to mounting base.



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See also chapters Mounting instructions and Accessories.

BDT65; 65A  
BDT65B; 65C

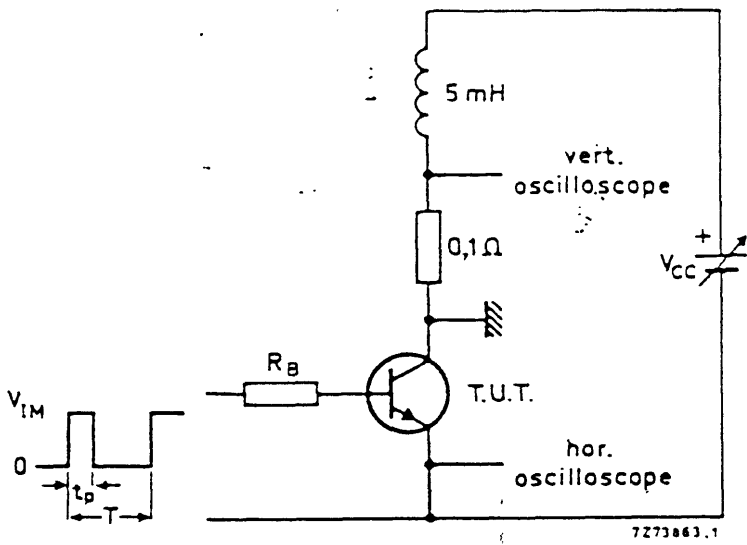


Fig. 3 Test circuit for turn-off breakdown energy.  
 $V_{IM} = 12 \text{ V}$ ;  $R_B = 270 \Omega$ ;  
 $t_p = 1 \text{ ms}$ ;  $\delta = 1\%$ .

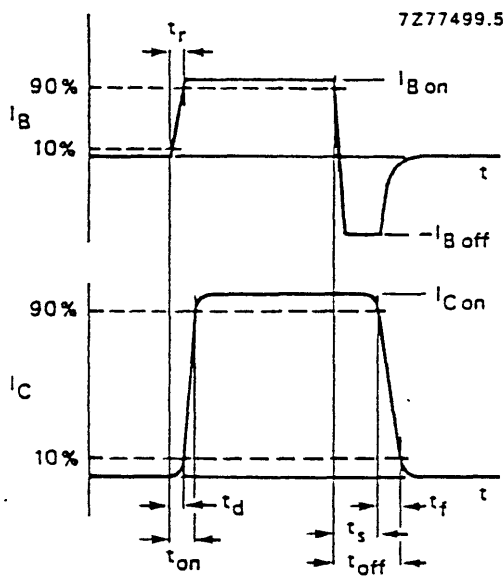
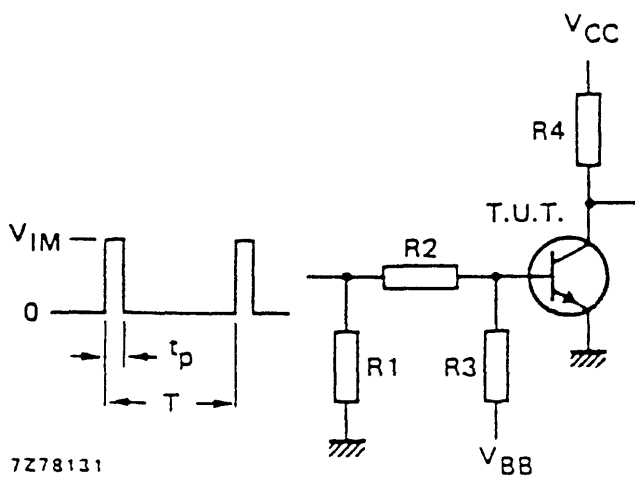


Fig. 4 Switching times waveforms.



$V_{CC} = 30 \text{ V}$   
 $V_{IM} = 15 \text{ V}$   
 $-V_{BB} = 4 \text{ V}$   
 $R1 = 56 \Omega$   
 $R2 = 410 \Omega$   
 $R3 = 560 \Omega$   
 $R4 = 6 \Omega$   
 $t_r = t_f = 15 \text{ ns}$   
 $t_p = 10 \mu\text{s}$   
 $T = 500 \mu\text{s}$

Fig. 5 Switching times test circuit.

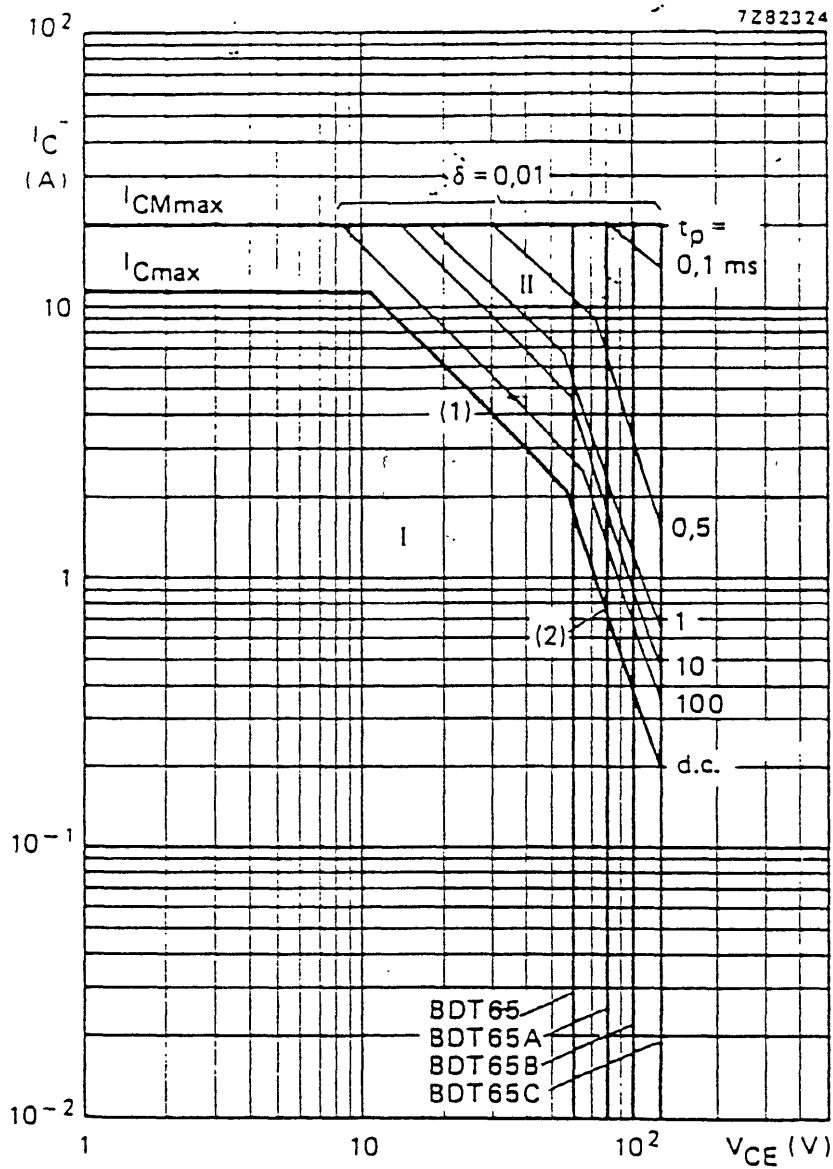


Fig. 6 Safe Operating Area;  $T_{mb} = 25^{\circ}\text{C}$ .

- 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.

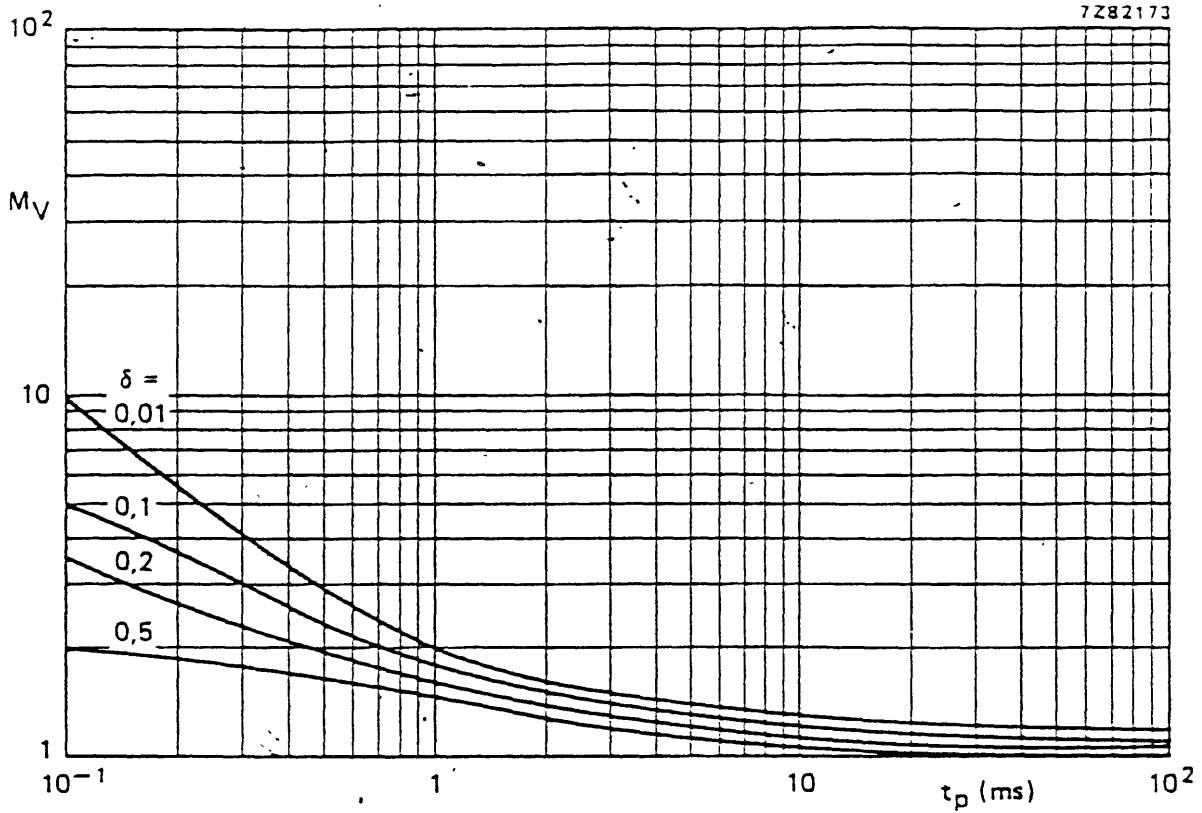


Fig. 10 S.B. voltage multiplying factor at the  $I_{Cmax}$  level.

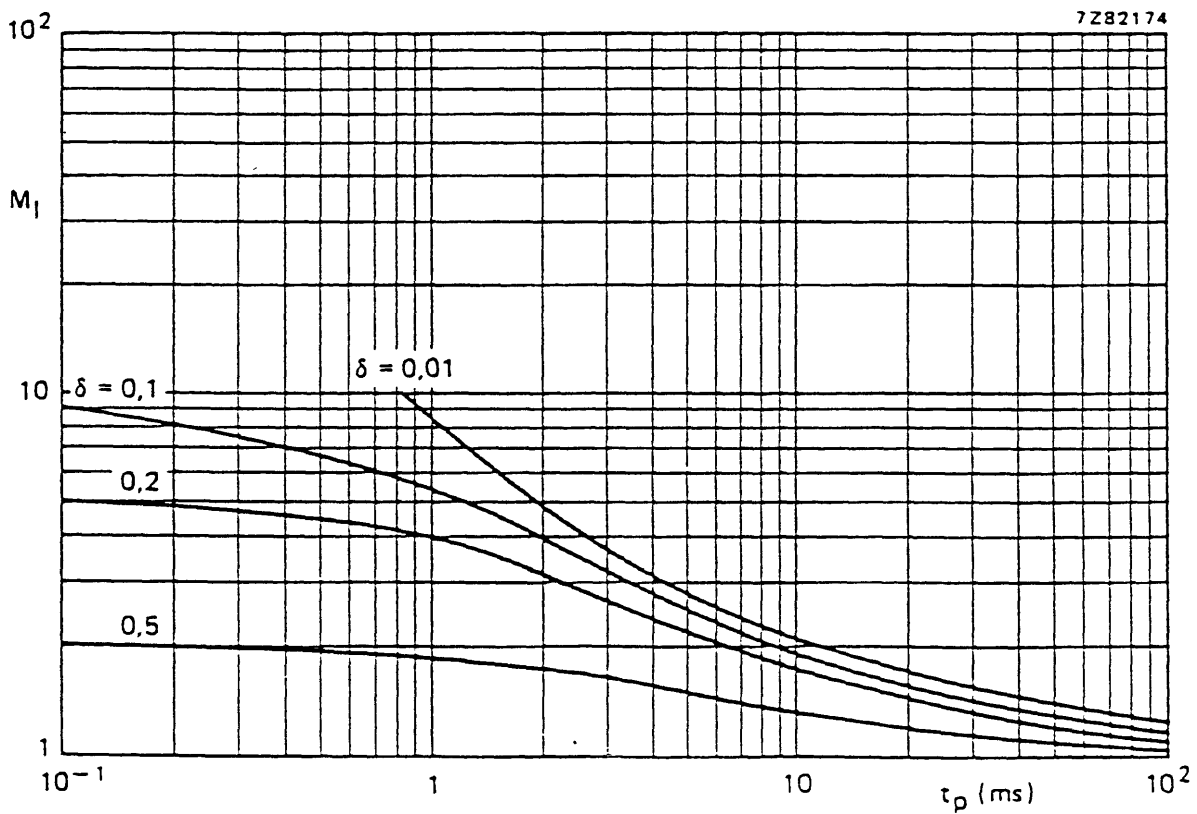


Fig. 11 S.B. current multiplying factor at the  $V_{CE0max}$  level.