

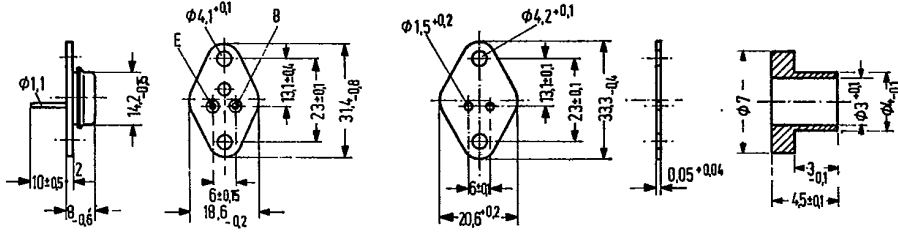
PNP Silicon Planar Transistors

SIEMENS AKTIENGESELLSCHAFT 04440 D

BDX 27  
BDX 28  
BDX 29  
BDX 30

BDX 27, BDX 28, BDX 29, and BDX 30 are epitaxial PNP silicon power transistors in SOT 9 case (9 A 2 DIN 41875). The collector is electrically connected to the case. The transistors are particularly suitable for use in high Q AF output stages and for switching applications.

Type	Ordering code	Type	Ordering code
BDX 27	Q62702-D162	BDX 29	Q62702-D160
BDX 27-6	Q62702-D162-V6	BDX 29-6	Q62702-D160-V6
BDX 27-10	Q62702-D162-V10	BDX 29-10	Q62702-D160-V10
BDX 27-16	Q62702-D162-V16	BDX 30	Q62702-D163
BDX 28	Q62702-D159	BDX 30-6	Q62702-D163-V6
BDX 28-6	Q62702-D159-V6	BDX 30-10	Q62702-D163-V10
BDX 28-10	Q62702-D159-V10	Mica washer	Q62902-B16-A
BDX 28-16	Q62702-D159-V16	Insulating nipple	Q62902-B50



Approx. weight 8.3 g. Dimensions in mm

Mica washer  
dry:  $R_{th} = 2.5 \text{ K/W}$   
greased:  $R_{th} = 1 \text{ K/W}$

Insulating nipple scale 2:1

Maximum ratings

	BDX 27	BDX 28	BDX 29	BDX 30		
Collector-emitter voltage	$-V_{CEO}$	40	60	80	125	V
Collector-emitter voltage	$-V_{CES}$	40	60	80	125	V
Collector-base voltage	$-V_{CBO}$	40	60	80	125	V
Emitter-base voltage	$-V_{EBO}$	5	5	5	5	V
Collector peak current ( $t \leq 1 \text{ ms}$ )	$-I_{CM}$	7	7	7	7	A
Collector current	$-I_C$	5	5	5	5	A
Emitter current	$-I_E$	6	6	6	6	A
Base current	$-I_B$	1	1	1	1	A
Junction temperature	$T_j$	200	200	200	200	°C
Storage temperature range	$T_{stg}$	-65 to +200				°C
Total power dissipation ( $T_{case} < 45^\circ\text{C}; V_{CE} < 13 \text{ V}$ )	$P_{tot}$	50	50	50	50	W

Thermal resistance

Junction to ambient air	$R_{thJA}$	$\leq 85$	$\leq 85$	$\leq 85$	$\leq 85$	K/W
Junction to case	$R_{thJC}$	$\leq 3.5$	$\leq 3.5$	$\leq 3.5$	$\leq 3.5$	K/W

Static characteristics ( $T_{case} = 25^{\circ}C$ )

		BDX 27	BDX 28	BDX 29	BDX 30	
Collector-emitter breakdown voltage ( $I_C = -50\text{ mA}$ )	$-V_{(BR)CEO}$	>40	>60	>80	>125	V
Collector-emitter breakdown voltage ( $I_C = 0.1\text{ mA}$ )	$-V_{(BR)CES}$	>40	>60	>80	>125	V
Emitter-base breakdown voltage ( $I_E = -10\text{ }\mu\text{A}$ )	$-V_{(BR)EBO}$	>5	>5	>5	>5	V
Collector cutoff current ( $-V_{CE} = 40\text{ V}$ )	$-I_{CBO}$	<1	-	-	-	$\mu\text{A}$
( $-V_{CE} = 40\text{ V}; T_{case} = 150^{\circ}C$ )	$-I_{CBO}$	<100	-	-	-	$\mu\text{A}$
( $-V_{CE} = 60\text{ V}$ )	$-I_{CBO}$	-	<1	-	-	$\mu\text{A}$
( $-V_{CE} = 60\text{ V}; T_{case} = 150^{\circ}C$ )	$-I_{CBO}$	-	<100	-	-	$\mu\text{A}$
( $-V_{CE} = 80\text{ V}$ )	$-I_{CBO}$	-	-	<1	-	$\mu\text{A}$
( $-V_{CE} = 80\text{ V}; T_{case} = 150^{\circ}C$ )	$-I_{CBO}$	-	-	<100	-	$\mu\text{A}$
( $-V_{CE} = 125\text{ V}$ )	$-I_{CBO}$	-	-	-	<1	$\mu\text{A}$
( $-V_{CE} = 125\text{ V}; T_{case} = 150^{\circ}C$ )	$-I_{CBO}$	-	-	-	<100	$\mu\text{A}$
Collector cutoff current ( $-V_{CE} = 40\text{ V}; -V_{BE} = 0.2\text{ V};$ $T_{case} = 100^{\circ}C$ )	$-I_{CEX}$	<300	-	-	-	$\mu\text{A}$
( $-V_{CE} = 60\text{ V}; -V_{BE} = 0.2\text{ V};$ $T_{case} = 100^{\circ}C$ )	$-I_{CEX}$	-	<300	-	-	$\mu\text{A}$
( $-V_{CE} = 80\text{ V}; -V_{BE} = 0.2\text{ V};$ $T_{case} = 100^{\circ}C$ )	$-I_{CEX}$	-	-	<300	-	$\mu\text{A}$
( $-V_{CE} = 100\text{ V}; -V_{BE} = 0.2\text{ V};$ $T_{case} = 100^{\circ}C$ )	$-I_{CEX}$	-	-	-	<300	$\mu\text{A}$

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Static characteristics

		BDX 27	BDX 28	BDX 29	BDX 30	
Emitter cutoff current ( $-V_{EB} = 4\text{ V}$ )	$-I_{EBO}$	<1	<1	<1	<1	$\mu\text{A}$
Base-emitter forward voltage ( $-I_C = 1\text{ A}; -V_{CE} = 1\text{ V}$ )	$-V_{BE}$	<1.1	<1.1	<1.1	<1.1	V
( $-I_C = 5\text{ A}; -V_{CE} = 2\text{ V}$ )	$-V_{BE}$	<1.7	<1.7	<1.7	<1.7	V
Collector-emitter saturation voltage ( $-I_C = 1\text{ A}; -I_B = 0.1\text{ A}$ )	$-V_{CEsat}$	<0.5	<0.5	<0.5	<0.5	V
( $-I_C = 3\text{ A}; -I_B = 0.3\text{ A}$ )	$-V_{CEsat}$	<1.0	<1.0	<1.0	<1.0	V

The transistors are grouped according to the DC current gain  $h_{FE}$  and marked by numerals of the German DIN R 5 standard.

Type		BDX 27 BDX 28 BDX 29	BDX 27 BDX 28 BDX 29	BDX 27 BDX 28 -
$h_{FE}$ group		6	10	16
$-I_C$ mA	$-V_{CE}$ V	$h_{FE}$ $I_C/I_B$	$h_{FE}$ $I_C/I_B$	$h_{FE}$ $I_C/I_B$
10	1	40 (>30)	115 (>55)	180 (>80)
1000	1	63 (40-100)	100 (63-160)	160 (100-250)
3000	2	32 (>20)	55 (>20)	85 (>20)
5000	2	20 (>10)	55 (>20)	85 (>20)

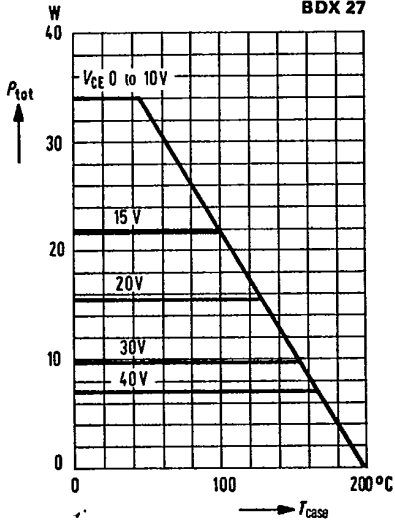
Type		BDX 30	BDX 30
$h_{FE}$ group		6	10
$-I_C$ mA	$-V_{CE}$ V	$h_{FE}$ $I_C/I_B$	$h_{FE}$ $I_C/I_B$
10	1	70 (>30)	115 (>30)
1000	1	63 (>40-100)	100 (63-160)
3000	2	32 (>15)	55 (>15)
5000	2	20 (>7)	55 (>7)

		BDX 27	BDX 28	BDX 29	BDX 30	
Transition frequency ( $-I_C = 200\text{ mA}; -V_{CE} = 10\text{ V};$ $f = 20\text{ MHz}$ )	$f_T$	50	50	50	50	MHz
Output capacitance ( $-V_{CB} = 10\text{ V}$ )	$C_{ob}$	130	130	100	100	pF
Switching times: Operating point: ( $-I_C = 2\text{ A}; -I_{B1} \text{ approx. } I_{B2} = 200\text{ mA}$ )	$t_{on}$	<0.5	<0.5	<0.5	<0.5	$\mu\text{s}$
( $-I_C = 2\text{ A}; -I_{B1} \text{ approx. } I_{B2} = 200\text{ mA}$ )	$t_{off}$	<2	<2	<2	<2	$\mu\text{s}$

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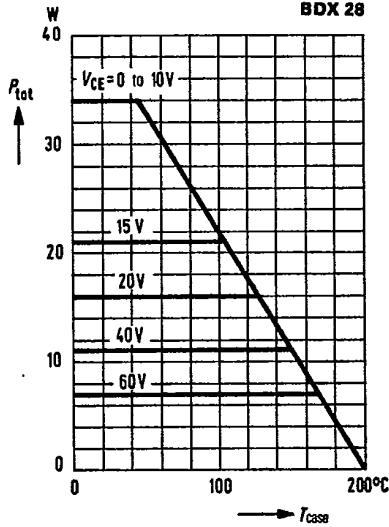
Total perm. power dissipation versus temperature  
 $P_{tot} = f(T_{case}); V_{CE} = \text{parameter}$

BDX 27



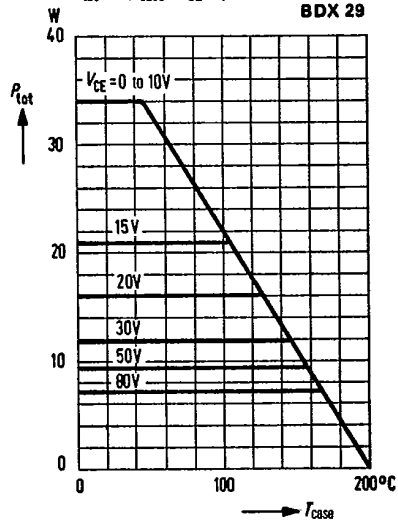
Total perm. power dissipation versus temperature  
 $P_{tot} = f(T_{case}); V_{CE} = \text{parameter}$

BDX 28



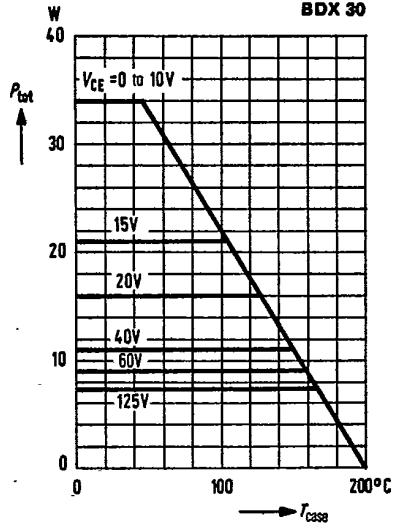
Total perm. power dissipation versus temperature  
 $P_{tot} = f(T_{case}); V_{CE} = \text{parameter}$

BDX 29

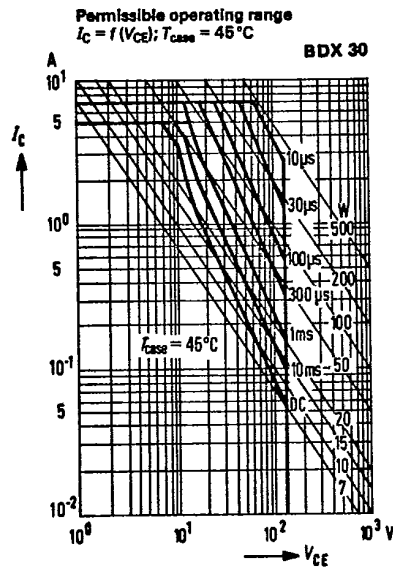
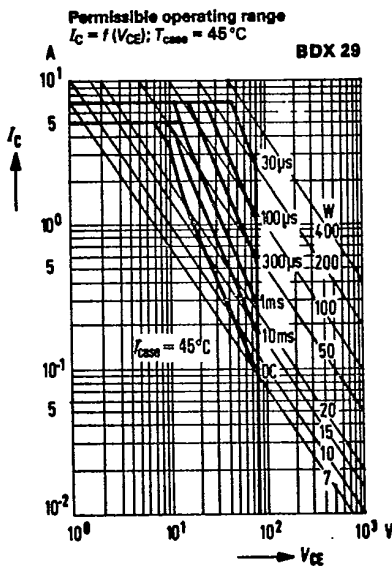
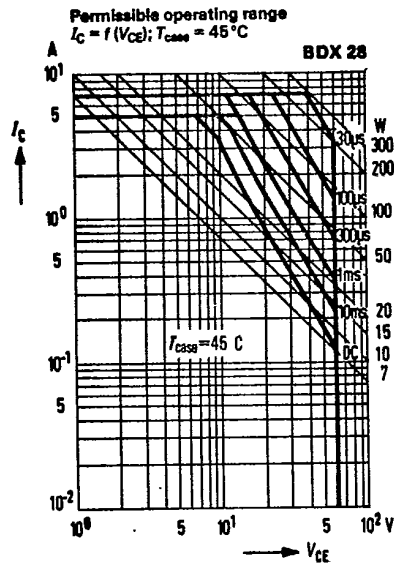
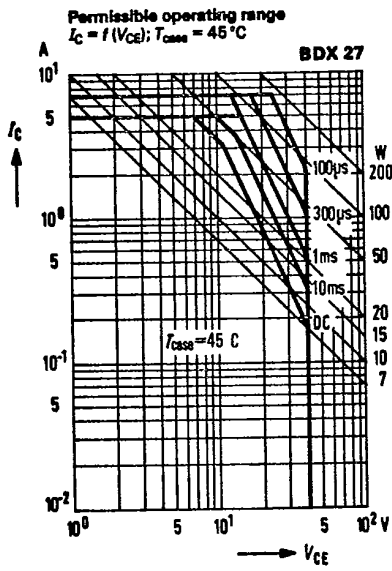


Total perm. power dissipation versus temperature  
 $P_{tot} = f(T_{case}); V_{CE} = \text{parameter}$

BDX 30

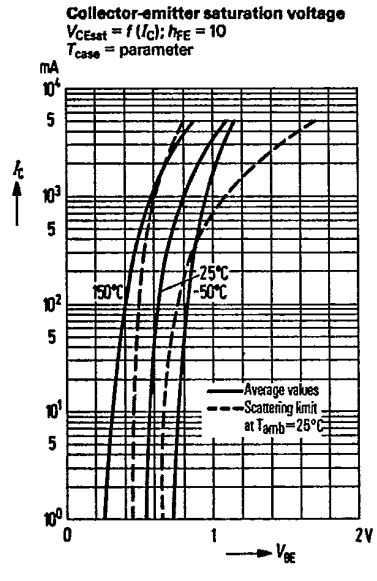
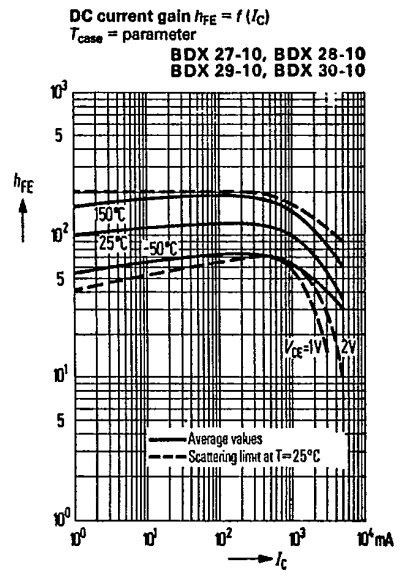
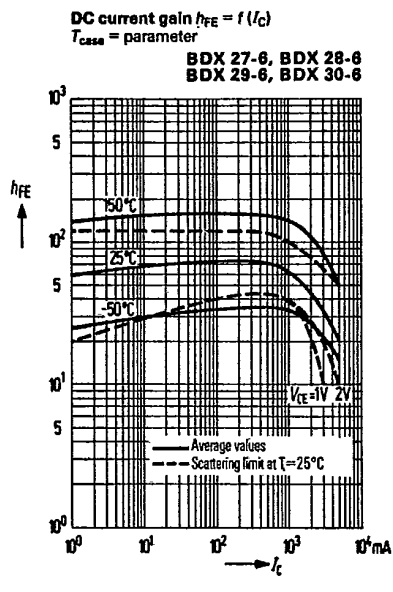
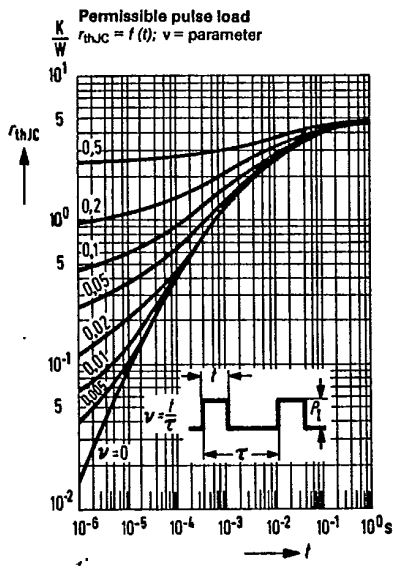


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Datasheets for electronics components.