

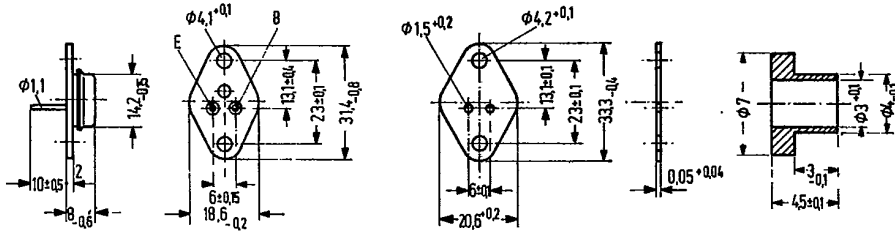
PNP Silicon Planar Transistors

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}	≤ 85	≤ 85	≤ 85	≤ 85	K/W
Junction to case	R_{thJC}	≤ 3.5	≤ 3.5	≤ 3.5	≤ 3.5	K/W

T-33-21

BDX 27
BDX 28
BDX 29
BDX 30

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 ($-V_{CE} = 40\text{ V}$)	$-I_{CBO} < 1$	-	-	-	μA
($-V_{CE} = 40\text{ V}; T_{case} = 150^{\circ}C$)	$-I_{CBO} < 100$	-	-	-	μA
($-V_{CE} = 60\text{ V}$)	$-I_{CBO} -$	< 1	-	-	μA
($-V_{CE} = 60\text{ V}; T_{case} = 150^{\circ}C$)	$-I_{CBO} -$	< 100	-	-	μA
($-V_{CE} = 80\text{ V}$)	$-I_{CBO} -$	-	< 1	-	μA
($-V_{CE} = 80\text{ V}; T_{case} = 150^{\circ}C$)	$-I_{CBO} -$	-	< 100	-	μA
($-V_{CE} = 125\text{ V}$)	$-I_{CBO} -$	-	-	< 1	μA
($-V_{CE} = 125\text{ V}; T_{case} = 150^{\circ}C$)	$-I_{CBO} -$	-	-	< 100	μA
Collector cutoff current ($-V_{CE} = 40\text{ V}; -V_{BE} = 0.2\text{ V};$ $T_{case} = 100^{\circ}C$)	$-I_{CEX} < 300$	-	-	-	μA
($-V_{CE} = 60\text{ V}; -V_{BE} = 0.2\text{ V};$ $T_{case} = 100^{\circ}C$)	$-I_{CEX} -$	< 300	-	-	μA
($-V_{CE} = 80\text{ V}; -V_{BE} = 0.2\text{ V};$ $T_{case} = 100^{\circ}C$)	$-I_{CEX} -$	-	< 300	-	μA
($-V_{CE} = 100\text{ V}; -V_{BE} = 0.2\text{ V};$ $T_{case} = 100^{\circ}C$)	$-I_{CEX} -$	-	-	< 300	μA

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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	μA
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)

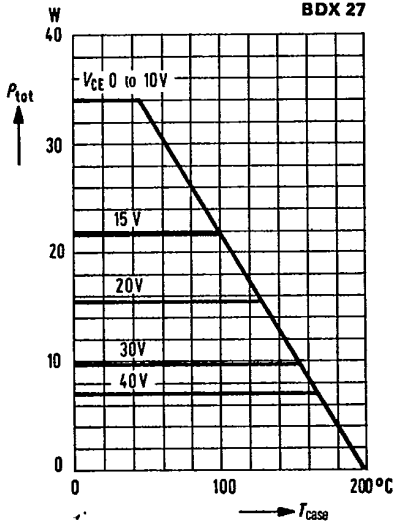
Type		BDX 30	BDX 30
h_{FE} group		6	10
$-I_C$ mA	$-V_{CE}$ V	h_{FE} I_C/I_B	h_{FE} I_C/I_B
10	1	70 (>30)	115 (>30)
1000	1	63 (>40-100)	100 (63-160)
3000	2	32 (>15)	55 (>15)
5000	2	20 (>7)	55 (>7)

		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	μs
($-I_C = 2 \text{ A}; -I_{B1} \text{ approx. } I_{B2} = 200 \text{ mA}$)	t_{off}	<2	<2	<2	<2	μs

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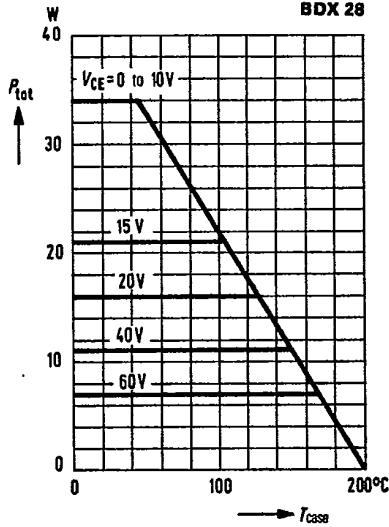
Total perm. power dissipation versus temperature
 $P_{tot} = f(T_{case}); V_{CE} = \text{parameter}$

BDX 27



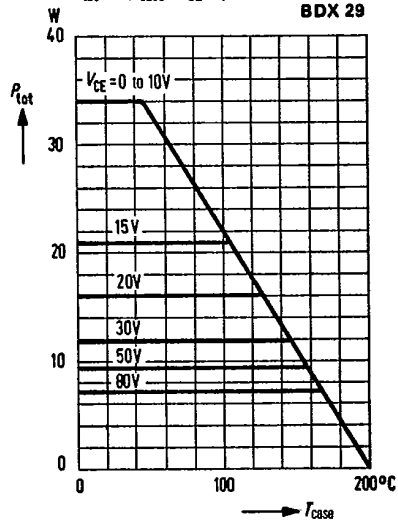
Total perm. power dissipation versus temperature
 $P_{tot} = f(T_{case}); V_{CE} = \text{parameter}$

BDX 28



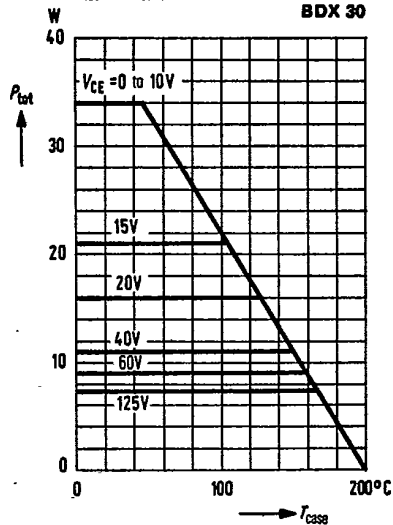
Total perm. power dissipation versus temperature
 $P_{tot} = f(T_{case}); V_{CE} = \text{parameter}$

BDX 29



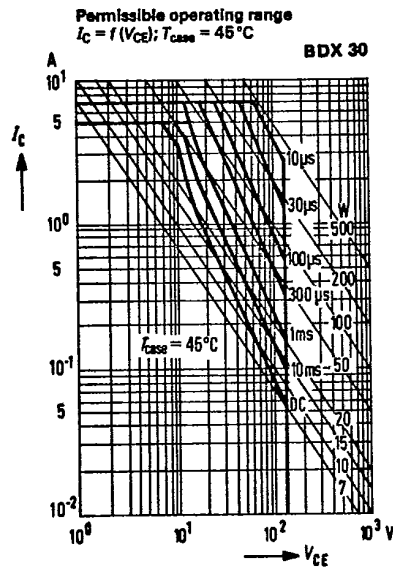
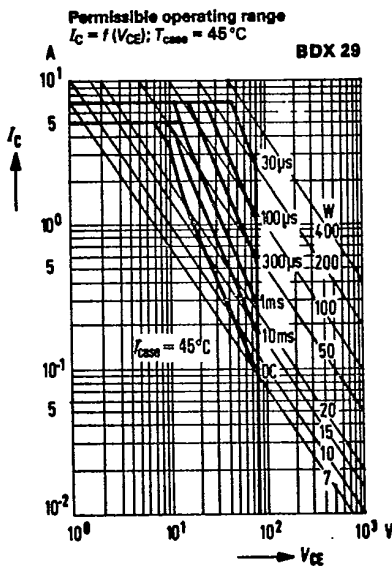
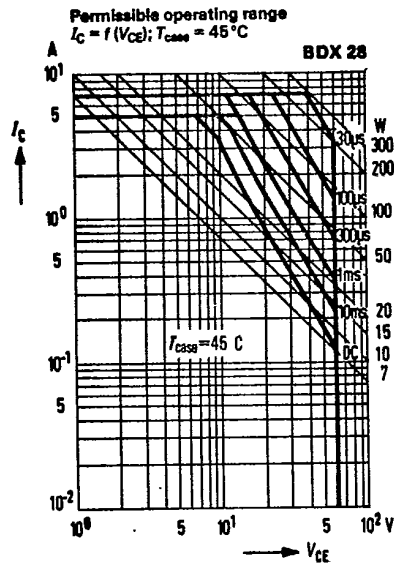
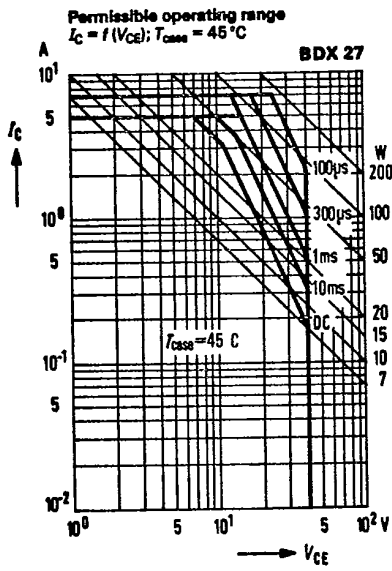
Total perm. power dissipation versus temperature
 $P_{tot} = f(T_{case}); V_{CE} = \text{parameter}$

BDX 30



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BDX 30

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BDX 27
BDX 28
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