

25C D ■ 8235605 0004464 T ■ SIEG

T-31-25

N-Channel Junction Field-Effect Transistors

BF 246 A
BF 246 B
BF 246 C

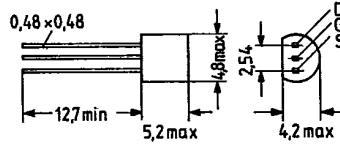
25C 04464

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SIEMENS AKTIENGESELLSCHAFT

BF 246 A, B, and C are N-channel junction field-effect transistors in plastic package similar to TO 92 (10 A 3 DIN 41868). They are particularly suitable for RF amplifiers.

Type	Ordering code
BF 246	Q62702-F219
BF 246 A	Q62702-F393
BF 246 B	Q62702-F254
BF 246 C	Q62702-F250



Approx. weight 0,25 g
 Dimensions in mm

Maximum ratings

Drain-source voltage	$\pm V_{DS}$	25	V
Drain-gate voltage ($I_S = 0$)	$+V_{DG0}$	25	V
Gate-source voltage ($I_D = 0$)	$-V_{GS0}$	25	V
Gate current	I_G	10	mA
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-65 to 150	°C
Total power dissipation ($T_{amb} \leq 75^\circ\text{C}$) ¹⁾	P_{tot}	300	mW

Thermal resistance

Junction to ambient air ¹⁾	R_{thJA}	250	K/W
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1) If the transistors with max 3 mm lead length are fixed on PCBs with a 10 mm x 10 mm large copper area for the drain terminal, $R_{thJA} \leq 2 \text{ K/W}$, $P_{tot} = \text{max. } 300 \text{ mW}$ then applies up to $T_{amb} = 90 \text{ C}$.

510

1887

B-06

T-31-25

BF 246 A
 BF 246 B
 BF 246 C

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

Gate cutoff current ($-V_{GS} = 15\text{ V}, V_{DS} = 0$)	$-I_{GSS}$	≤ 5	mA
Gate-source breakdown voltage ($-I_G = 1\ \mu\text{A}, V_{DS} = 0$)	$-V_{(BR)GSS}$	≥ 25	V
Drain-source short-circuit current ($V_{DS} = 15\text{ V}, V_{GS} = 0$)	BF 246 A: I_{DSS}	30 to 80	mA
	BF 246 B: I_{DSS}	60 to 140	mA
	BF 246 C: I_{DSS}	110 to 250	mA
Gate-source voltage ($V_{DS} = 15\text{ V}, I_D = 200\ \mu\text{A}$)	$-V_{GS}$	0.5 to 14	V
	BF 246 A: $-V_{GS}$	1.5 to 4.0	V
	BF 246 B: $-V_{GS}$	3.0 to 7.0	V
	BF 246 C: $-V_{GS}$	5.5 to 12	V
Gate-source pinch-off voltage ($V_{DS} = 15\text{ V}, I_D = 10\ \text{nA}$)	$-V_P$	0.6 to 14.5	V

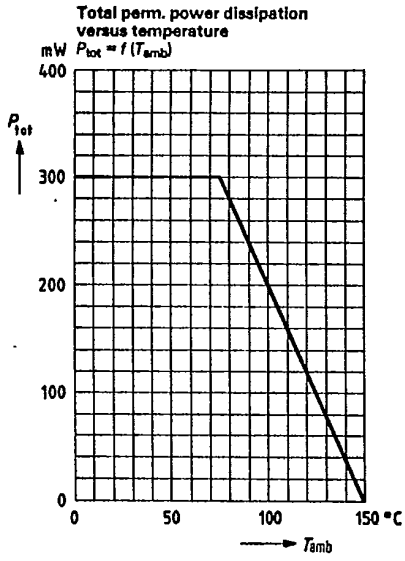
Dynamic characteristics ($T_{amb} = 25^{\circ}\text{C}$)

Small signal short circuit forward transfer admittance ($V_{DS} = 15\text{ V}, I_D = 10\ \text{mA}, f = 1\ \text{kHz}$)	$ y_{21s} $	23 (≥ 8)	mS
Cutoff frequency of small-signal short-circuit forward transfer admittance ¹⁾ ($V_{DS} = 15\text{ V}, V_{GS} = 0$)	f_{y21s}	450	MHz
Capacitances ($V_{DS} = 15\text{ V}, I_D = 10\ \text{mA}$) $f = 1\ \text{MHz}$:	C_{11s}	15	pF
	C_{22s}	15	pF
	$-C_{12s}$	3.5	pF
$f = 1\ \text{kHz}$:			

1) Frequency for a decrease in the small-signal short-circuit forward transfer admittance to 70% of the value at 1 kHz.

T-31-25

BF 246 A
BF 246 B
BF 246 C



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B-08

N-Channel Junction Field-Effect Transistors

BF 256 A

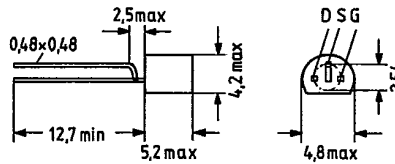
BF 256 B

BF 256 C

SIEMENS AKTIENGESELLSCHAFT 04470 D

BF 256 A, B, and C are N-channel junction field-effect transistors in plastic package similar to TO 92 (10 A 3 DIN 41868). They are particularly suitable for RF applications.

Type	Ordering code
BF 256 A	Q68000-A5168
BF 256 B	Q62702-F413
BF 256 C	Q68000-A5169
BF 256	Q62702-F733



Approx. weight 0.25 g Dimensions in mm

Maximum ratings

Drain-source voltage	$\pm V_{DS}$	30	V
Drain-gate voltage ($I_S = 0$)	$+V_{DG0}$	30	V
Gate-source voltage ($I_D = 0$)	$-V_{GS0}$	30	V
Gate current	I_G	10	mA
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-65 to 150	°C
Total power dissipation ($T_{amb} \leq 75^\circ\text{C}$) ¹⁾	P_{tot}	300	mW

Thermal resistance

Junction to ambient air	R_{thJA}	≤ 250	K/W ¹⁾
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1) If the transistors with max 3 mm lead length are fixed on PCBs with a 10 mm x 10 mm large copper area for the drain terminal, $R_{thJA} = 2$ K/W, $P_{tot} = \text{max. } 300$ mW then applies up to $T_{amb} = 90^\circ\text{C}$.

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

Gate cutoff current ($-V_{GS} = 20\text{ V}, V_{DS} = 0$)	$-I_{GSS}$	≤ 5	nA
Drain-source short-circuit current ($V_{DS} = 15\text{ V}, V_{GS} = 0$)	BF 256 A: I_{DSS}	3 to 7	mA
	BF 256 B: I_{DSS}	6 to 13	mA ²⁾
	BF 256 C: I_{DSS}	11 to 18	mA
Gate-source voltage ($V_{DS} = 15\text{ V}, I_D = 200\text{ }\mu\text{A}$)	$-V_{GS}$	0.5 to 7.5	V ²⁾
Gate-source breakdown voltage ($-I_G = 1\text{ }\mu\text{A}, V_{DS} = 0$)	$-V_{(BR)GS}$	≥ 30	V

Dynamic characteristics ($T_{amb} = 25^{\circ}\text{C}$)

Small-signal short-circuit forward transfer admittance ($V_{DS} = 15\text{ V}, V_{GS} = 0, f = 1\text{ kHz}$)	$ y_{21s} $	5 (≥ 4.5)	mS
Reverse transfer capacitance ($V_{DS} = 20\text{ V}, -V_{GS} = 1\text{ V}, f = 1\text{ MHz}$)	C_{12s}	0.7	pF
Output capacitance ($V_{DS} = 20\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$)	C_{22s}	1.2	pF
Cutoff frequency of small-signal short circuit forward transfer admittance ¹⁾ ($V_{DS} = 15\text{ V}, V_{GS} = 0$)	f_{y21s}	1	GHz
Power gain ($V_{DS} = 15\text{ V}, R_S = 47\text{ }\Omega, f = 800\text{ MHz}$)	G_p	11	dB
Noise figure ($V_{DS} = 10\text{ V}, R_S = 47\text{ }\Omega, f = 800\text{ MHz}$)	NF	7.5	dB

1) Frequency for a decrease in the small-signal short-circuit forward transfer admittance to 70% of the value at 1 kHz.
 2) BF 256 B 1: $I_{DSS} = 6$ to $8\text{ mA}, -V_{GS} = 1.4$ to 2.6 V

