

25C D ■ 8235605 0004464 T ■ SIEG

T-31-25

**N-Channel Junction Field-Effect Transistors**

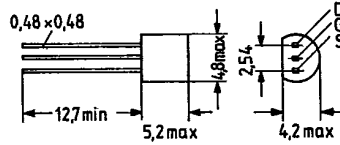
**BF 246 A**  
**BF 246 B**  
**BF 246 C**

25C 04464 D: \_\_\_\_\_

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 ( $T_{amb} \leq 75^\circ\text{C}$ ) <sup>1)</sup>	$P_{tot}$	300	mW

**Thermal resistance**

Junction to ambient air <sup>1)</sup>	$R_{thJA}$	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 ( $-V_{GS} = 15\text{ V}, V_{DS} = 0$ )	$-I_{GSS}$	$\leq 5$	mA
Gate-source breakdown voltage ( $-I_G = 1\ \mu\text{A}, V_{DS} = 0$ )	$-V_{(BR)GSS}$	$\geq 25$	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

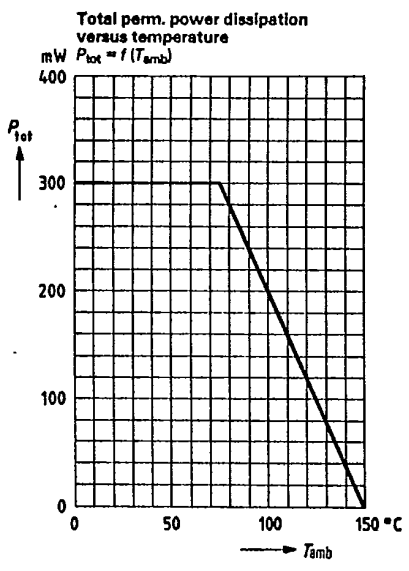
Dynamic characteristics ( $T_{amb} = 25^{\circ}\text{C}$ )

Small signal short circuit forward transfer admittance ( $V_{DS} = 15\text{ V}, I_D = 10\text{ mA}, f = 1\text{ kHz}$ )	$ y_{21s} $	23 ( $\geq 8$ )	mS
Cutoff frequency of small-signal short-circuit forward transfer admittance <sup>1)</sup> ( $V_{DS} = 15\text{ V}, V_{GS} = 0$ )	$f_{y21s}$	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.

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BF 246 A  
BF 246 B  
BF 246 C



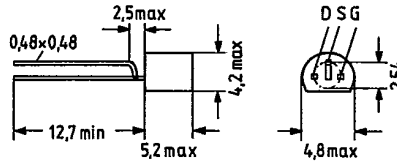
**N-Channel Junction Field-Effect Transistors**

**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 ( $T_{amb} \leq 75^\circ\text{C}$ ) <sup>1)</sup>	$P_{tot}$	300	mW

**Thermal resistance**

Junction to ambient air	$R_{thJA}$	$\leq 250$	K/W <sup>1)</sup>
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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 ( $-V_{GS} = 20\text{ V}, V_{DS} = 0$ )	$-I_{GSS}$	$\leq 5$	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 <sup>2)</sup>
	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 <sup>2)</sup>
Gate-source breakdown voltage ( $-I_G = 1\text{ }\mu\text{A}, V_{DS} = 0$ )	$-V_{(BR)GS}$	$\geq 30$	V

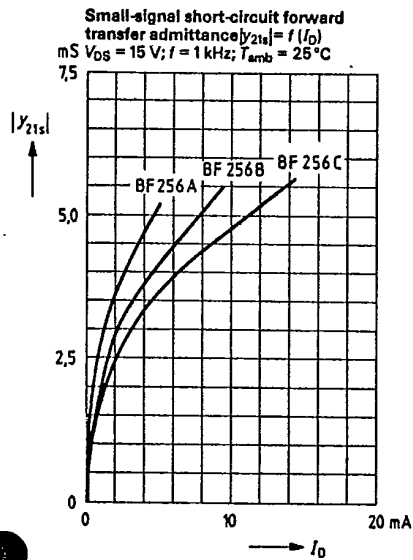
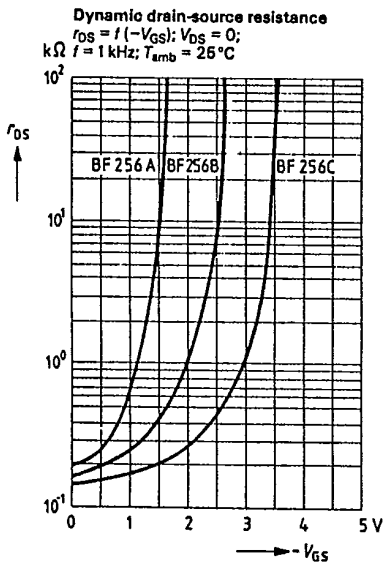
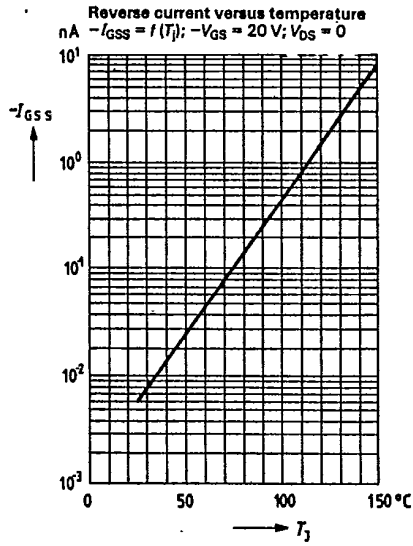
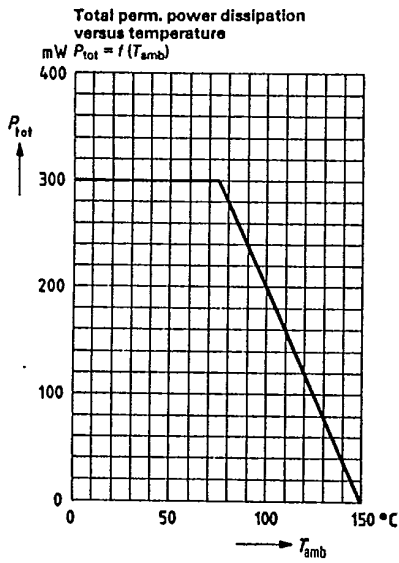
**Dynamic characteristics ( $T_{amb} = 25^{\circ}\text{C}$ )**

Small-signal short-circuit forward transfer admittance ( $V_{DS} = 15\text{ V}, V_{GS} = 0, f = 1\text{ kHz}$ )	$ y_{21s} $	5 ( $\geq 4.5$ )	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 <sup>1)</sup> ( $V_{DS} = 15\text{ V}, V_{GS} = 0$ )	$f_{y21s}$	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  $2.6\text{ V}$

T-31-25

BF 256 A  
 BF 256 B  
 BF 256 C





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