

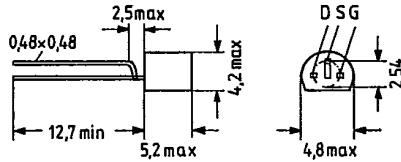
**Low-Noise N-channel Junction Field-Effect Transistor
for RF Applications**

SIEMENS AKTIENGESELLSCHAFT 79 D

**BF 410 A
BF 410 B
BF 410 C
BF 410 D**

BF 410 A, B, C, and D are asymmetric epitaxial planar N-channel junction field-effect transistors in plastic package similar to TO 92 (10 A 3 DIN 41868). They are designed for use up to the VHF range.

Type	Ordering code
BF 410	Q68000-A5440
BF 410 A	Q68000-A5172
BF 410 B	Q68000-A5173
BF 410 C	Q68000-A5174
BF 410 D	Q68000-A5175



Approx. weight 0.25 g Dimensions in mm

Maximum ratings

Drain-source voltage
Drain-gate voltage ($I_s = 0$)
Drain current
Gate current
Junction temperature
Storage temperature range
Total power dissipation ($T_{amb} \leq 75^\circ\text{C}$)

	BF 410 A, BF 410 B BF 410 C, BF 410 D	
V_{DS}	20	V
V_{DG0}	20	V
I_D	30	mA
$\pm I_G$	10	mA
T_J	150	$^\circ\text{C}$
T_{stg}	-65 to 150	$^\circ\text{C}$
P_{tot}	300	mW

Thermal resistance

Junction to ambient air

R_{thJA}	≤ 250	K/W
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Static characteristics ($T_{amb} = 25^{\circ}\text{C}$)		BF 410 A	BF 410 B	BF 410 C	BF 410 D	
Drain-source short-circuit current						
($V_{DS} = 5\text{ V}, V_{GS} = 0$)	I_{DSS}	0.7 to 3	-	-	-	mA
($V_{DS} = 10\text{ V}, V_{GS} = 0$)	I_{DSS}	-	2.5 to 7	6 to 12	10 to 18	mA
Gate-source pinch-off voltage						
($V_{DS} = 5\text{ V}, I_D = 10\text{ }\mu\text{A}$)	$-V_P$	0.7	-	-	-	V
($V_{DS} = 10\text{ V}, I_D = 10\text{ }\mu\text{A}$)	$-V_P$	-	1.5	2.2	3.2	V

Dynamic characteristics ($T_{amb} = 25^{\circ}\text{C}$)Small-signal short-circuit
forward transfer admittance
($f = 1\text{ kHz}$)

($V_{DS} = 5\text{ V}, V_{GS} = 0$)	$ y_{21s} $	≥ 2.5	-	-	-	mS
($V_{DS} = 10\text{ V}, V_{GS} = 0$)	$ y_{21s} $	-	≥ 4	≥ 7	≥ 8	mS
Output admittance ($f = 1\text{ kHz}$)						
($V_{DS} = 5\text{ V}, V_{GS} = 0$)	g_{22s}	≤ 60	-	-	-	μS
($V_{DS} = 10\text{ V}, V_{GS} = 0$)	g_{22s}	-	≤ 60	≤ 100	≤ 120	μS
Input capacitance ($f = 1\text{ MHz}$)						
($V_{DS} = 5\text{ V}, V_{GS} = 0$)	C_{11s}	≤ 5	-	-	-	pF
($V_{DS} = 10\text{ V}, V_{GS} = 0$)	C_{11s}	-	≤ 5	≤ 5	≤ 5	pF
Output capacitance ($f = 1\text{ MHz}$)						
($V_{DS} = 5\text{ V}, V_{GS} = 0$)	C_{22s}	≤ 3	-	-	-	pF
($V_{DS} = 10\text{ V}, V_{GS} = 0$)	C_{22s}	-	≤ 3	≤ 3	≤ 3	pF
Reverse transfer capacitance at $f = 1\text{ MHz}$						
($V_{DS} = 5\text{ V}, V_{GS} = 0$)	C_{12s}	≤ 0.4	-	-	-	pF
($V_{DS} = 10\text{ V}, V_{GS} = 0$)	C_{12s}	-	≤ 0.4	≤ 0.4	≤ 0.4	pF
Noise figure ($f = 100\text{ MHz}$, $R_g = R_{g,opt} = 1-14\text{ mS}$)						
($V_{DS} = 5\text{ V}, V_{GS} = 0$)	NF	1.5	-	-	-	dB
($V_{DS} = 10\text{ V}, V_{GS} = 0$)	NF	-	1.5	1.5	1.5	dB

T-31-25

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