

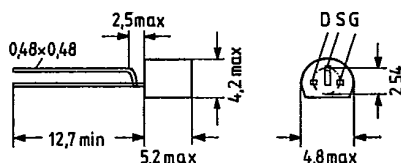
Low-Noise N-channel Junction Field-Effect Transistor for RF Applications

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
$V_{DG\ 0}$	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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25C 04480 D

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BF 410 A

BF 410 B

BF 410 C

BF 410 D

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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 mSOutput 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 pFOutput 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 pFNoise figure ($f = 100\text{ MHz}$, $R_g = R_{g\text{opt}} = 1\text{--}14\text{ mS}$) $(V_{DS} = 5\text{ V}, V_{GS} = 0)$ NF 1.5 — — — dB $(V_{DS} = 10\text{ V}, V_{GS} = 0)$ NF — 1.5 1.5 1.5 dB

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25C 04481 D

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