

## 69

Kenndaten ( $T_U = 25^\circ\text{C}$ ,  $U_S = 12\text{ V}$ ;  $f_{ZF} = 5,5\text{ MHz}$  bzw.  $10,7\text{ MHz}$ )

|                                                           |                                 | min | typ  | max |               |
|-----------------------------------------------------------|---------------------------------|-----|------|-----|---------------|
| Stromaufnahme                                             | $R_S = \infty$<br>$R_S = 0$     |     |      |     |               |
|                                                           | $I_S$                           | 10  | 14   | 18  | mA            |
|                                                           | $I_S$                           | 11  | 15,2 | 20  | mA            |
| ZF-Spannungsverstärkung                                   | $V_U$                           |     | 68   |     | dB            |
| ZF-Ausgangsspannung bei Begrenzung<br>(je Ausgang)        | $V_{QSS}$                       | 170 | 250  |     | mV            |
| Ausgangswiderstand (Anschluß 8)                           | $R_{Q8}$                        | 1,9 | 2,6  | 3,3 | k $\Omega$    |
| Überbrückungswiderstand                                   | $R_{13-14}$                     |     |      | 1   | k $\Omega$    |
| Regelhub der Lautstärkeregelung                           | $\frac{U_{NF\max}}{U_{NF\min}}$ | 70  | 75   |     | dB            |
| Gleichspannungsanteil des Ausgangssignals                 | $U_g$                           | 6,2 | 7,4  | 8,5 | V             |
| Potentiometerwiderstand                                   |                                 |     |      |     |               |
| - 1 dB Abregelung                                         | $R_S$                           |     | 3,7  | 4,7 | k $\Omega$    |
| - 70 dB Abregelung                                        | $R_S$                           | 1,0 | 1,4  |     | k $\Omega$    |
| Spannung                                                  |                                 |     |      |     |               |
| - 1 dB Abregelung                                         | $U_g$                           |     | 2,4  |     | V             |
| - 70 dB Abregelung                                        | $U_g$                           |     | 1,3  |     | V             |
| Signal-Störabstand                                        | $a_{S/N}$                       | 75  | 85   |     | dB            |
| ( $U_i = 10\text{ mV}$ ; $\Delta f = \pm 50\text{ kHz}$ ) |                                 |     |      |     |               |
| Klirrfaktor                                               | $k$                             |     | 1,3  | 2,5 | %             |
| ( $\Delta f = \pm 25\text{ kHz}$ , $U_i = 10\text{ mV}$ ) |                                 |     |      |     |               |
| Geräuschspannung (nach DIN 45405)                         | $U_R$                           |     | 80   | 140 | $\mu\text{V}$ |
| Ausgangswiderstand                                        | $R_{Q7-9}$                      |     | 5,4  |     | k $\Omega$    |

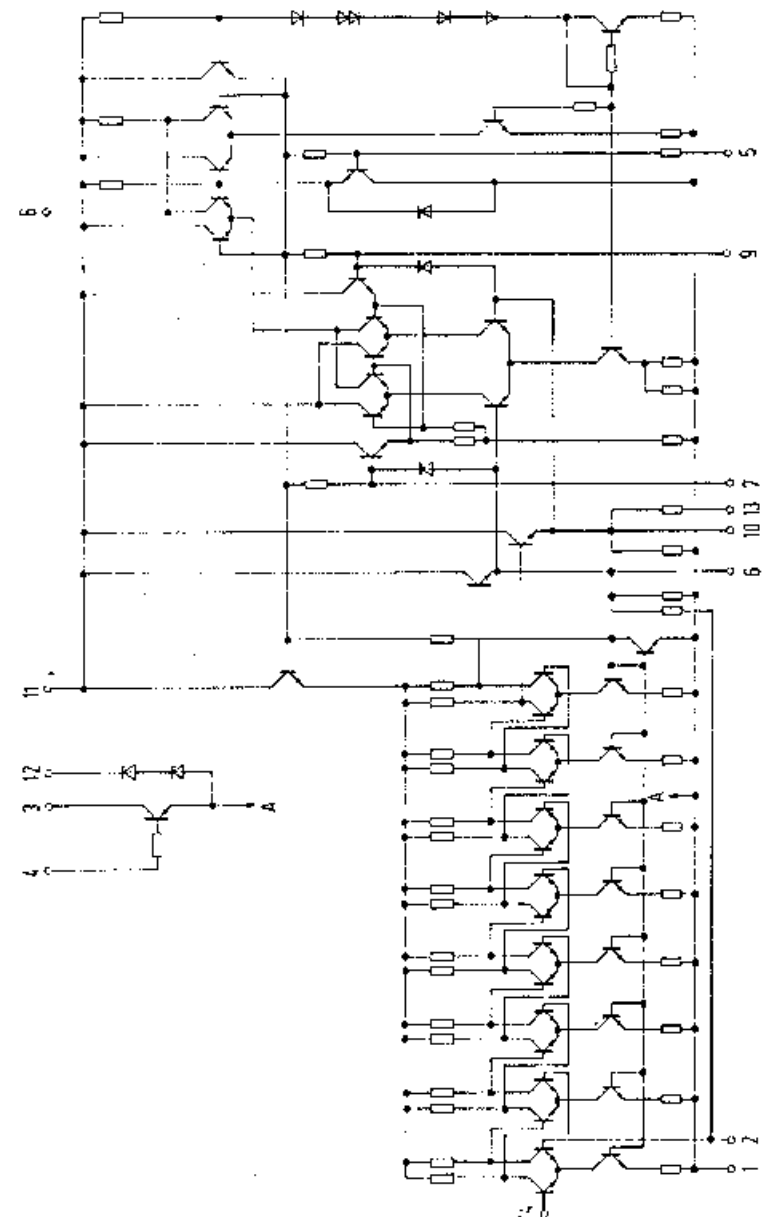
Kenndaten für  $f_{ZF} = 5,5\text{ MHz}$  ( $T_U = 25^\circ\text{C}$ ,  $U_S = 12\text{ V}$ ,  $f_{ZF} = 5,5\text{ MHz}$ ,  $\Delta f = \pm 50\text{ kHz}$ ,  
 $f_{\text{mod}} = 1\text{ kHz}$ ,  $Q_B \approx 45$ )

|                                                              |                    |     |        |    |                |
|--------------------------------------------------------------|--------------------|-----|--------|----|----------------|
| NF-Ausgangsspannung ( $U_i = 10\text{ mV}$ )                 | $U_{NF\text{eff}}$ | 0,7 | 1,0    |    | V              |
| Eingangsspannung für Begrenzung                              | $U_{i\text{Begr}}$ |     | 30     | 60 | $\mu\text{V}$  |
| AM-Unterdrückung $U_i = 500\text{ }\mu\text{V}$ , $m = 30\%$ | $a_{AM}$           | 45  | 55     |    | dB             |
| $U_i = 10\text{ mV}$ , $m = 30\%$                            | $a_{AM}$           | 60  | 68     |    | dB             |
| Eingangsimpedanz                                             | $Z_i$              |     | 40/4,5 |    | k $\Omega$ /pF |

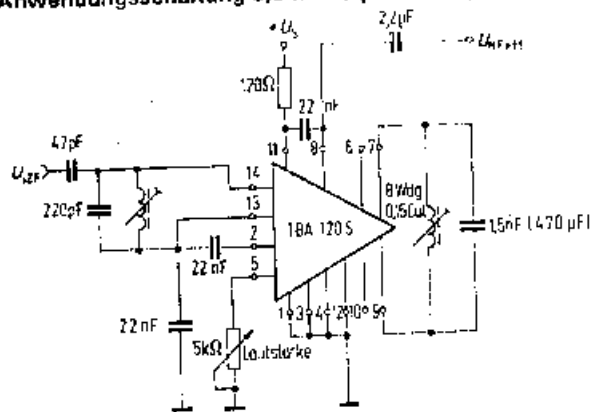
Kenndaten für  $10,7\text{ MHz}$  ( $T_U = 25^\circ\text{C}$ ,  $U_S = 12\text{ V}$ ,  $f = 10,7\text{ MHz}$ ,  $\Delta f = \pm 75\text{ kHz}$ ,  
 $f_{\text{mod}} = 1\text{ kHz}$ ,  $Q_B \approx 45$ )

|                                                                           |                    |     |      |     |                |
|---------------------------------------------------------------------------|--------------------|-----|------|-----|----------------|
| NF-Ausgangsspannung ( $U_i = 10\text{ mV}$ )                              | $U_{NF\text{eff}}$ | 0,4 | 0,7  |     | V              |
| Eingangsspannung für Begrenzung                                           | $U_{i\text{Begr}}$ |     | 50   | 100 | $\mu\text{V}$  |
| AM-Unterdrückung $U_i = 500\text{ }\mu\text{V}$ , $m_{\text{mod}} = 30\%$ | $a_{AM}$           | 40  | 50   |     | dB             |
| $U_i = 10\text{ mV}$ , $m_{\text{mod}} = 30\%$                            | $a_{AM}$           | 60  | 68   |     | dB             |
| Eingangsimpedanz                                                          | $Z_i$              |     | 20/4 |     | k $\Omega$ /pF |

Schaltbild



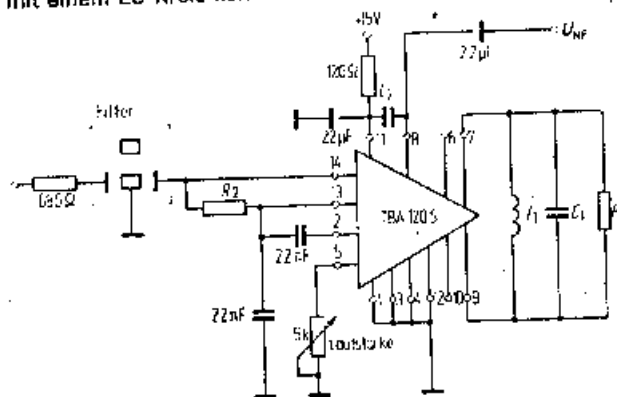
### Anwendungsschaltung 5,5 MHz: (10,7 MHz)



Werte in Klammern gelten für 10,7 MHz

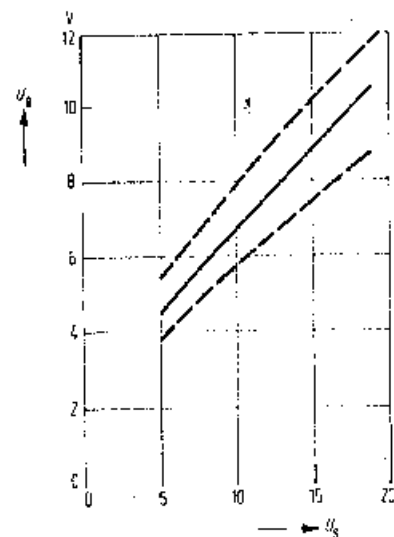
### Anwendungsschaltung mit keramischem Filter (Murata)

Für gute Weitabselektion sollte der Keramikfilter mit einem LC-Kreis kombiniert werden

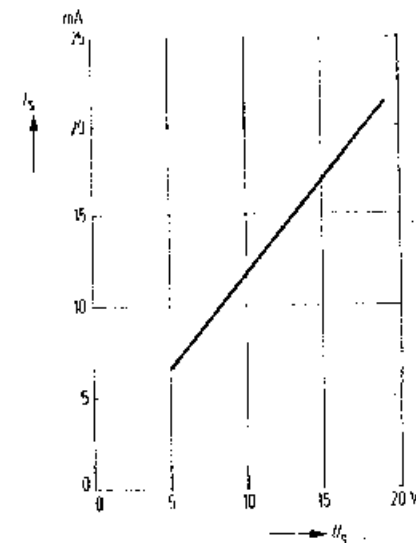


|                | Ton-ZF in FS-Geräten | Ton-ZF in FS-Geräten amerik. Norm | FM-ZF in RF-Mono-Geräten | FM-ZF in RF-Stereo-Geräten |
|----------------|----------------------|-----------------------------------|--------------------------|----------------------------|
| C <sub>1</sub> | 1,5 nF               | 2,2 nF                            | 470 pF                   | 330 pF                     |
| C <sub>2</sub> | 22 nF                | 22 nF                             | 22 nF                    | 470 pF                     |
| L <sub>1</sub> | 8 Wdg. 0,15 CuL      | 8 Wdg. 0,15 CuL                   | 8 Wdg. 0,15 CuL          | 12 Wdg. 0,15 CuL           |
| R <sub>1</sub> | ∞                    | ∞                                 | ∞                        | 1 kΩ                       |
| R <sub>2</sub> | 680 Ω                | 1 kΩ                              | 330 Ω                    | 330 Ω                      |
| Filter         | SFF 5,5 MA           | SFF 4,5 MA                        | SFE 10,7                 | SFE 10,7                   |
| (Murata)       |                      |                                   |                          |                            |

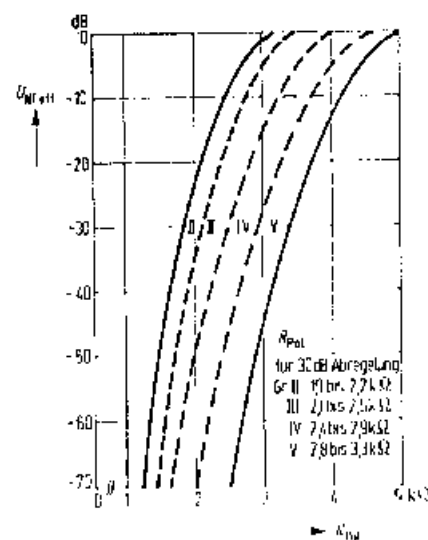
### Ausgleichsspannung $U_B = f(U_S)$



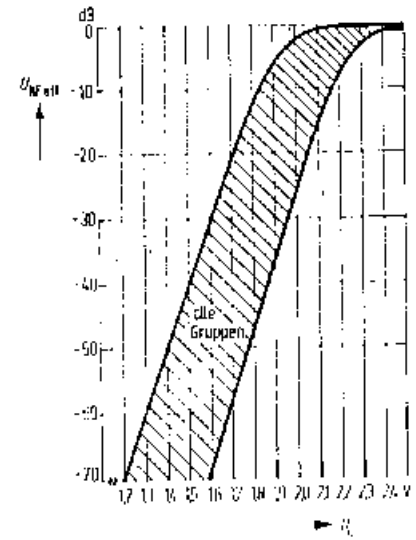
### Stromaufnahme $I_S = f(U_S)$



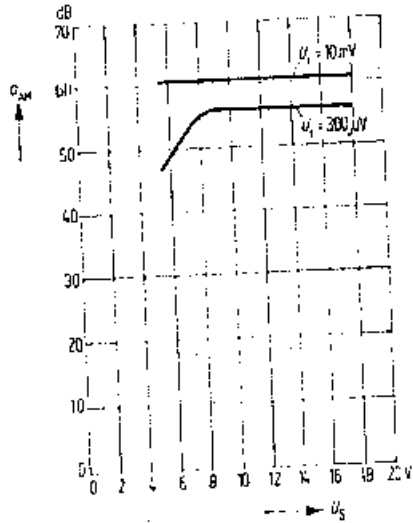
Lautstärkeregelung  $U_{NF\text{eff}} = f(R_{Pot})$   
 $U_S = 12\text{ V}; f_Z = 5,5\text{ MHz}; \Delta f = \pm 50\text{ kHz}$   
 $f_{mod} = 1\text{ kHz}; U_i = 10\text{ mV}$



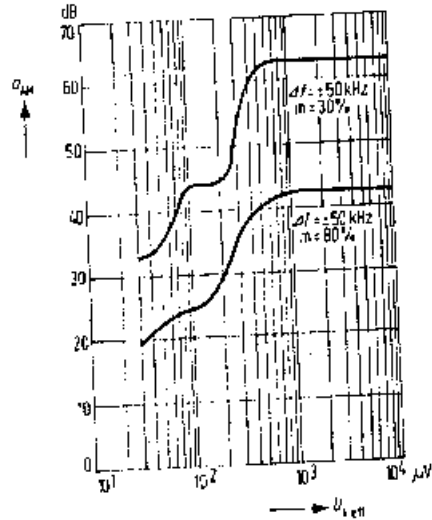
Lautstärkeregelung  $U_{NF\text{eff}} = f(U_S)$   
 $U_S = 12\text{ V}; f_Z = 5,5\text{ MHz}; \Delta f = \pm 50\text{ kHz}$   
 $f_{mod} = 1\text{ kHz}; Q_B = 45$



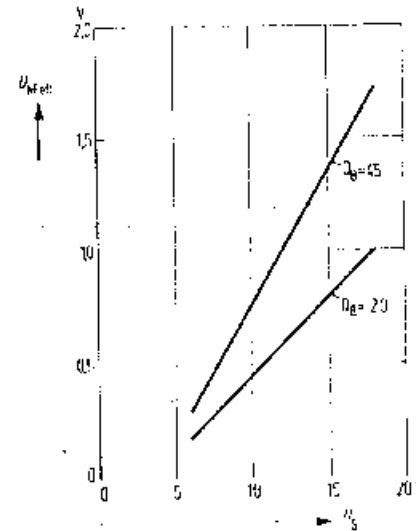
AM-Unterdrückung  $a_{AM} = f(U_S)$   
 $f_z = 5,5 \text{ MHz}$ ;  $\Delta f = \pm 50 \text{ kHz}$ ;  $f_{mod} = 1 \text{ kHz}$   
 $m = 30\%$ ;  $Q_B \approx 45$



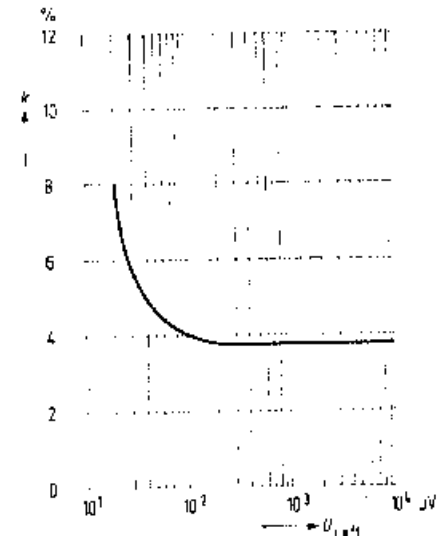
AM-Unterdrückung  $a_{AM} = f(U_{i,eff})$   
 $U_S = 12 \text{ V}$ ;  $f_z = 5,5 \text{ MHz}$ ;  $f_{mod} = 1 \text{ kHz}$   
 $Q_B \approx 45$



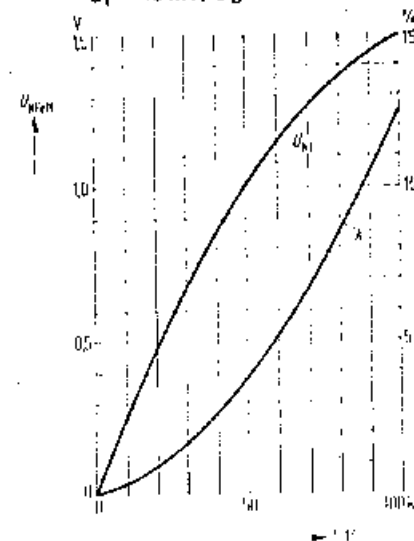
NF-Ausgangsspannung  $U_{NF,eff} = f(U_S)$   
 $f_z = 5,5 \text{ MHz}$ ;  $\Delta f = \pm 50 \text{ kHz}$   
 $f_{mod} = 1 \text{ kHz}$ ;  $U_i = 10 \text{ mV}$



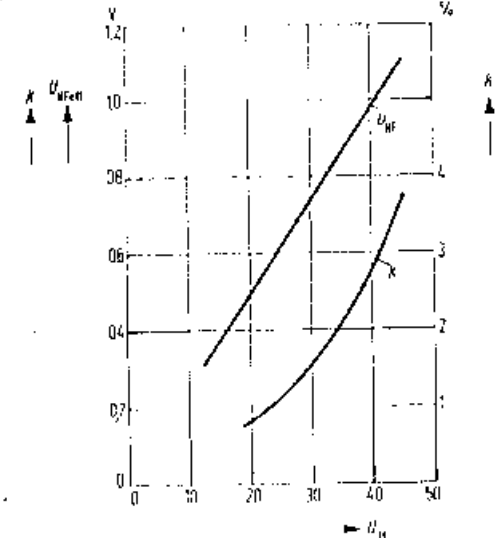
Klirrfaktor  $k = f(U_{i,eff})$   
 $U_S = 12 \text{ V}$ ;  $f_z = 5,5 \text{ MHz}$ ;  $\Delta f = \pm 50 \text{ kHz}$   
 $f_{mod} = 1 \text{ kHz}$ ;  $Q_B \approx 45$



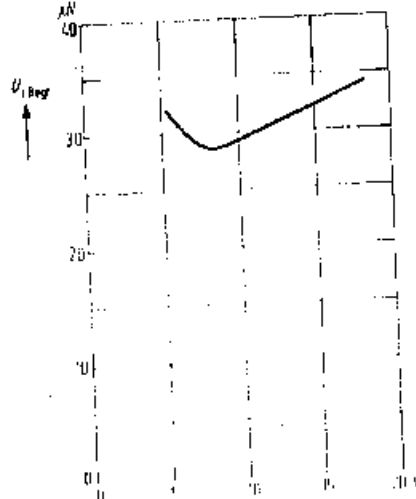
NF-Ausgangsspannung  $U_{NF,eff} = f(\Delta f)$   
Klirrfaktor  $k = f(\Delta f)$   
 $U_S = 12 \text{ V}$ ;  $f_z = 5,5 \text{ MHz}$ ;  $f_{mod} = 1 \text{ kHz}$   
 $U_i = 10 \text{ mV}$ ;  $Q_B \approx 45$



Ausgangsspannung  $U_{NF,eff} = f(Q_B)$   
Klirrfaktor  $k = f(Q_B)$   
 $U_S = 12 \text{ V}$ ;  $\Delta f = \pm 50 \text{ kHz}$   
 $f_{mod} = 1 \text{ kHz}$ ;  $U_i = 10 \text{ mV}$



Begrenzungseinsatz  $U_{i,Begr} = f(U_S)$   
 $f_z = 5,5 \text{ MHz}$ ;  $\Delta f = \pm 50 \text{ kHz}$   
 $f_{mod} = 1 \text{ kHz}$ ;  $Q_B \approx 45$



NF-Ausgangsspannung  $U_{NF,eff} = f(U_{i,eff})$   
 $U_S = 12 \text{ V}$ ;  $f_{mod} = 1 \text{ kHz}$ ;  $Q_B \approx 45$

