

S 041 P is a symmetrical, six-stage amplifier with symmetrical coincidence demodulator for amplifying, limiting, and demodulating frequency-modulated signals. The IC is particularly suited for sets where low current consumption is of importance, or where major supply fluctuations occur. The pin configuration corresponds to the well-known TBA 120. Pin 5 of S 041 P, however, is not connected internally. These types are especially suited for applications in narrow-band FM systems (455 kHz) and in conventional or standard FM IF systems (10.7 MHz).

Features

- Good limiting properties
- Wide voltage range
- Low current consumption
- Few external components

Maximum ratings

Supply voltage	V_S	15	V
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−40 to 125	°C
Thermal resistance (system-air)	$R_{th\ SA}$	90	K/W

S 041 P

Operating range

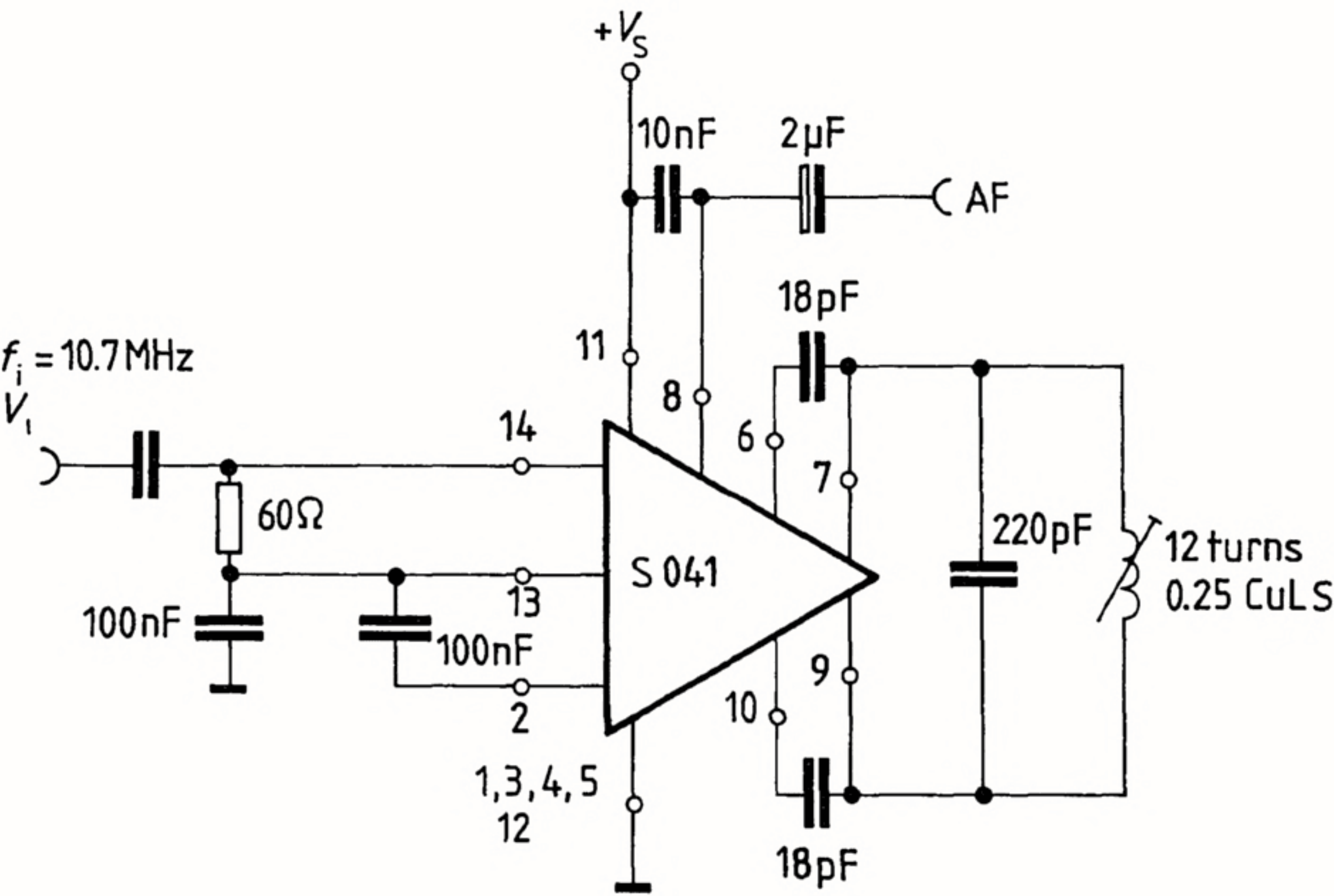
Supply voltage range	V_S	4 to 15	V
Frequency range	f_i	0 to 35	MHz
Ambient temperature range	T_{amb}	−25 to 85	°C

Characteristics ($V_S = 12\text{ V}$, Q approx. 35, $f_{\text{mod}} = 1\text{ kHz}$, $T_{\text{amb}} = 25^\circ\text{C}$)

		min	typ	max	
Current consumption	I_S	4.0	5.4	6.8	mA
AF output voltage ($f_i = 10.7\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $V_i = 10\text{ mV}$)	$V_{q\text{ rms}}$	100	170		mV
Total harmonic distortion ($f_i = 10.7\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $V_i = 10\text{ mV}$)	THD		0.55	1.0	%
Deviation of AF output voltage ($V_S = 15\text{ V} \rightarrow 4\text{ V}$, $f_i = 10.7\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$)	ΔV_q		1.5		dB
Input voltage for limiting ($f_i = 10.7\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$)	$V_{i\text{ lim}}$		30	60	μV
IF voltage gain ($f_i = 10.7\text{ MHz}$)	G_v		68		dB
IF output voltage for limiting (each output)	$V_{q\text{ pp}}$		130		mV
Input impedance $f_i = 10.7\text{ MHz}$	Z_i		20/2		k Ω /pF
$f_i = 455\text{ kHz}$	Z_i		50/4		k Ω /pF
Output resistance (pin 8)	R_q	3.5	5	8.5	k Ω
Voltage drop at AF ballast resistance	V_{11-8}		1.5		V
AM suppression ($V_i = 10\text{ mV}$, $\Delta f = \pm 50\text{ kHz}$, $m = 30\%$)	a_{AM}		60		dB

All connections mentioned in the index refer to S 041 P (e.g. V_{11})

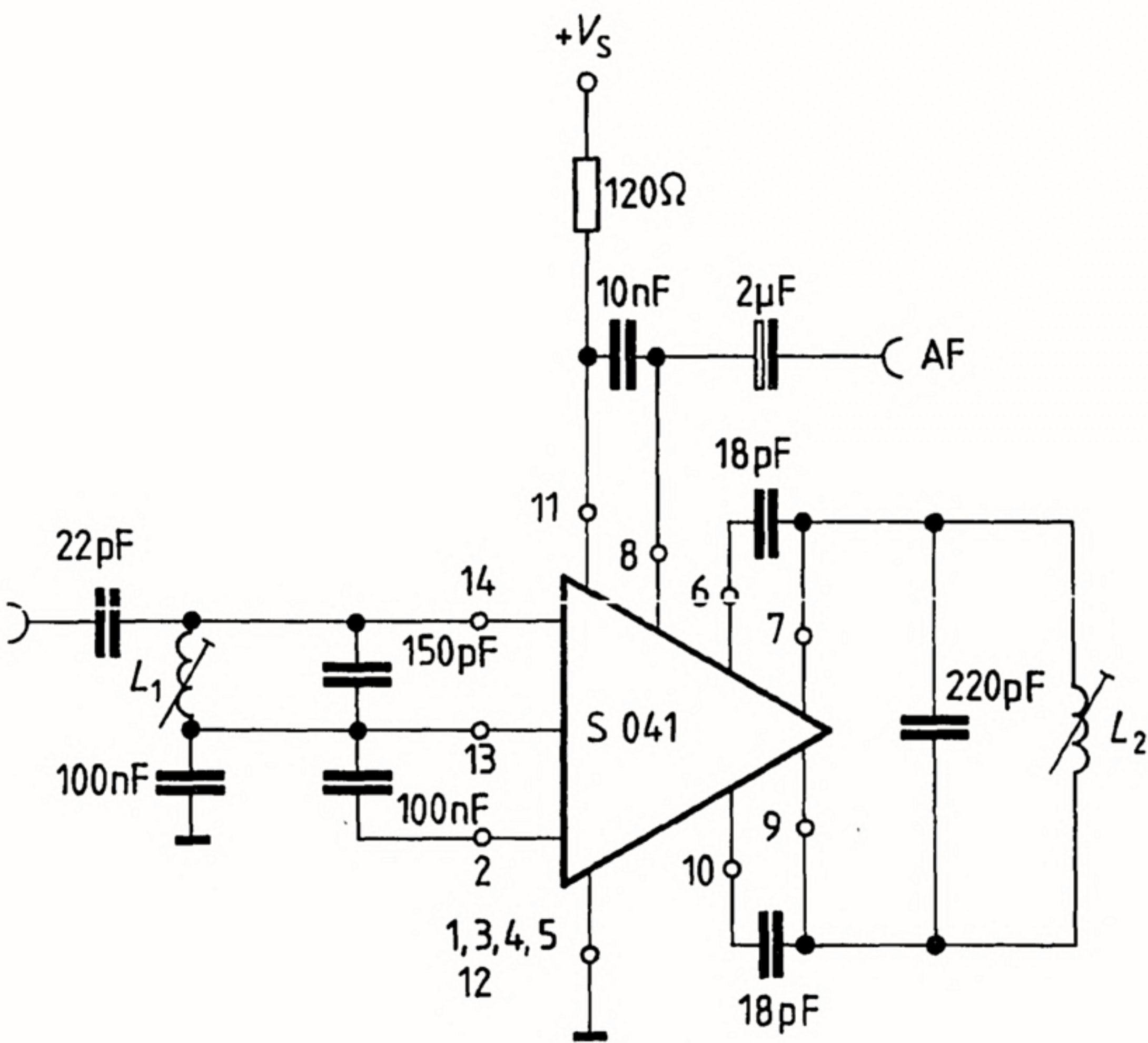
Test circuit



Circuit diagram



Application circuit for 10.7 MHz (FM IF)
and 455 kHz (narrow-band FM)

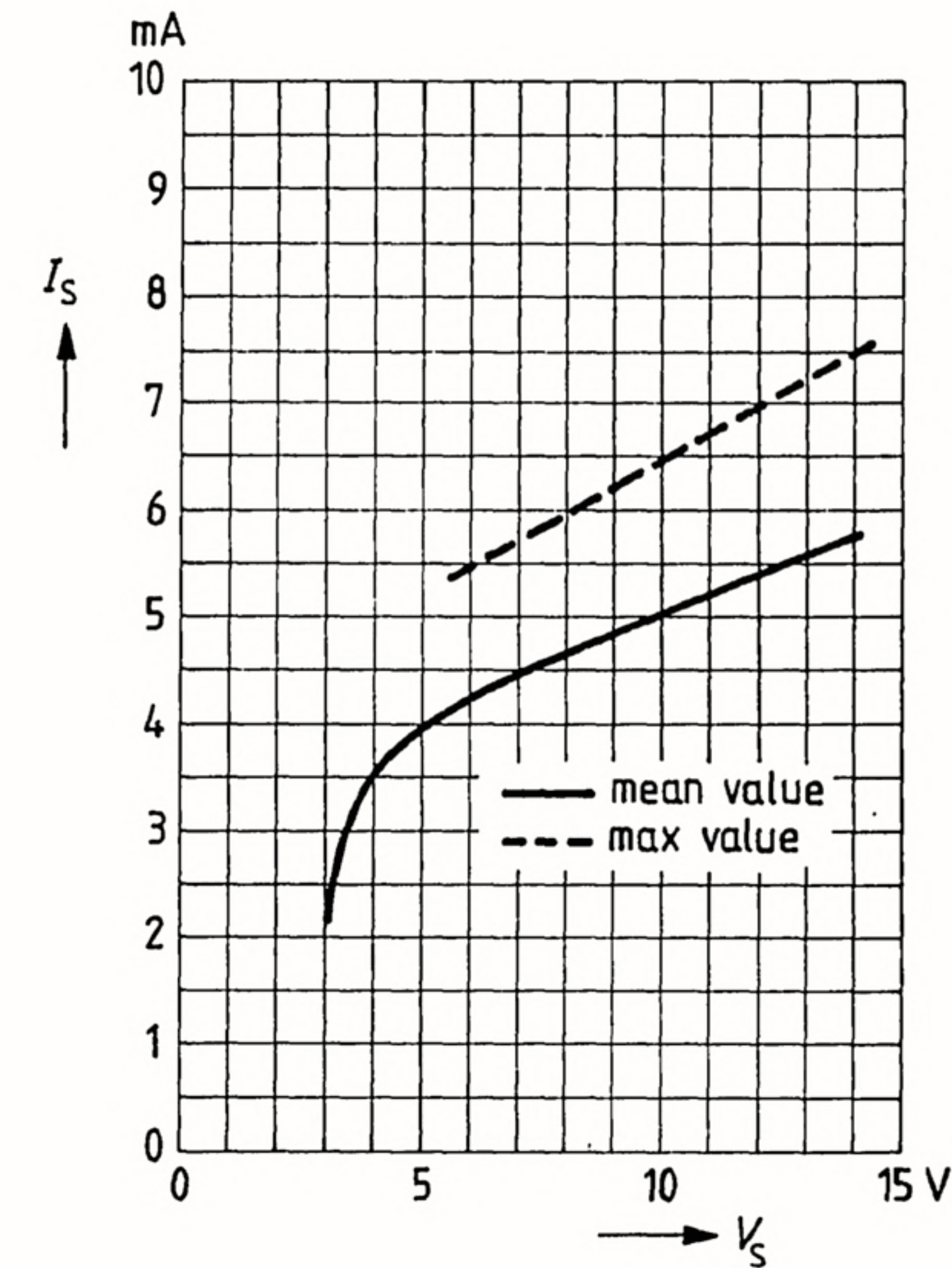


www.datasheetcatalog.com

Data in parentheses for 455 kHz (narrow-band FM)

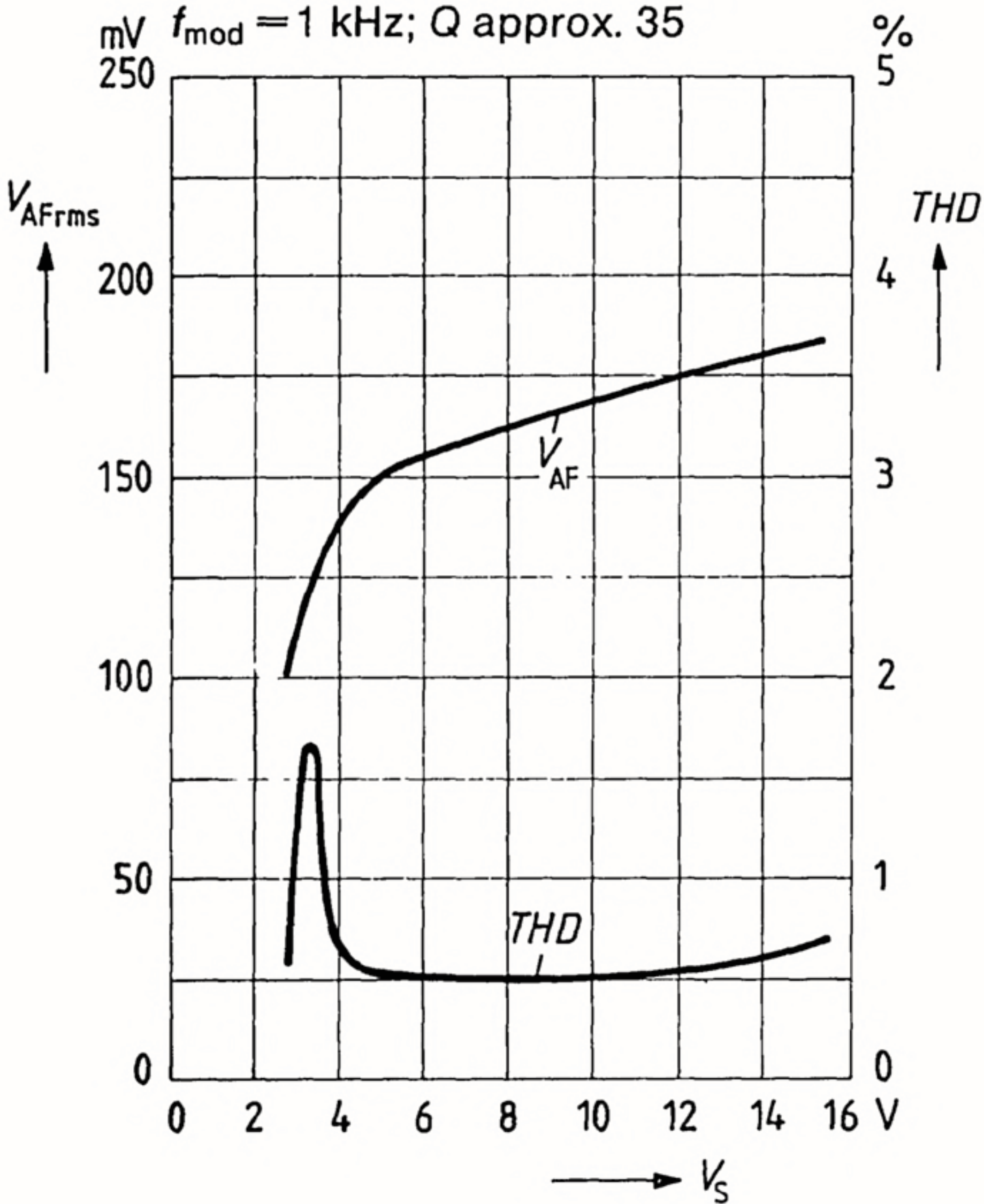
Coils	10.7 MHz	455 kHz
L ₁	15 turns/0.15 CuLS	71.5 turns/12 x 0,04 CuLS
L ₂	12 turns/0.25 CuLS	71.5 turns/12 x 0.04 CuLS
Coil set	D 41-2165	D 41-2393 of Messrs. Vogt

Current consumption
versus supply voltage

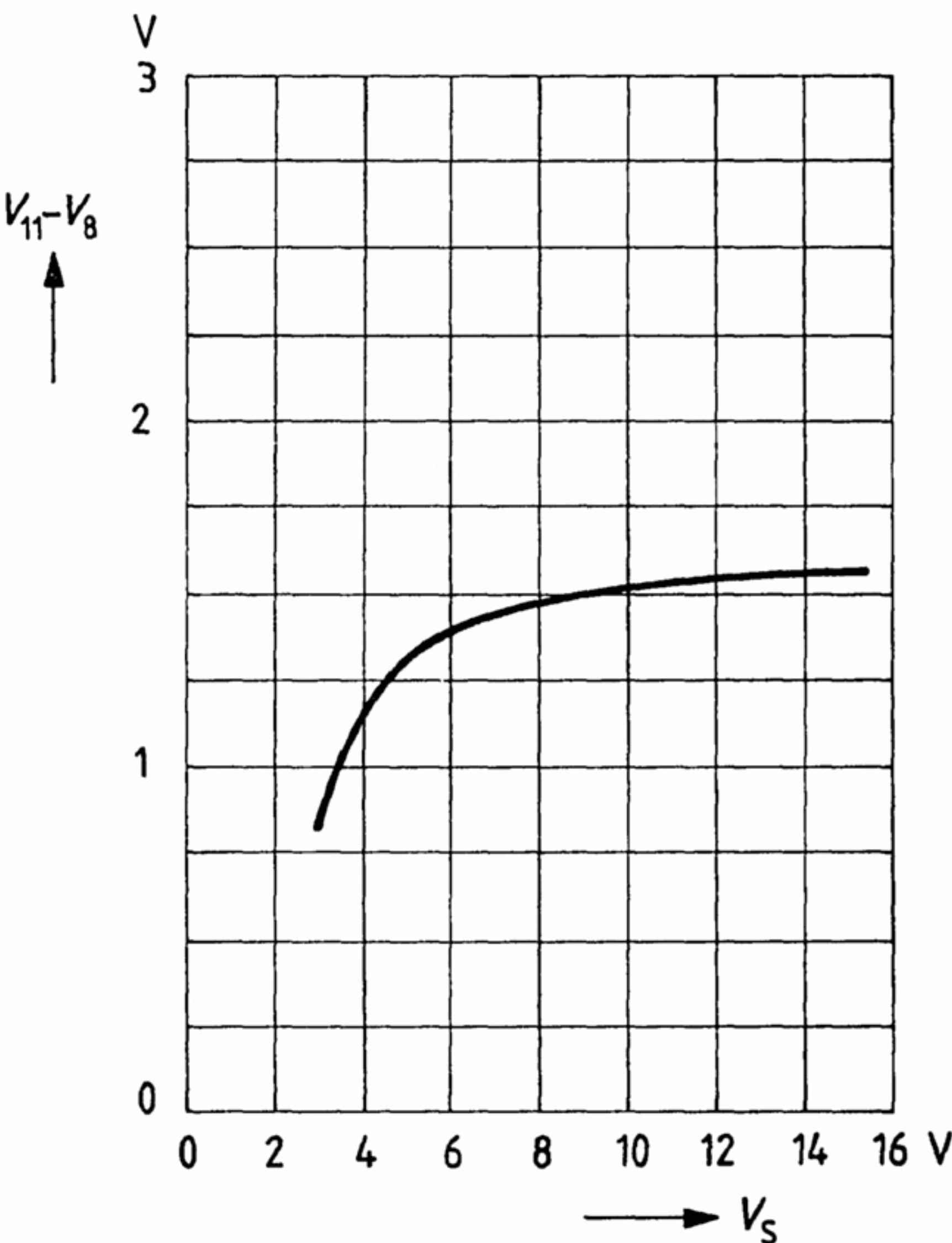


AF output voltage and total
harmonic distortion versus
supply voltage

$f_i = 10.7 \text{ MHz}; \Delta f = \pm 50 \text{ kHz}$
 $f_{\text{mod}} = 1 \text{ kHz}; Q \text{ approx. } 35$

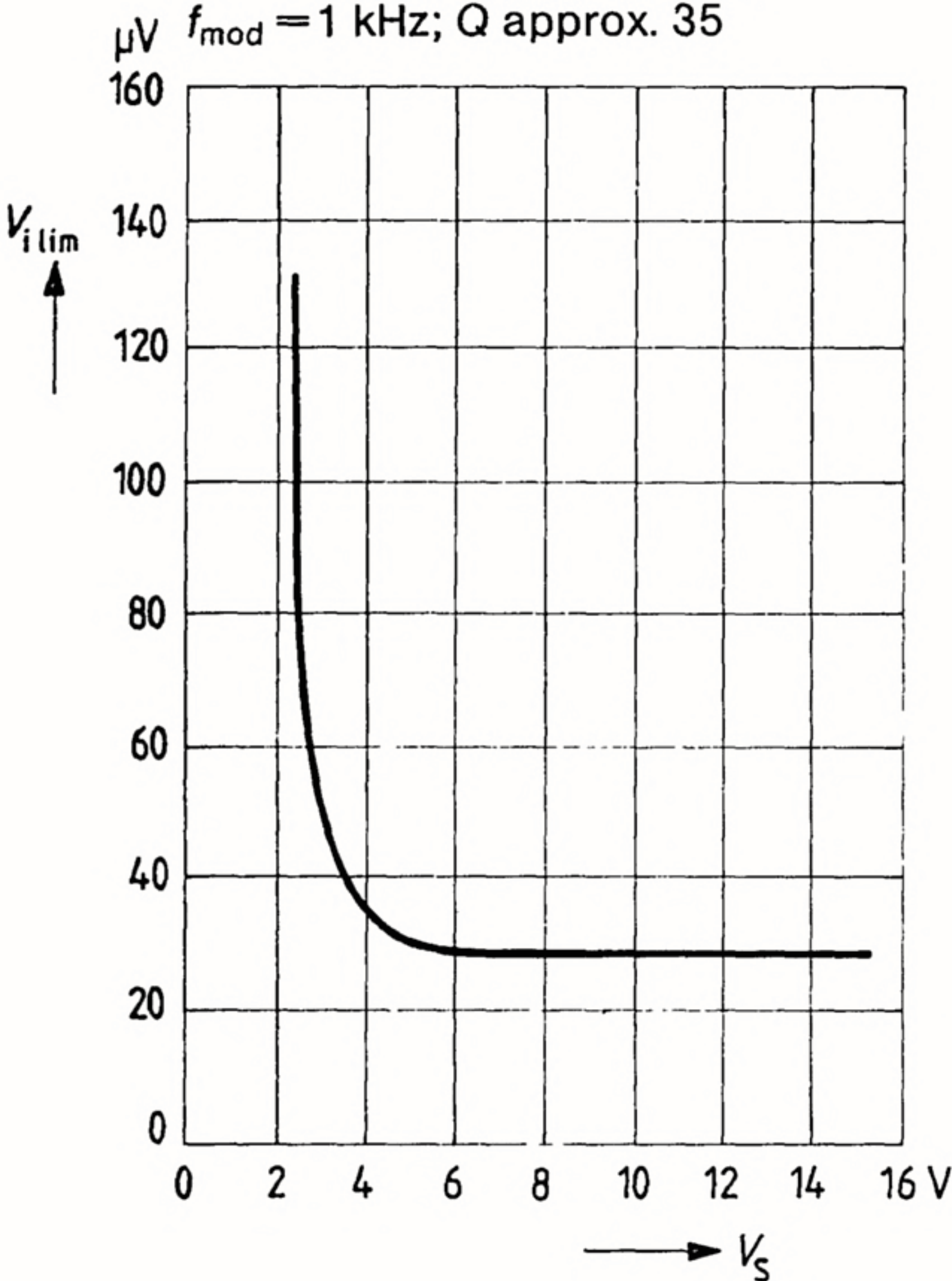


DC output voltage difference
versus supply voltage
(without signal)

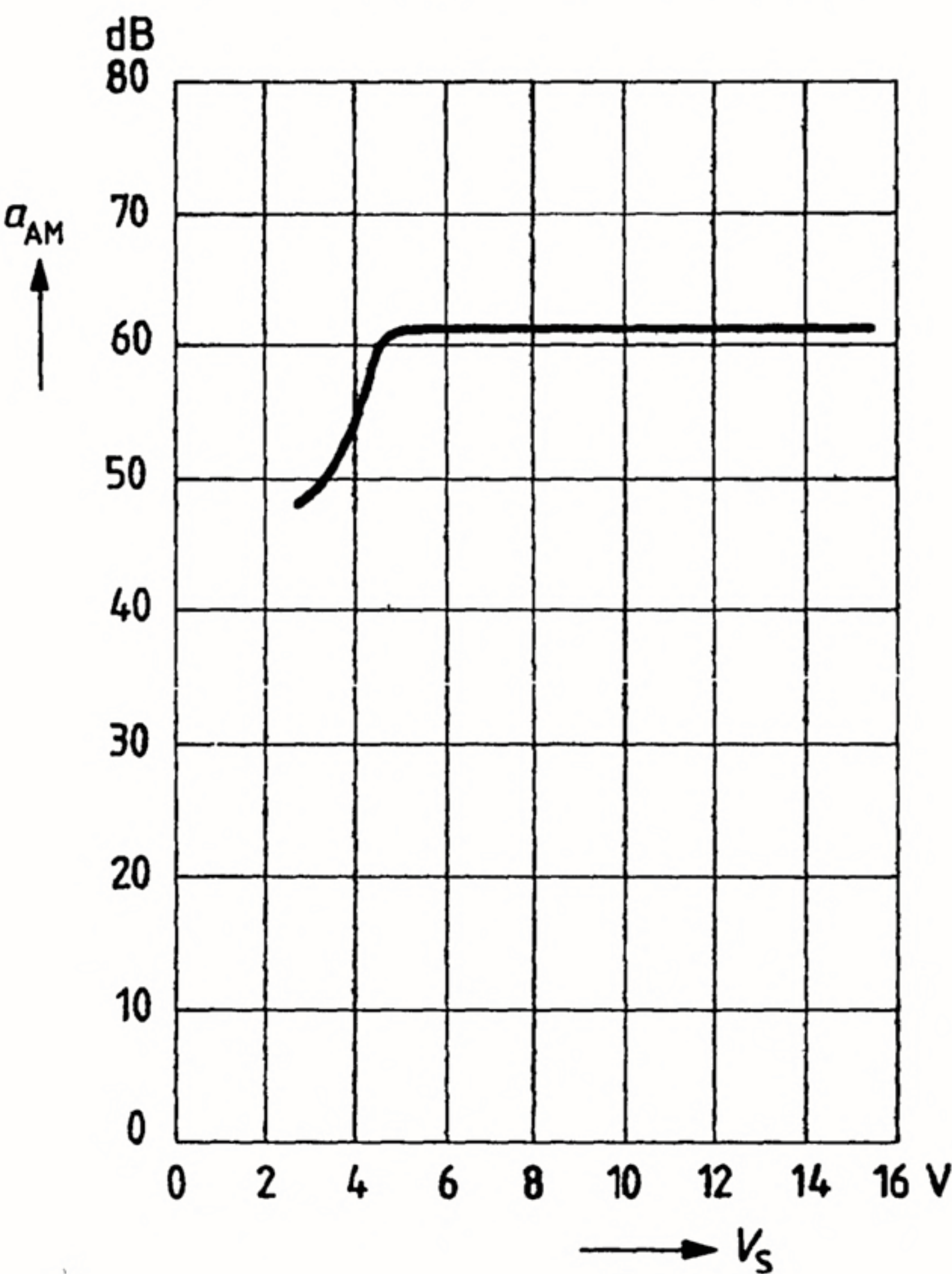


Input voltage for limiting
versus supply voltage

$f_i = 10.7 \text{ MHz}; \Delta f = \pm 50 \text{ kHz}$
 $f_{\text{mod}} = 1 \text{ kHz}; Q \text{ approx. } 35$



AM suppression versus
supply voltage
 $f_i = 10.7 \text{ MHz}; \Delta f = \pm 50 \text{ kHz};$
 $V_i = 10 \text{ mV}, f_{\text{mod}} = 1 \text{ kHz}, m = 30\%$



AF output voltage and total
harmonic distortion versus Q-factor
 $V_S = 12 \text{ V}; f_i = 10.7 \text{ MHz},$
 $\Delta f = \pm 50 \text{ kHz}, f_{\text{mod}} = 1 \text{ kHz}$

