

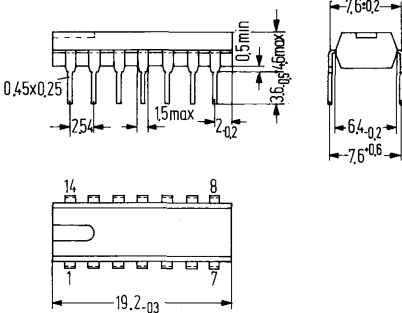
S 041 is a symmetrical, six-stage amplifier with symmetrical coincidence demodulator for the amplification, limiting and demodulation of frequency-modulated signals. S 041 is particularly suited for sets where a low current consumption is of importance, or where major supply voltage fluctuations occur.

Pin connexions correspond to the well known TBA 120. However, pin 5 of S 041 P is not connected internally. The S 041 is especially suited for applications in narrow-band FM systems (455 kHz) and in usual FM IF systems (10.7 MHz).

Type	Ordering codes
S 041 P	Q67000-A529
S 041 E	Q67000-A694

Package outlines

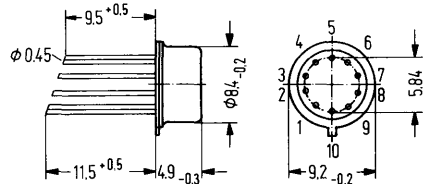
S 041 P



Plastic plug-in package
20 A 14 DIN 41866
14 pins, dual-in-line
Weight approx. 1.1 g

Dimensions in mm

S 041 E



Package 5 J 10 DIN 41873
(similar to TO 100)
10 pins
Weight approx. 1.1 g

Absolute maximum ratings

	S 041 P S 041 E	
Supply voltage	15	V
Storage temperature	-40 to +125	°C
Junction temperature	150	°C
Thermal resistance (system-air)		
S 041 P	120	°K/W
S 041 E	190	°K/W

Range of operation

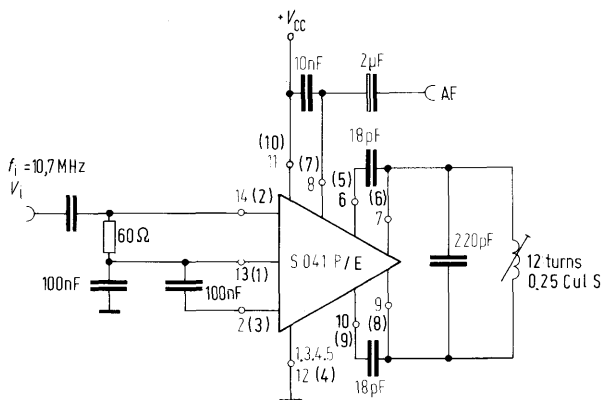
Supply voltage	4 to 15	V
Frequency range	0 to 35	V
Ambient temperature in operation	-25 to +85	°C

Electrical characteristics ($V_{cc} = 12\text{ V}$, $T_{amb} = 25\text{ }^\circ\text{C}$)

	min	typ	max		
Total current consumption	I_{cc}	4.0	5.4	6.8	mA
IF voltage gain ($f_{IF} = 10.7\text{ MHz}$)	G_V		68		dB
IF output voltage at limiting (each output)	V_{θ} , V_{10pp}		130		mV
AF output voltage ($f_{IF} = 10.7\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $V_i = 10\text{ mV}$, $f_{mod} = 1\text{ kHz}$, $Q \approx 35$)	$V_{AF\text{eff}}$	100	170		mV
Harmonic distortion ($f_{IF} = 10.7\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $V_i = 10\text{ mV}$, $f_{mod} = 1\text{ kHz}$, $Q \approx 35$)	k		.55	1.0	%
Deviation of AF output voltage ($V_{cc} = 15\text{ V} \rightarrow 4\text{ V}$, $f_{IF} = 10.7\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $f_{mod} = 1\text{ kHz}$)	ΔV_{AF}		1.5		dB
Input voltage for limiting ($f_{IF} = 10.7\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $V_i = 10\text{ MHz}$, $f_{mod} = 1\text{ kHz}$, $Q \approx 35$)	$V_{i\text{lim}}$		30	60	μV
Input impedance for 10.7 MHz	Z_i		20/2		k Ω /pF
for 455 kHz	Z_i		50/4		k Ω /pF
Output resistance (pin 9)	R_q	3.5	5	8.5	k Ω
Voltage drop at AF ballast resistance	V_{11-8}		1.5		V
AM suppression ($V_i = 10\text{ mV}$, $\Delta f = \pm 50\text{ kHz}$, $m = 30\%$, $f_{mod} = 1\text{ kHz}$)	a_{AM}		60		dB

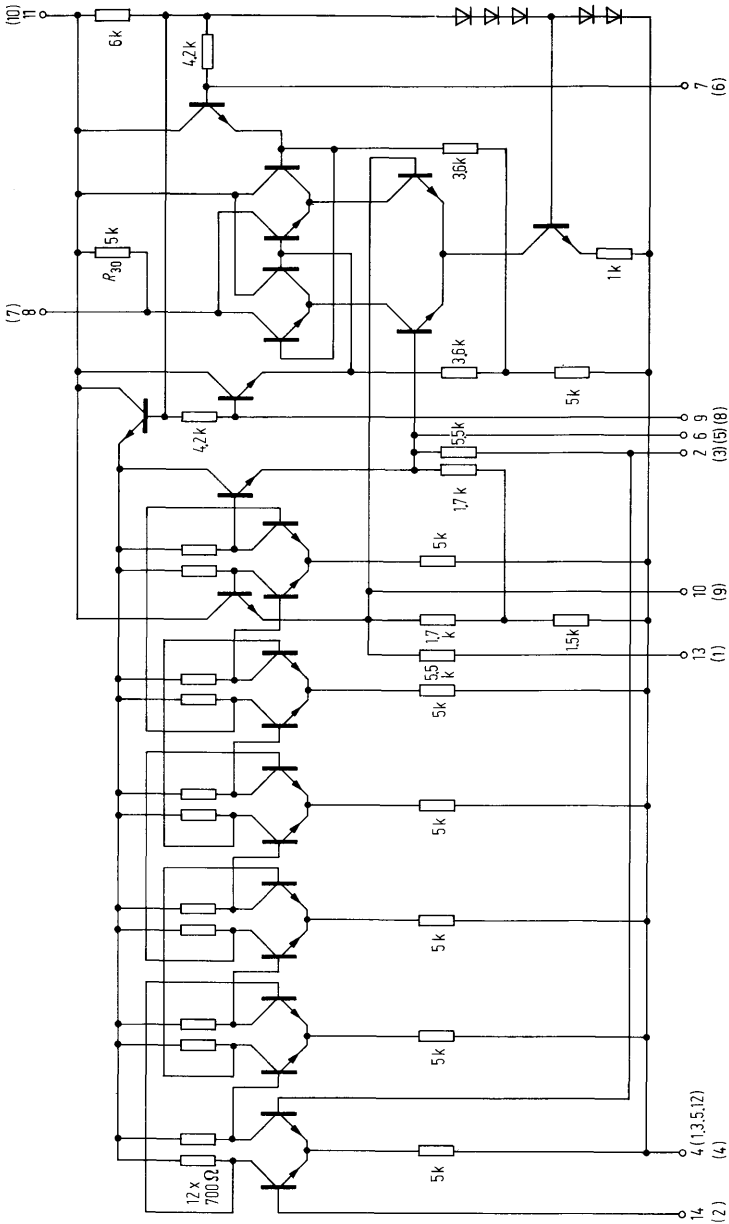
All connections mentioned in the index are referring to S 041 P (e.g. V_{11}).

Test circuit



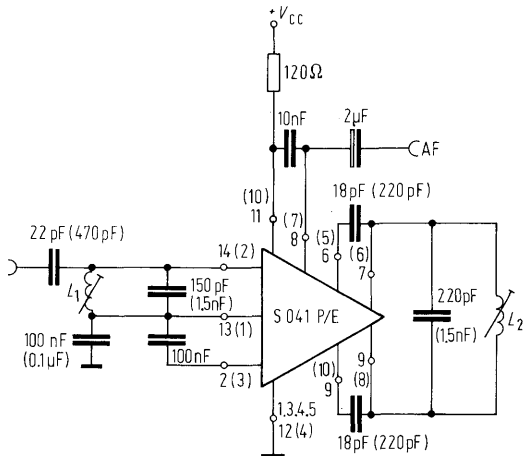
pin connections in brackets are for S 041 E

Circuit diagram



pin connections in brackets refer to S 041 E

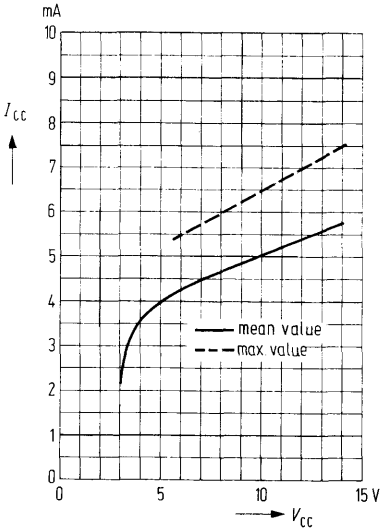
**Application circuit for 10.7 MHz (VHF-FM-IF)
and 455 kHz (narrow band FM)**



data in brackets for 455 kHz (narrow-band FM)
pin connections in brackets refer to S 041 E

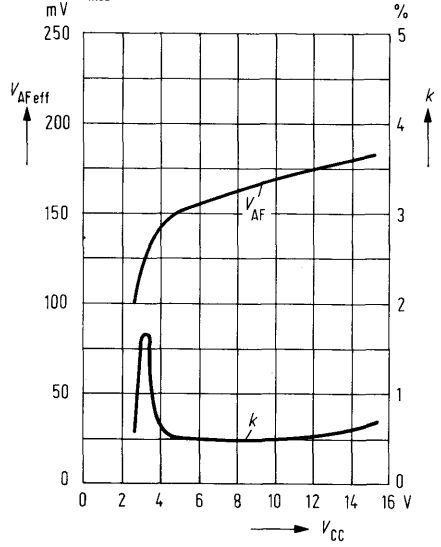
Coils	10.7 MHz	455 kHz
L ₁	15 turns/.15 CuLS	71.5 turns/12 × .04 CuLS
L ₂	12 turns/.25 CuLS	71.5 turns/12 × .04 CuLS
Coil set	D 41-2165	D 41-2393 of Messrs. Vogt

Current consumption versus supply voltage

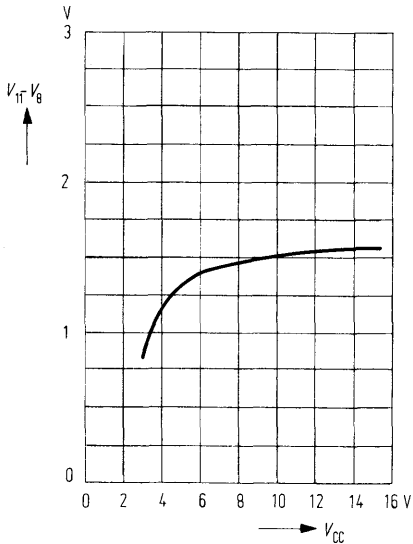


AF output voltage and harmonic distortion versus supply voltage

$f_{IF} = 10.7 \text{ MHz}$, $\Delta f = \pm 50 \text{ kHz}$,
 $f_{mod} = 1 \text{ kHz}$, $Q \approx 35$

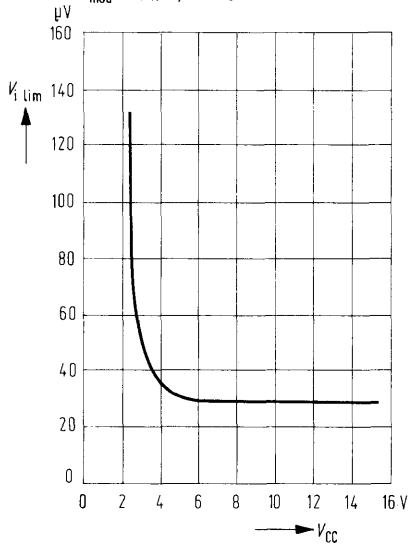


DC output voltage difference versus supply voltage (without signal)



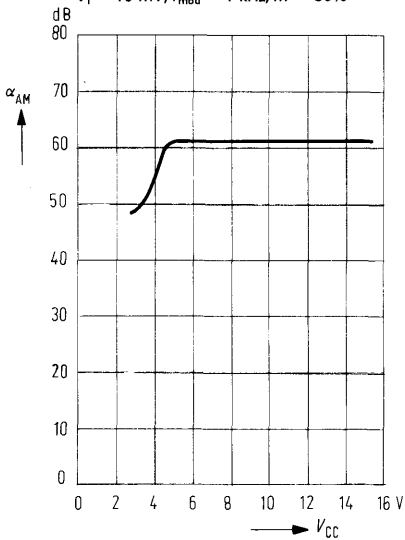
Input voltage for limiting versus supply voltage

$f_{IF} = 10.7 \text{ MHz}$, $\Delta f = \pm 50 \text{ kHz}$,
 $f_{mod} = 1 \text{ kHz}$, $Q \approx 35$



AM suppression versus supply voltage

$f_{IF} = 10.7 \text{ MHz}$, $\Delta f = \pm 50 \text{ kHz}$,
 $V_i = 10 \text{ mV}$, $f_{mod} = 1 \text{ kHz}$, $m = 30\%$



AF output voltage and harmonic distortion versus Q-factor

$V_{CC} = 12 \text{ V}$, $f_{IF} = 10.7 \text{ MHz}$,
 $\Delta f = \pm 50 \text{ kHz}$, $f_{mod} = 1 \text{ kHz}$

