

**UHF television tuner****KS-D-131****FEATURES**

- Member of the KS-130 family small sized UHF tuner
- System CCIR: I
- World standardized mechanical dimensions and world standard pinning
- Compact size
- Comply to "CENELEC EN55020" and "EN55013"

**MARKING**

The following items of information are printed on a sticker that is on the top cover of the tuner or printed directly on the top cover:

- Company logo
- Type number
- Year and month code
- Quality inspection print

**DESCRIPTION**

The KS-D-131 tuner belongs to the KS-130 family of tuners, which are designed to meet a wide range of applications. The low IF output impedance has been designed for direct drive of a wide variety of SAW filters with sufficient suppression of triple transient.

The tuners comply with the requirements of radiation, signal handling capability and immunity conforming with:

- CISPR 13 (1990) include. amendment 1 (1992) and amendment 2 (1993)
- European standards CENELEC EN55013, EN55020

**ORDERING INFORMATION**

TYPE	SYSTEM	DESCRIPTION
KS-D-131 E	CCIR	symmetrical IF output; IEC connector (14.5 mm)

INTERMEDIATE FREQUENCIES

SIGNAL	FREQUENCY (MHz)
Picture carrier	38.90
Colour	34.47
Sound	32.90

Note

1. The oscillator frequency is above the input signal frequency.

CHANNEL COVERAGE

BAND	OFF-AIR CHANNELS	
	CHANNELS	FREQUENCY RANGE (MHz)
UHF	E21 to E69	471.25 to 855.25

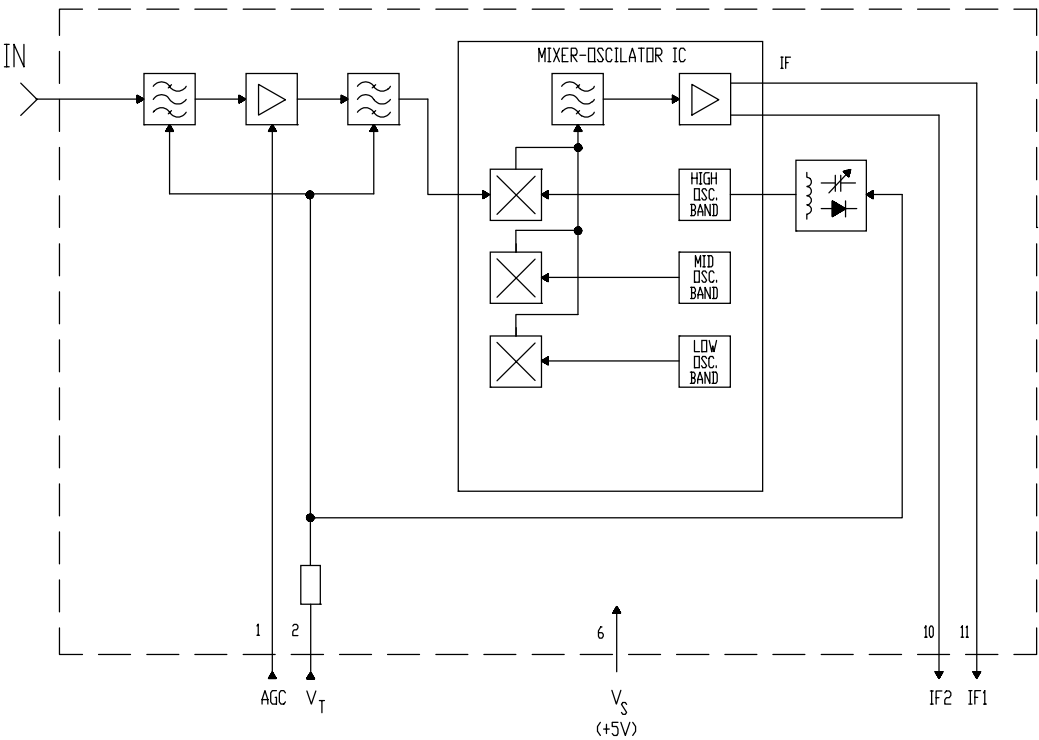


Fig.1 Electrical block diagram

## UHF television tuner

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## PINNING

SYMBOL	PIN	DESCRIPTION
AGC	1	gain control voltage
$V_T$	2	tuning voltage
$V_S$	6	supply voltage +5 V
IF2	10	symmetrical IF output
IF1	11	symmetrical IF output
GND	MT1, MT2	mounting tags (ground)
IN		aerial input connector IEC (14.5 mm)

## LIMITING VALUES

## Environmental conditions

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
<b>Non-operational conditions</b>				
$T_{amb}$	ambient temperature	-40	+60	$^{\circ}\text{C}$
RH	relative humidity	-	100	%
<b>Operational conditions</b>				
$T_{amb}$	ambient temperature	-15	+60	$^{\circ}\text{C}$
RH	relative humidity	-	93	%

## Limiting values under operational conditions

The tuner can be guaranteed to function properly under the following conditions

SYMBOL	PARAMETER	PIN	MIN.	TYP.	MAX.	UNIT
$V_S$	supply voltage	6	4.75	5.00	5.5	V
$I_S$	supply current		-	-	85	mA
$V_{ST}$	supply voltage	2	0.5	-	28	V
$I_{ST}$	supply current		-	-	0.5	$\mu\text{A}$
$V_{AGC}$	AGC input voltage	1	-	4.0	4.5	V
$\Delta V_{AGC}$	AGC input voltage range		0.3	-	4.0	V
$I_{AGC}$	AGC input current		-	-	20	$\mu\text{A}$

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## ELECTRICAL DATA

## Conditional data

Unless otherwise specified, all electrical values for Chapter "Electrical data" apply at the following conditions and the electrical performance.

A proper function is guaranteed within the specified operational conditions but a certain deterioration of performance parameters may occur at the limits of operational conditions.

SYMBOL	PARAMETER	VALUE	UNIT
$T_{amb}$	ambient temperature	25 +/- 5	$^{\circ}\text{C}$
RH	relative humidity	60 +/- 15	%
$V_S$	supply voltage	5.0 +/- 0.1	V
$V_{AGC}$	AGC input voltage	4.0 +/- 0.1	V
$t_{pr}$	pre-heating time (+5 V at pin 7)	10	minute
$Z_{S(AE)}$	aerial source impedance (unbalanced)	75	$\Omega$

## Aerial input characteristics

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
VSWR	reflection coefficient	referred to 75 $\Omega$ impedance	-	2	4	
$V_{ant}$	antenna connection disturbance voltage	< 1.75 GHz; comply to "EN55013 section 3.3"	-	-	46	$\text{dB}\mu\text{V}$

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## General characteristics

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$f_p$	frequency range		471.25	-	855.25	MHz
$G_v$	voltage gain: all channels gain taper	The IF output is loaded with a test circuit according diagram fig.2	40 -	45 -	52 7	dB dB
F	noise	The IF output is loaded with a test circuit according diagram fig.3	-	6.0	8	dB
$\Delta V_{AGC}$	AGC input voltage range		40	50	-	dB
$\alpha_i$	image rejection		50	60	-	dB
$\alpha_{IF}$	IF rejection (picture)		65	71	-	dB
$V_{ESD}$	electrostatic discharge (ESD):  protection on pins 1, 2, 6, 10 and 11 protection on antenna socket	note 1	  2 8	  - -	  - -	  kV kV
$\Delta f$	oscillator drift ambient temperature change  supply voltage change	$\Delta T = 25^\circ\text{C} \pm 2^\circ\text{C}$ ( $25^\circ\text{C}$ to $50^\circ\text{C} \pm 2^\circ\text{C}$ )  +/- 5%	  - -	  - -	  +/-1200 +/- 500	  kHz kHz

## Note

1. The tuner meets specifications IEC 1000-4-2 level 1 for pins and level 4 for antenna socket.

## Visibility test

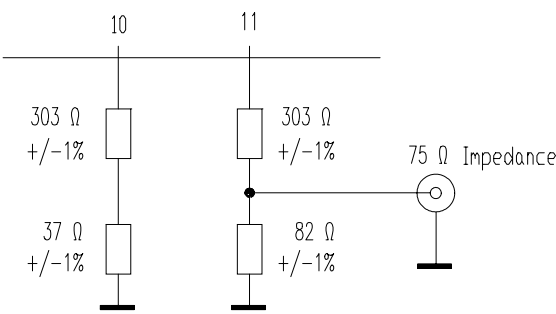
The tuners meet the requirements of the European norm "EN55020", when measured in an adequate television receiver.

## Recommended adjustment of Tuner AGC in TV chassis:

Channel: E21 (471.25 MHz PC-frequency)  
 Input level: 70 dB $\mu$ V/75  $\Omega$   
 IF output level: 105 dB $\mu$ V  
 Gain reduction: 10 dB  
 AGC-Voltage: 2.6 V +/-0.2V

## Radiation

The tuners meet the requirements of the European norm "EN55013" and "CISPR13" (1990), when measured in an adequate television receiver.



test circuit attenuation : 26 dB

Fig. 2 Test circuit for voltage gain.

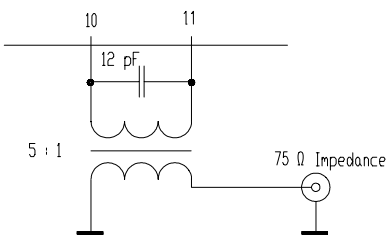


Fig. 3 Test circuit for noise figure

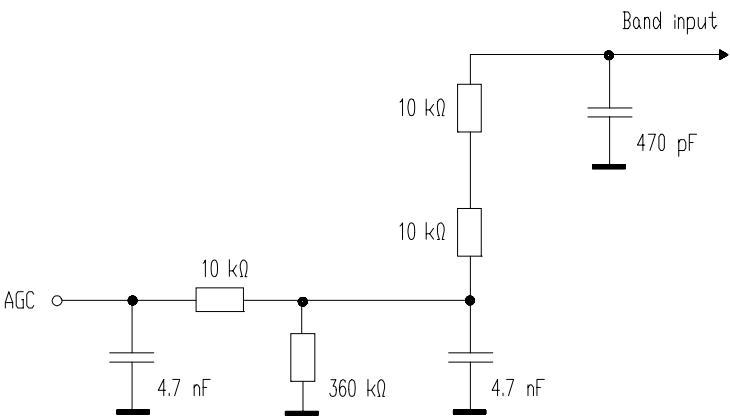


Fig.4 Internal AGC circuit.

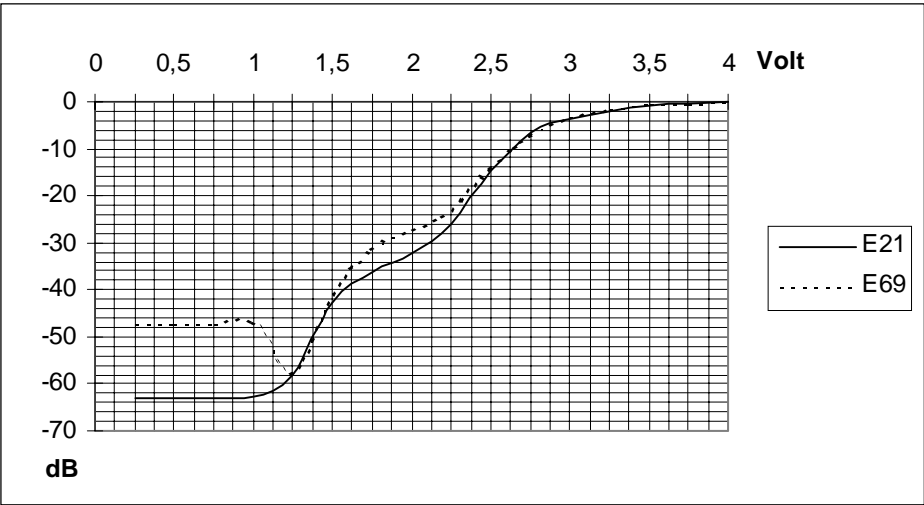


Fig.5 AGC characteristics.

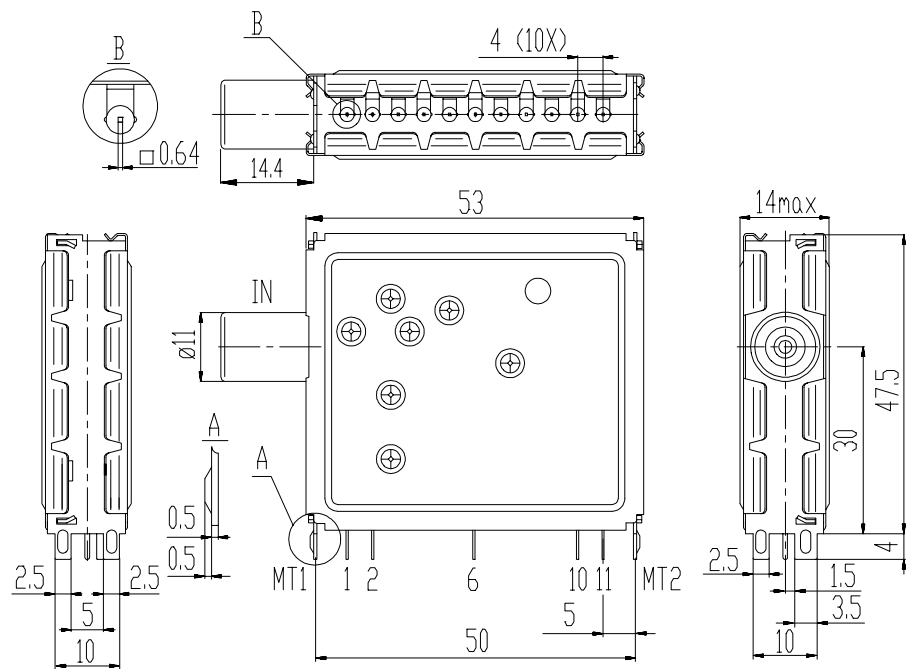


Fig.6 Mechanical outline

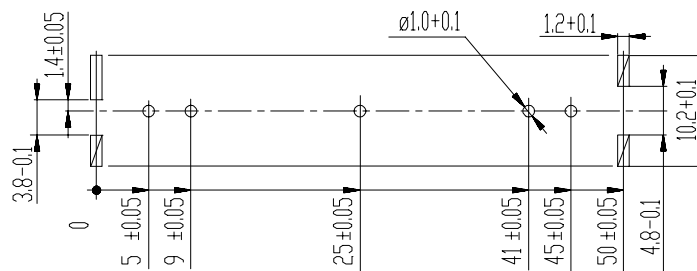


Fig.7 Punching pattern seen from solder side

**Aerial connections**

Standard IEC socket female 75  $\Omega$ .

**LIFE SUPPORT APPLICATIONS**

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Selteka customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Selteka for any damages resulting from such improper use or sale.