BIPOLAR ANALOG INTEGRATED CIRCUIT

μPC1382C

TV SOUND IF PROCESSOR AND ATTENUATOR

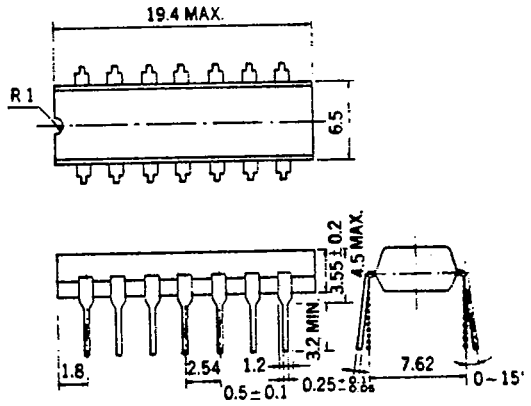
DISCRIPTION

μPC1382C is a TV sound IC. It can be operated with no adjustment, using ceramic filters externally. It contains a DC controlled attenuator, which has wide effective area and gentle characteristic in the chainging, so it is convenient especially for a remote controlled set.

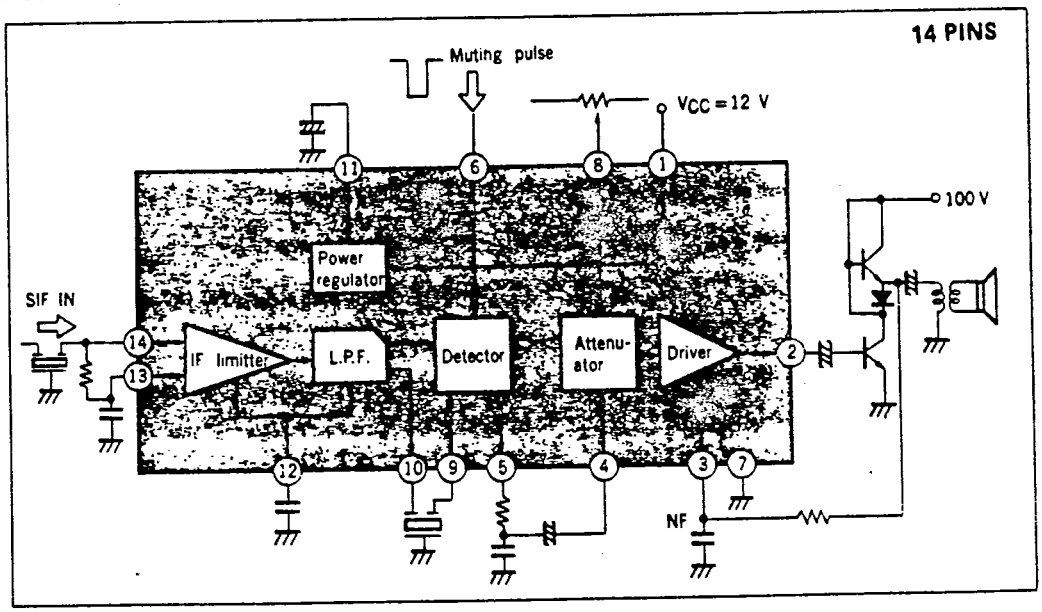
FEATURES

- Gentle chainging DC controlled attenuator is convenient for remote controlled sets.
- Operation with ceramic filters makes TV sound circuit no adjustment completely.
- SRPP output circuit can be driven directly.
- Muting works quickly.
- Low distortion demodulation.

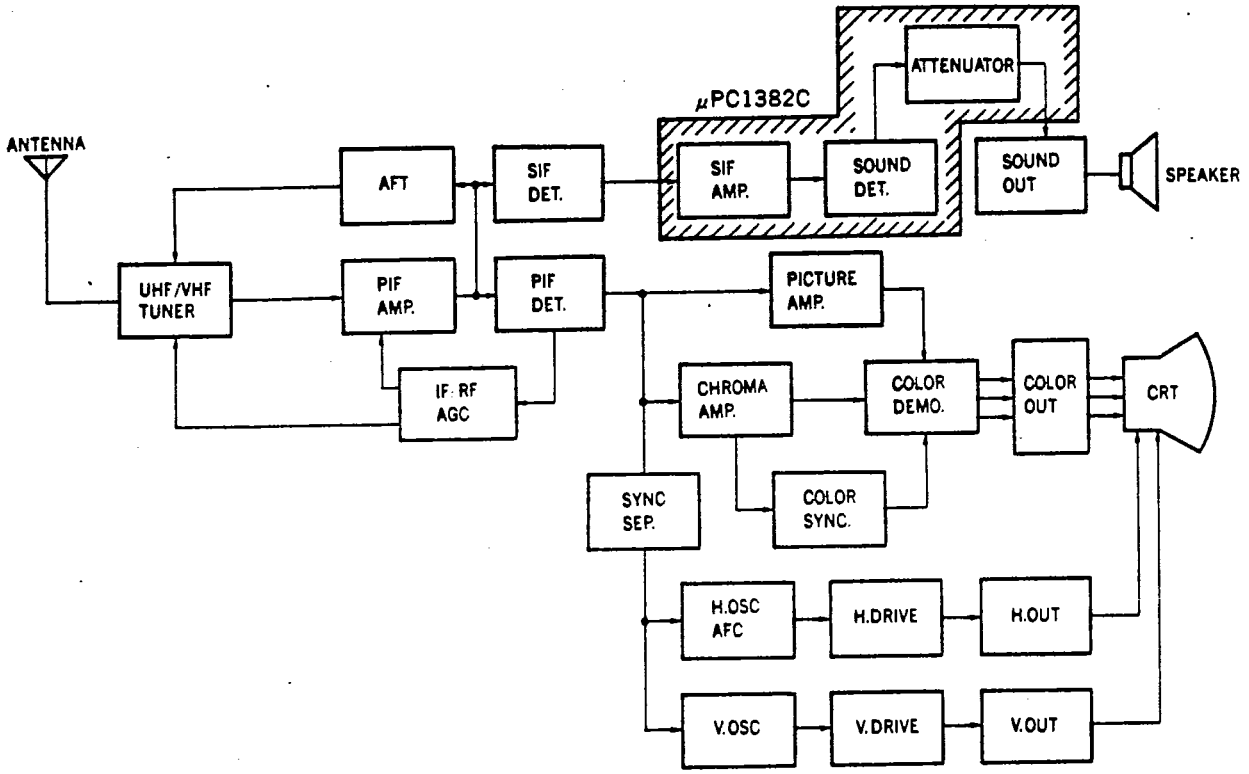
PACKAGE DIMENSIONS (Unit : mm)



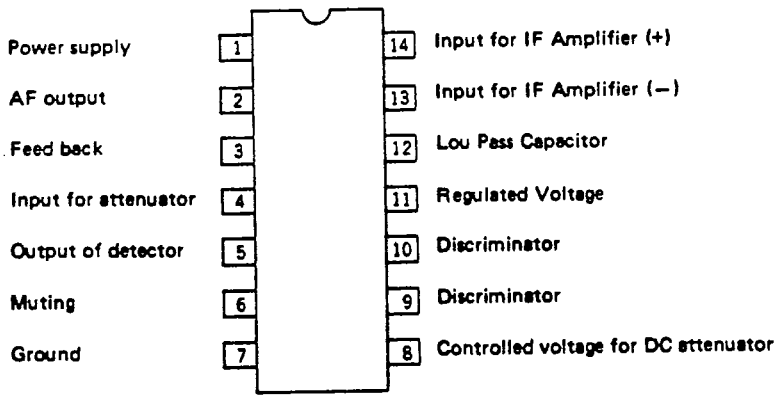
BLOCK DIAGRAM



TV BLOCK DIAGRAM



CONNECTION DIAGRAM (Top View)



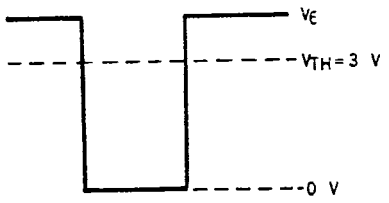
ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

Power supply voltage	V_{CC}	0	15	V
Pin 13, 14 voltage	V_{13}, V_{14}	0	5	V
Pin 2 output current	I_2	0	20	mA
Power dissipation	P_d	350 (Ta=75 °C)		mW
Operating temperature	T_{opt}	−20 to +75		°C
Storage temperature	T_{stg}	−40 to +125		°C

ELECTRICAL CHARACTERISTICS (V_{CC}=12 V, Ta=25±3 °C) • Mark f=4.5 MHz, Δf=±25 kHz, f_M=400 Hz, AMMOD=30 %

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	CKT	CONDITION
Total supply current	I_{CC}	15	20	25	mA	1	V_{CC}=12 V Zero carrier
IF limitting voltage	$v_{i(lim)}$	–	200	400	μVr.m.s.	1	• −3 dB point
Detector output voltage	$v_{O\,AF}$	450	600	750	mVr.m.s.	1	• v_i=10 mVr.m.s
Detector output distortion	T.H.D.DET	–	0.4	1.0	%	1	• v_i=10 mVr.m.s.
AM rejection	AMR	−44	−55	–	dB	1	• $v_i \geq$ 3 mVr.m.s
DC VR maximum attenuation	ATT_{VR}	70	80	–	dB	2	f_{in}=400 Hz, v_i=600 mVr.m.s.
DC VR distortion	T.H.D.VR	–	0.4	1.0	%	2	f_{in}=400 Hz, v_i=600 mVr.m.s. $V_8 \geq$ 5 V
AF voltage gain	G_{VAF}	11.5	15.0	–	dB	2	f_{in}=400 Hz, v_i=100 mV.r.m.s. R_3=1 kΩ
IF input resistance	R_{in}		1.5		kΩ	3	
IF input capacitance	C_{in}		2.0		pF	3	
Pin 4 input resistance	R_{in4}		20		kΩ	3	
Pin 4 input capacitance	C_{in4}		2.8		pF	3	

MUTING CHARACTERISTIC



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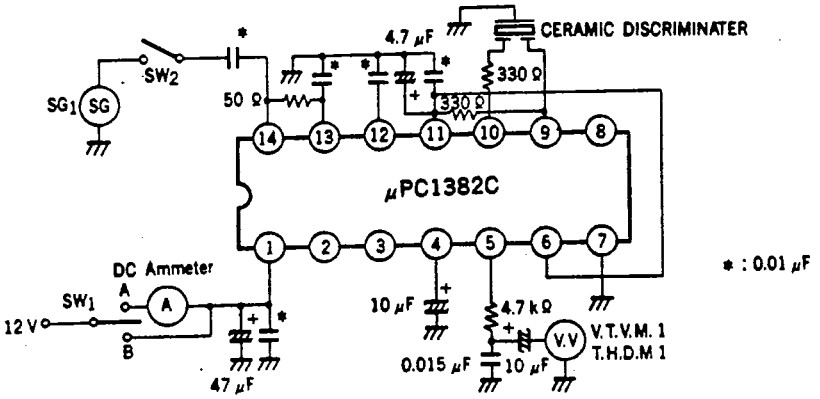
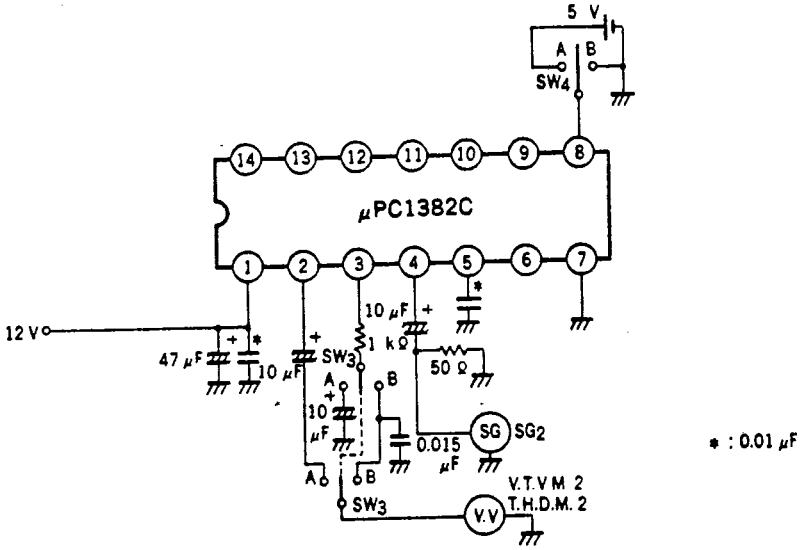
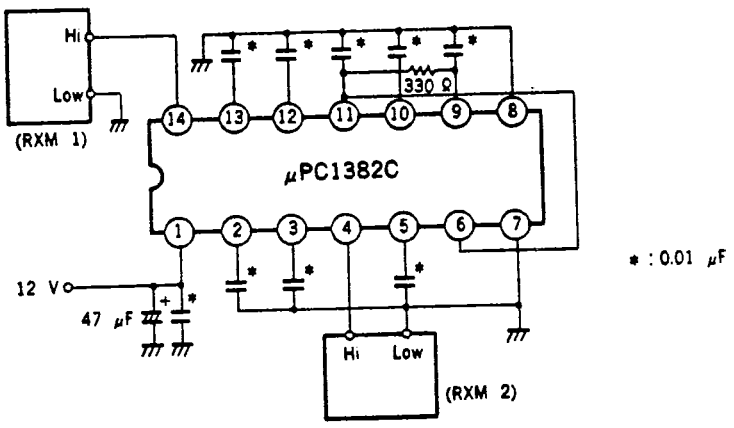
TEST CIRCUIT 1



TEST CIRCUIT 2



TEST CIRCUIT 3



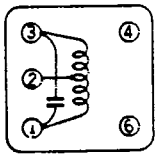
SWITCH TABLE

ITEM	CKT	SG	CONDITION	SW_1	SW_2	SW_3	SW_4	VV_1	VV_2	T.H.D. M1	T.H.D. M2	RX M1
I_{CC}	1	–	V_{CC}=12 V Zero carrier	A	OFF	–	–	O	–	–	–	–
$v_{i(lim)}$	1	SG_1	*–3dB point	B	ON	–	–	O	–	–	–	–
v_{OAF}	1	SG_1	* v_i=10 mVr.m.s.	B	ON	–	–	O	–	–	–	–
T.H.D.DET	1	SG_1	* v_i=10 mVr.m.s.	B	ON	–	–	–	–	O	–	–
AMR	1	SG_1	* $v_i \geq$ 3mVr.m.s.	B	ON	–	–	O	–	–	–	–
ATT_{VR}	2	SG_2	f_M=400 Hz, v_i=600 mVr.m.s.	–	–	B	A→B	–	O	–	–	–
T.H.D.VR	2	SG_2	f_M=400 Hz, v_i=600 mVr.m.s.	–	–	B	A	–	–	–	O	–
G_{VAF}	2	SG_2	f_{in}=400 Hz, v_i=100 mVr.m.s.	–	–	A	A	–	O	–	–	–
R_{in}	3	–		–	–	–	–	–	–	–	–	1
C_{in}	3	–		–	–	–	–	–	–	–	–	1
R_{in4}	3	–		–	–	–	–	–	–	–	–	2
C_{in4}	3	–		–	–	–	–	–	–	–	–	2

* f=4.5 MHz, Δf=±25 kHz, f_M=400 Hz, AMMOD=30 %

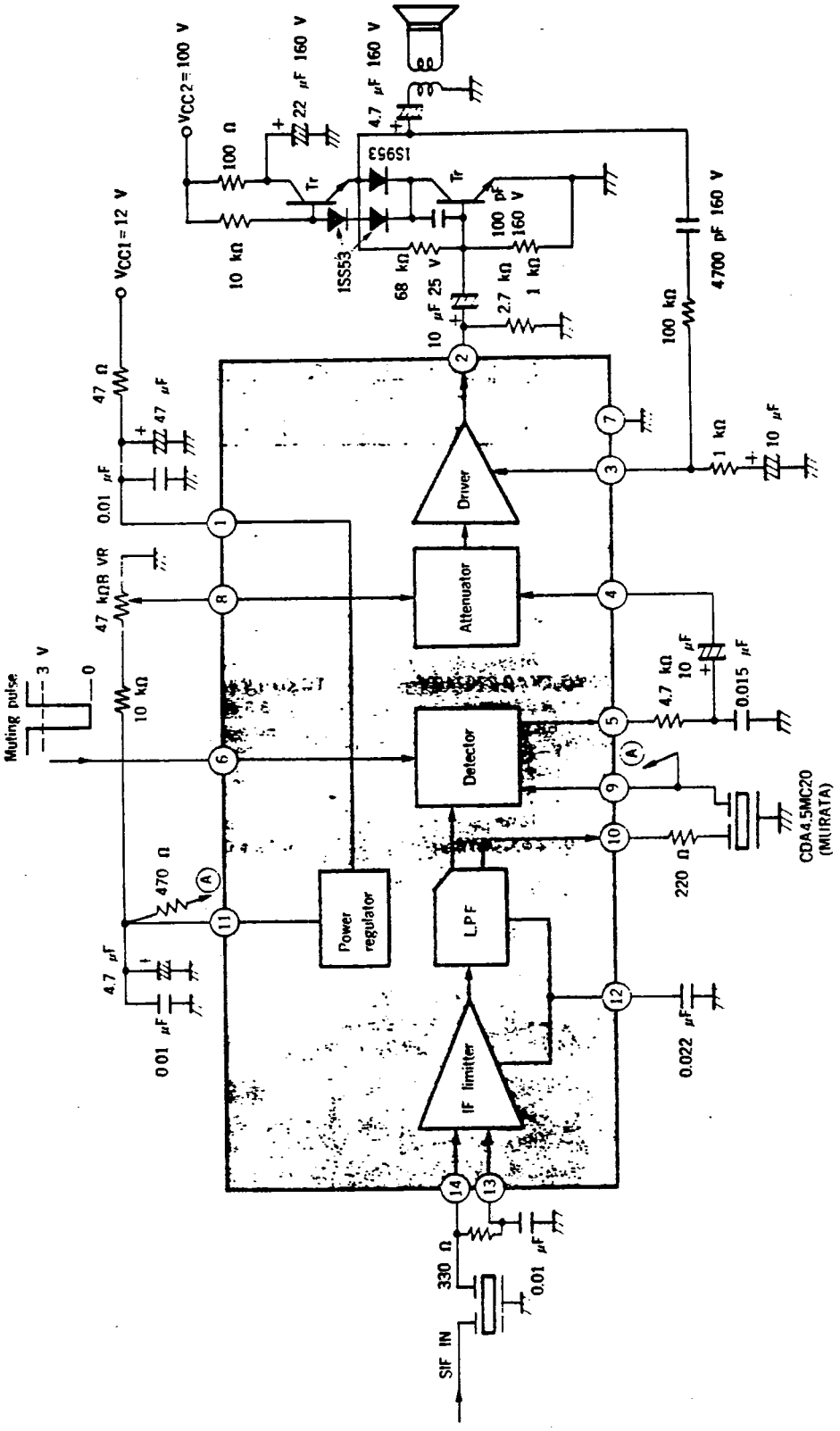
CERAMIC DISCRIMINATOR MURATA CDA4.5MC 20

SPECIFICATION OF DETECTION COIL



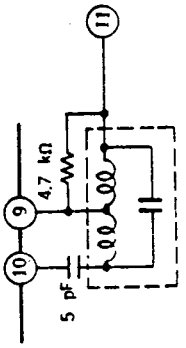
	TOKO TKAC-27071BY	TOKO TKAC-26984Y
Frequency	4.5 MHz	5.5 MHz
No loading Q	68 ± 20 %	60 ± 20 %
Turn	1–3 31¼ T	26 T
	1–2 15¼ T	13 T
	2–3 16 T	13 T
Internal C	82 pF	82 pF
Wire	0.12 φ OUEW	0.12 φ OUEW

μPC 1382C APPLICATION CIRCUIT



OUTPUT POWER TRANSISTOR

3.5 W	Tr : 2SD401
2.0 W	Tr : 2SC2371
1.0 W	Tr : 2SC1941



Example using IFT