BIPOLAR ANALOG INTEGRATED CIRCUIT

μPC1253HA2

T-74-05-01

RMS LEVEL SENSOR FOR dbx NOISE REDUCTION SYSTEM

DESCRIPTION

The μPC1253HA2 is dbx noise reduction system RMS (Root Mean Square) level sensor, used in tape deck and other audio equipment.

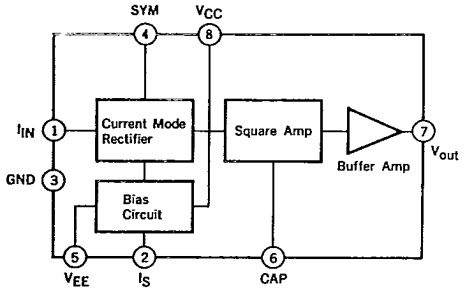
The μPC1253HA2 features high accurate RMS level sensor for wide input due to NEC's super low noise and high h_{FE} PNP process.

Since the package is 8 pin SIP, it can be built in a compact set.

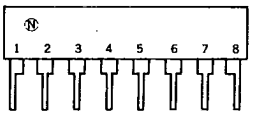
FEATURES

- Wide operating supply voltage — V_{CC} = ±4 to ±15 V (TYP. ±12 V)
- Excellent lineality Control Constant — V_C = 5.9 mV/dB
- Wider input range — v_{in} = −40 dBV to +10 dBV

BLOCK DIAGRAM



CONNECTION DIAGRAM



T-74-05-01

ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

Supply Voltage	V_{CC}, V_{EE}	±15	V
Supply Current	I_{CC}	30	mA
Power Dissipation	P_D	330*	mW
Operating Temperature Range	T_{opt}	−20 to +75	°C
Storage Temperature Range	T_{stg}	−40 to +125	°C

* Value at T_a = 75 °C

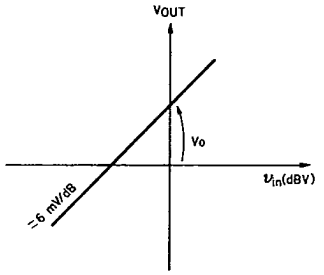
RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Operating Supply Voltage	V_{CC}, V_{EE}	±4	±12	±15	V
Input Level Range	v_{in}	−40		+10	dBV
Bias Current	I_s		24		μA

ELECTRICAL CHARACTERISTICS (T_a = 25 °C, V_{CC} = +12 V, V_{EE} = −12 V, f = 1 kHz, Z_{in} = 33 kΩ)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Supply Current	I_{CC}		0.9	2.0	mA	No Signal
Output Level	V_O*	111	136	161	mV	V_{IN} = 0 dBV
Control Constant	V_C	5.8	5.9	6.1	mV/dB	v_{in} = −40 dBV to +10 dBV

* Output Level is defined as follows.

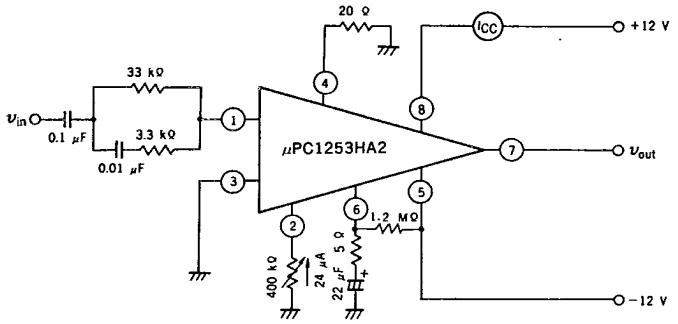


5

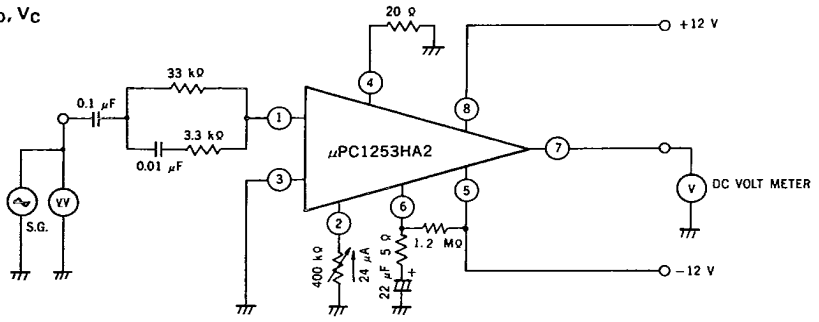
T-74-05-01

TEST CIRCUIT

(1) I_{CC}



(2) V_O, V_C

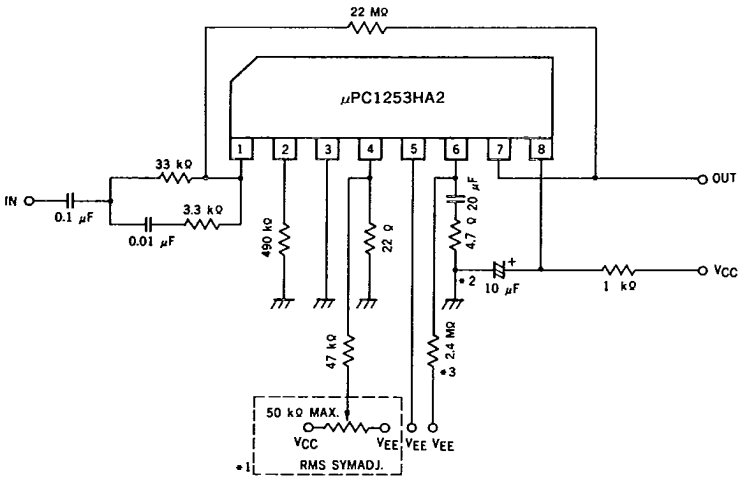


Note for use

1. Since μPC1253HA2 is designed for dbx Noise Reduction System, recommend to use μPC1253HA2 with μPC1252HA2 (VCA) in case of composing dbx NR system.
2. Documents issued by dbx incorporated have priority over NEC, such as application note or data about dbx NR system.

APPLICATION CIRCUIT

T-74-05-01

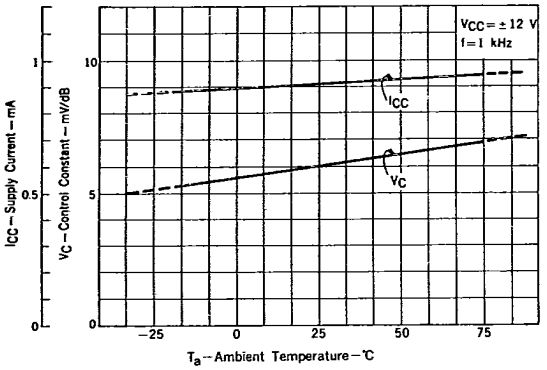


*1. Possible to omit RMS SYM.ADJ. in case of using this IC with μPC1252HA2 at THD ≧ 0.05 %.
*2. Make GND common about these terminals.
*3. This resistor is for RMS time constant.
Connect 7 PIN OUT to GC1 of μPC1252HA2 (VCA).

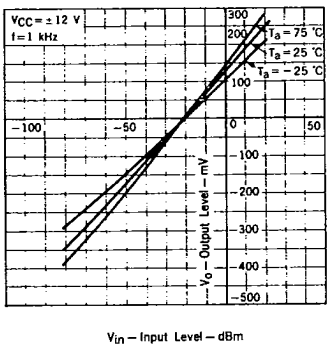
5

TYPICAL CHARACTERISTICS (T_a = 25 °C)

SUPPLY CURRENT, CONTROL CONSTANT vs. AMBIENT TEMPERATURE



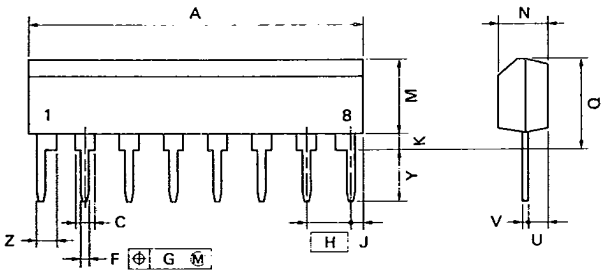
OUTPUT LEVEL vs. INPUT LEVEL



μPC1253HA2

T-74-05-01

8 PIN PLASTIC SLIM SIP



P8HA-254B

ITEM	MILLIMETERS	INCHES
A	20.32 MAX.	0.8 MAX.
C	1.1 MIN.	0.043 MIN.
F	$0.5^{\pm 0.1}$	$0.02^{\pm 0.004}$
G	0.25	0.01
H	2.54	0.1
J	1.27 MAX.	0.05 MAX.
K	0.51 MIN.	0.02 MIN.
M	5.08 MAX.	0.2 MAX.
N	$2.8^{\pm 0.2}$	$0.11^{\pm 0.008}$
Q	5.75 MAX.	0.227 MAX.
U	1.5 MAX.	0.059 MAX.
V	$0.25^{+0.10}_{-0.05}$	$0.01^{\pm 0.004}$
Y	$3.2^{\pm 0.5}$	$0.126^{\pm 0.02}$
Z	1.1 MIN.	0.043 MIN.

NOTE
Each lead centerline is located within 0.25 mm (0.01 inch) of its true position (T.P.) at maximum material condition.

5