电子工程师之家http://www.eehome.cn

μPC1287G　FM 立体声解码器

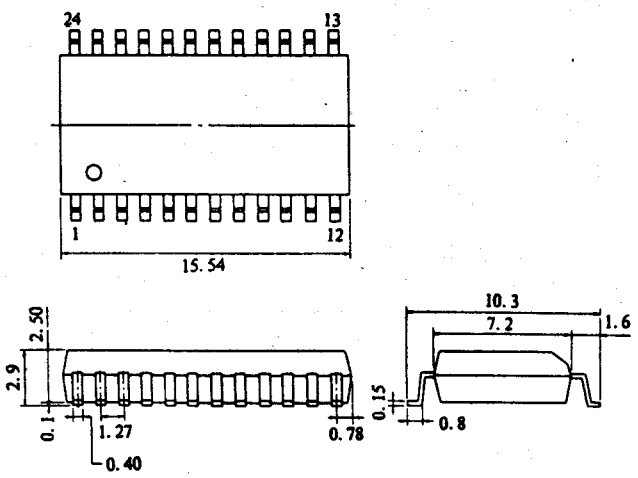
简要说明

μPC1287G 为单片调频立体声解码和噪声截止集成电路。该电路具有导频截止(具有自动控制电路)，立体声噪声控制(SNC)，高频截止控制(HCC)，强制单声(控制 24 端)等功能。

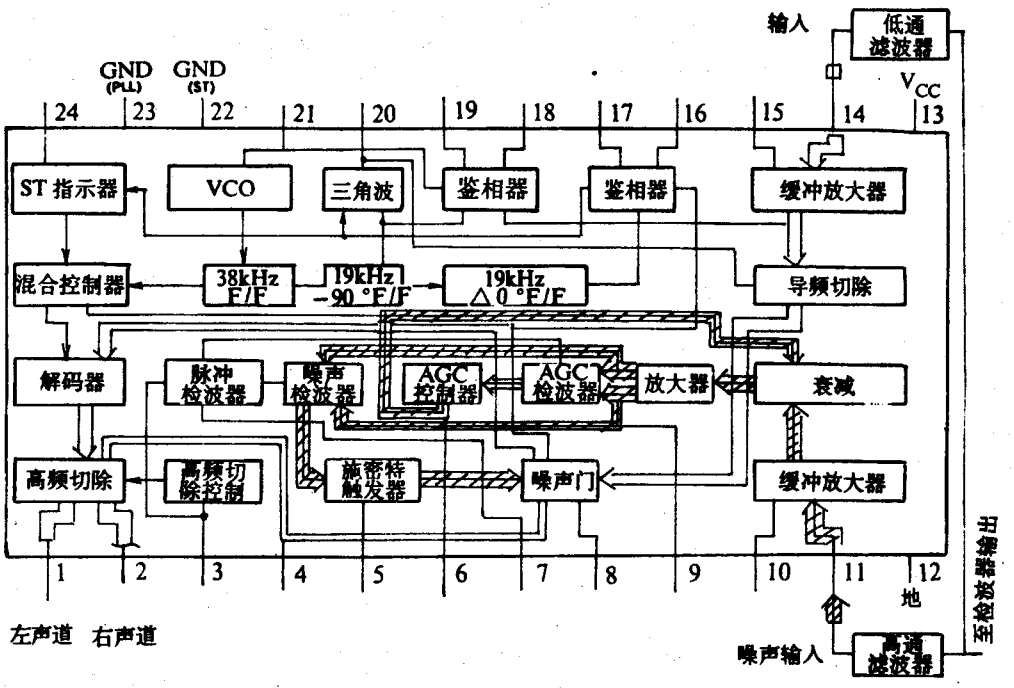
该电路的主要特点是失真低(THD = 0.1%，V_I = 300mV)，纹波抑制比高(SVR = 33dB，f_r = 200Hz)，最大输入电平高($V_{I(max)}$ = 800mV，THD = 1.0%)

该电路适用于汽车收音机。

外形图



电路框图 $V_{CC(max)}$ = 0V，$P_{D(max)}$ = 470mW



电参数(V_{CC} = 8.5V，V_{L+R} = 270mV，导频 = 30mV，f = 1kHz)

静态电源电流	I_{CCO}	静态	≤50mA
电源电压抑制比	SVR	f_r = 200Hz，V_r = 0.5V(无线性滤波器)	33dB
分离度	Sep	f = 1kHz	≥35dB
单声全谐波失真度	THD_1	V_I = 300mV(单声)	≤0.5%
立体声全谐波失真度	THD_2	L + R = 270mV，导频 = 30mV	≤0.7%
电压增益(单声)	G_V	单声	−1dB

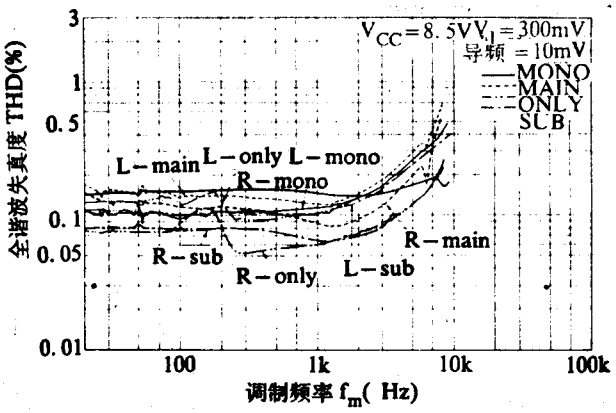
项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

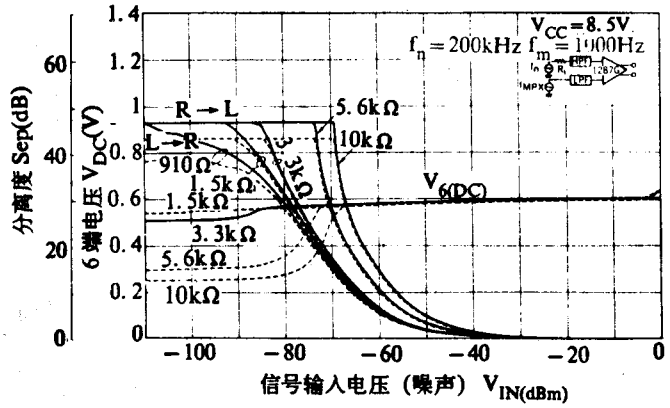
电子工程师之家http://www.eehome.cn

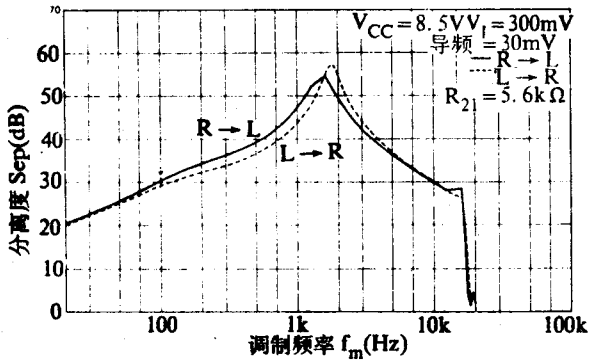
续表

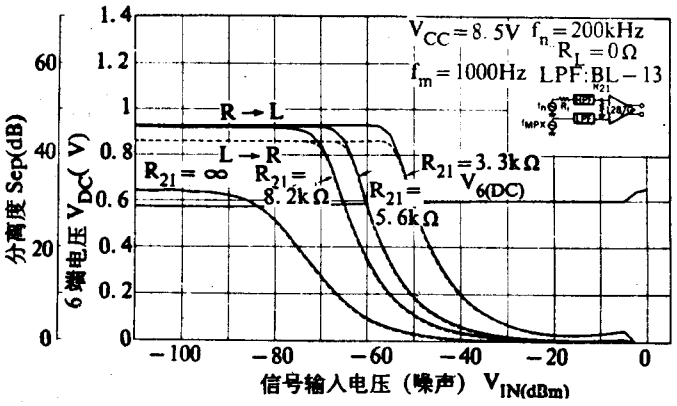
声道平衡度	CB		0dB
亮灯电平	LAMP-ON	仅导频	10mV
灯滞后	HY		5dB
俘获范围	CR		≥±2.3%
超声抑制	Rej(19)	三角波切除	≥15dB
SCA 抑制	Rej(SCA)	L+R=240mV,导频=30mV,SCA=30mV	67dB
信噪比	S/N	R_g=4.7kΩ	≥71dB
最大输入电平	$V_{I(max)}$	THD=1%	≥700mV

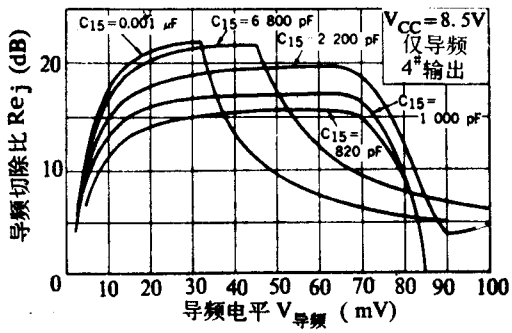
特点与性能

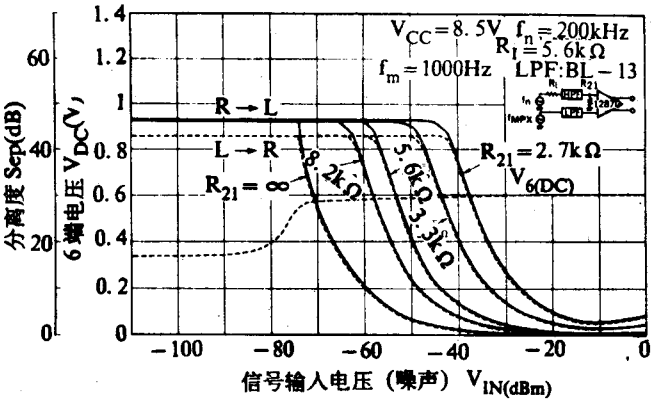






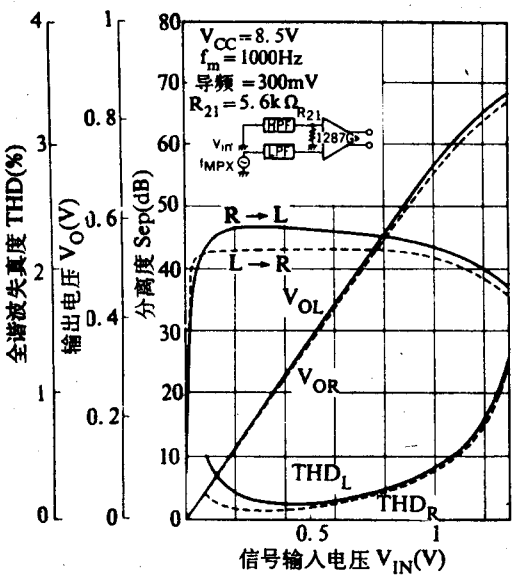


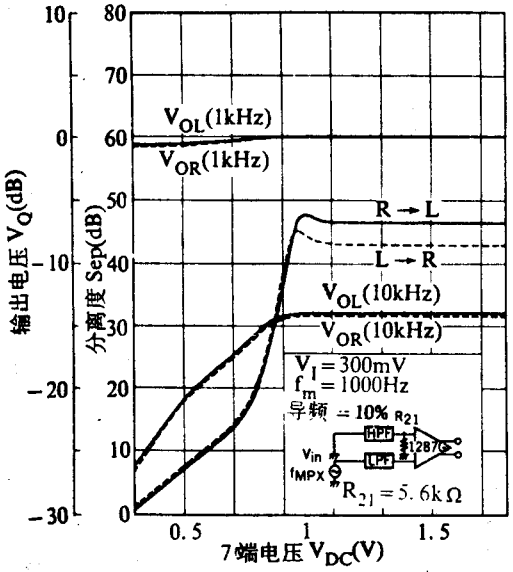




项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

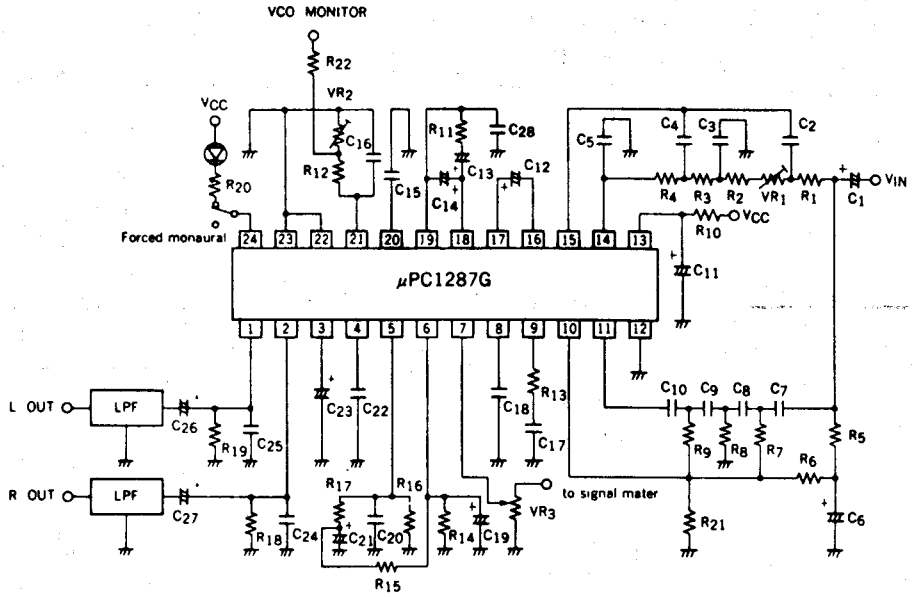
电子工程师之家http://www.eehome.cn





典型应用

汽车收音机用调频立体声解码器



VR_1:分离度调节

VR_2:VCO 调整(76kHz)

VR_3:HCC 调整(HCC 断开,$V_7 > 1.2V$)

C_{22}:高切频率 $f = 2.84 \times 10^{-5}/C_{22}$

R_{21}:混移调整(移动应用 SNC)

C_{15}:亮灯电平调整

项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

电子工程师之家 https://www.cechome.cn

BIPOLAR ANALOG INTEGRATED CIRCUIT

μPC1287G

T-77-05-05

FM MULTIPLEX STEREO DEMODULATOR WITH NOISE CANCELLER

DESCRIPTION

The μPC1287G is a silicon monolithic integrated circuit which includes FM stereo demodulator and noise canceller on the single chip, for use in automotive radio receivers.

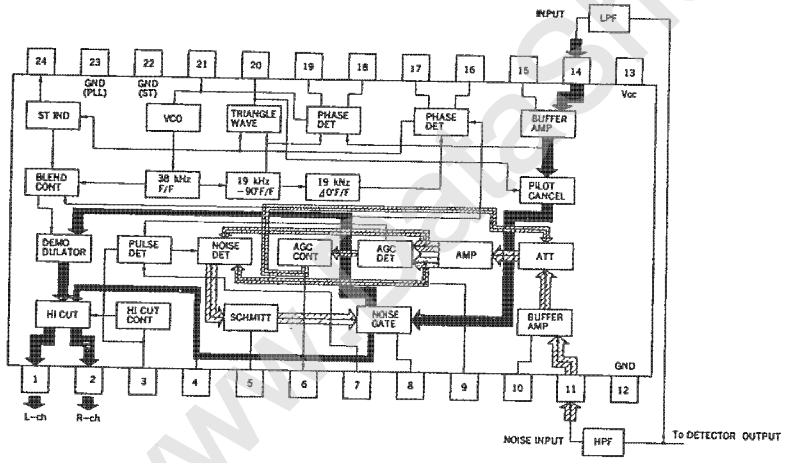
FUNCTIONS

- Pilot canceller (with automatic control circuit)
- Stereo-noise control (SNC)
- High-cut control (HCC)
- Forced monaural (control pin No.24)

FEATURES

- Low distortion. THD = 0.1 % (TYP.), @ V_i = 300 $mV_{r.m.s.}$
- High ripple rejection ratio. SVR = 33 dB (TYP.), @ f_r = 200 Hz
- High maximum input level. V_i (MAX.) = 800 $mV_{r.m.s.}$ (TYP.), @ THD = 1.0 %
- A small number of external parts.

BLOCK DIAGRAM



www.DataSheet4U.com
项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

电子工程师之家http://www.eehome.cn

μPC1287G

ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

Supply Voltage	V_{CC}	16	V
Circuit Current	I_{CC}	67	mA
Package Dissipation	P_D	470*	mW
Operational Temperature	T_{opt}	−30 to +75	°C
Storage Temperature	T_{stg}	−40 to +125	°C

*T_a = 75 °C

RECOMMENDED OPERATING CONDITION (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{CC}	7.5	8.5	9.5	V

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

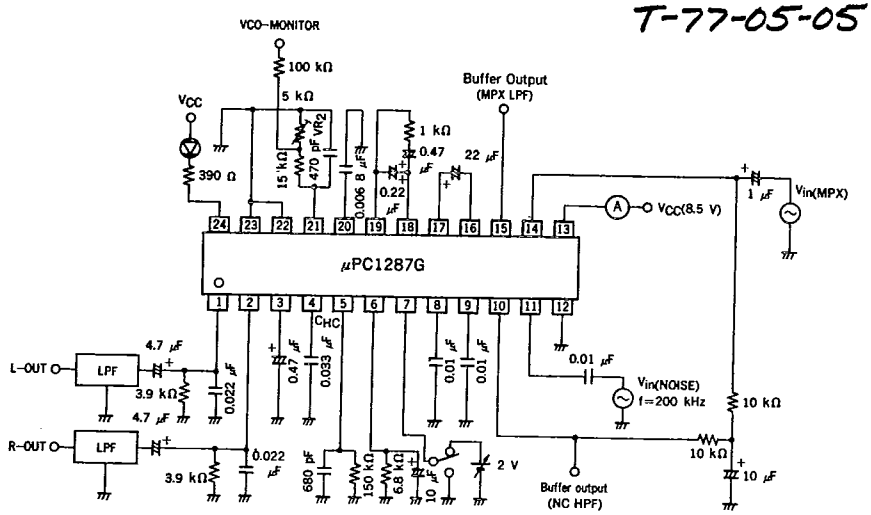
(V_{CC} = 8.5 V, V_{L+R} = 270 $mV_{r.m.s.}$, Pilot = 30 $mV_{r.m.s.}$, f = 1 kHz)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Circuit Current	I_{CC}		39	50	mA	Quiescent
Supply Voltage Rejection Ratio	SVR		33		dB	f_r = 200 Hz, V_r = 0.5 $V_{r.m.s.}$ (without Line-filter)
Separation	Sep	35	40		dB	f = 1 kHz
Monaural Total Harmonic Distortion	THD1		0.1	0.5	%	V_{in} = 300 $mV_{r.m.s.}$ (Monaural)
Stereo Total Harmonic Distortion	THD2		0.1	0.7	%	L + R = 270 $mV_{r.m.s.}$ Pilot = 30 $mV_{r.m.s.}$
Voltage Gain (Mono)	G_V	−4	−1	+2	dB	Monaural
Channel Balance	CB	−1.5	0	+1.5	dB	
Lamp-on Level	LAMP-ON	6.5	10	13.5	$mV_{r.m.s.}$	Pilot Only
Lamp Hysteresis	Hy	3	5	7	dB	
Capture Range	CR	±2.3			%	
Ultrasonic Frequency Rejection	Rej(19)	15	17		dB	Triangular Wave Cancel
SCA Rejection	Rej(SCA)		67		dB	L + R = 240 $mV_{r.m.s.}$ Pilot = 30 $mV_{r.m.s.}$ SCA = 30 $mV_{r.m.s.}$
Signal to Noise Ratio	S/N	71	77		dB	Rg = 4.7 kΩ
Maximum Input Level	$V_{i(MAX.)}$	700	800		$mV_{r.m.s.}$	THD = 1 %
Control Current (Stereo → Mono)	$I_{(mono)}$		0.25	0.5	mA	L + R = 270 $mV_{r.m.s.}$ Pilot = 30 $mV_{r.m.s.}$
Separation (Blend)	SepB		10		dB	Noise Level at V_{iAGC} + 12 dB
High-cut Operating Voltage	$V_{HC(1)}$	0.5	0.65	0.9	V	C_{HC} = 10 μF, −6 dB point (V_O)
Voltage Gain (L.P.F.)	G_{VLPF}	0	0.8	1.6	dB	
Voltage Gain (H.P.F.)	G_{VHPF}	2	3.0	4	dB	
High-cut Control Noise	NHC		−50	−45	dBm	Din Noise Peak
Input Signal Voltage (AGC DET.)	V_{AGC}	−75	−71.5	−68	dBm	f = 200 kHz AGC Terminal Voltage (V_6) = 0.55 V

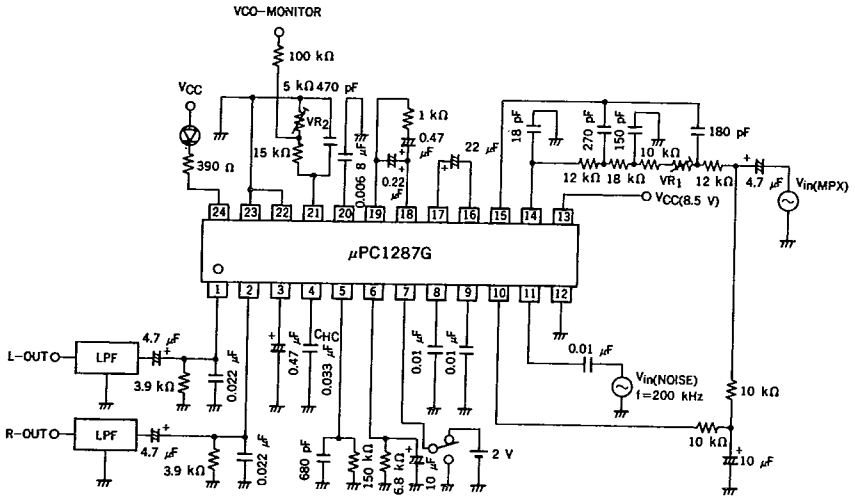
项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

电子工程师之家http://www.eehome.cn

T-77-05-05



TEST CIRCUIT 2 (SEPARATION, THD (ST))

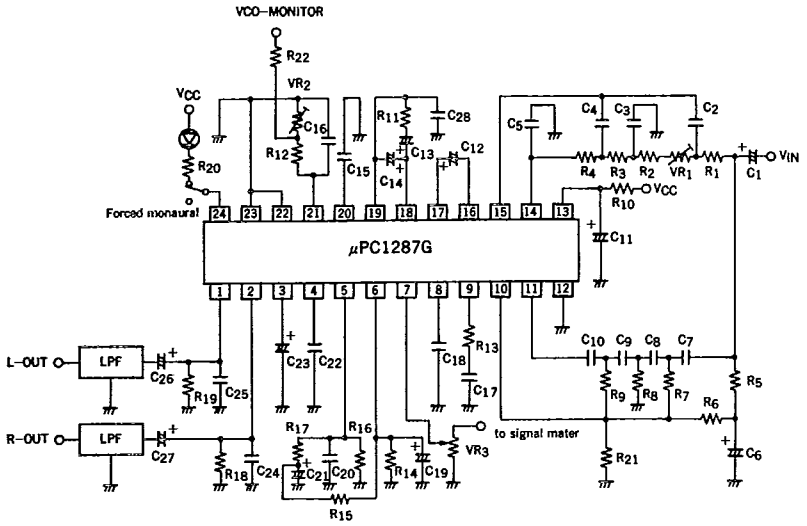


5

项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

电子工程师之家 http://www.ecehome.com

TYPICAL APPLICATION



VR_1 : SEPARATION ADJUSTMENT
VR_2 : VCO ADJUSTMENT (76 kHz)
VR_3 : HCC ADJUSTMENT (HCC off $V_7 > 1.2$ V)
C_{22} : HIGH-CUT FREQUENCY $f = 2.84 \times 10^{-5}/C_{22}$
R_{21} : BLEND SHIFT ADJUSTMENT (shift operating SNC)
C_{15} : LAMP ON LEVEL ADJUSTMENT

NOTE 1: Value of VR_3 is recommended less than 33 kΩ.

2: In case of sensing pulsive noise through the output for signal meter, don't use capacitor with large capacity at the output terminal for signal meter.

3: Coefficient of VCO circuit (C_{16}, VR_2, R_{12}) is recommended −330 PPM/°C

4: C_{21} and R_{17} reduce AGC effect in the case that there is continual pulsive noise. Adjust AGC characteristic for successive pulsive noise by R_{14} and R_{15}.

5: C_{19} is recommended solid tantalum capacitor.

项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

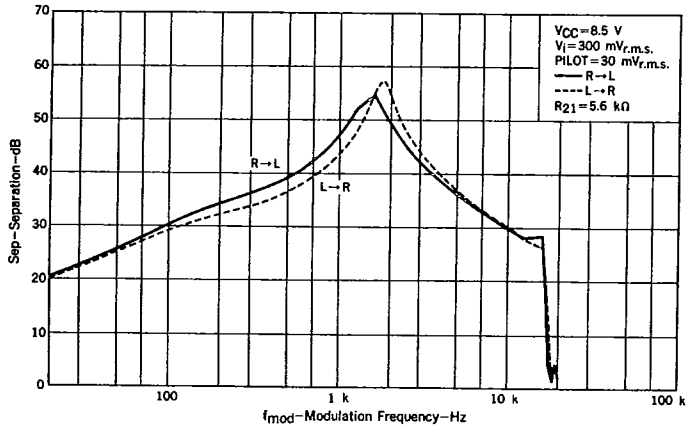
电子工程师之家 http://www.eehome.

μPC1287G

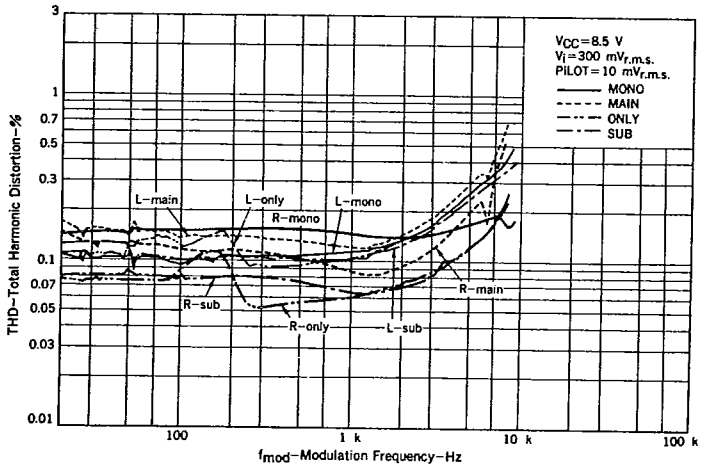
T-77-05-05

TYPICAL CHARACTERISTICS (T_a = 25 °C)

SEPARATION vs. FREQUENCY



TOTAL HARMONIC DISTORTION vs. FREQUENCY

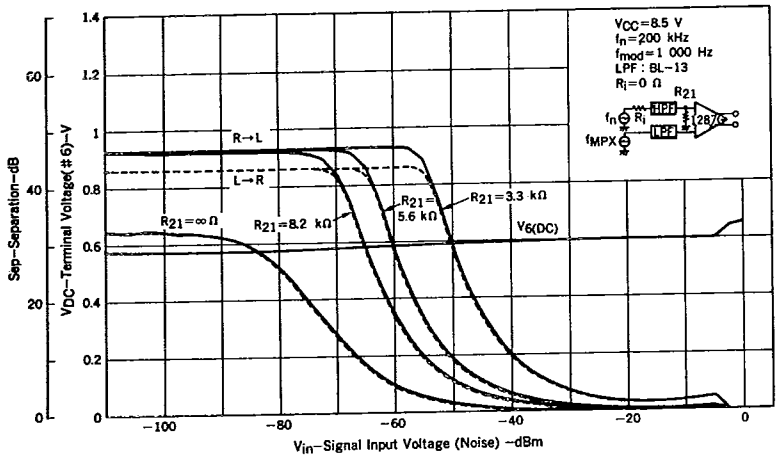


5

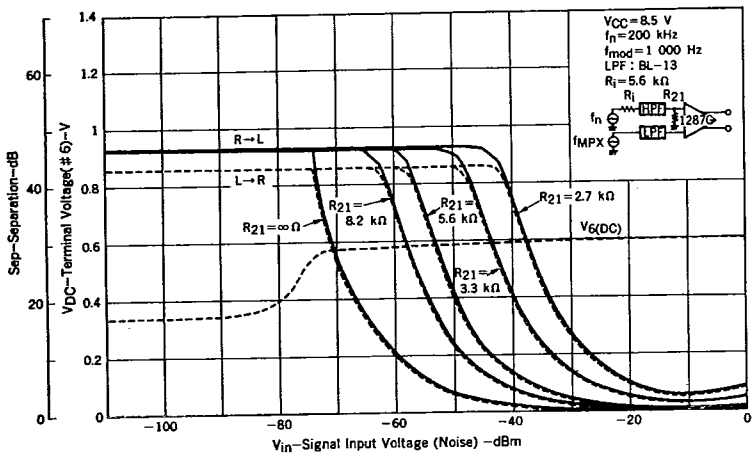
项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

电子工程师之家http://www.eehom.cn

TERMINAL VOLTAGE (V_6), SEPARATION vs. NOISE INPUT VOLTAGE



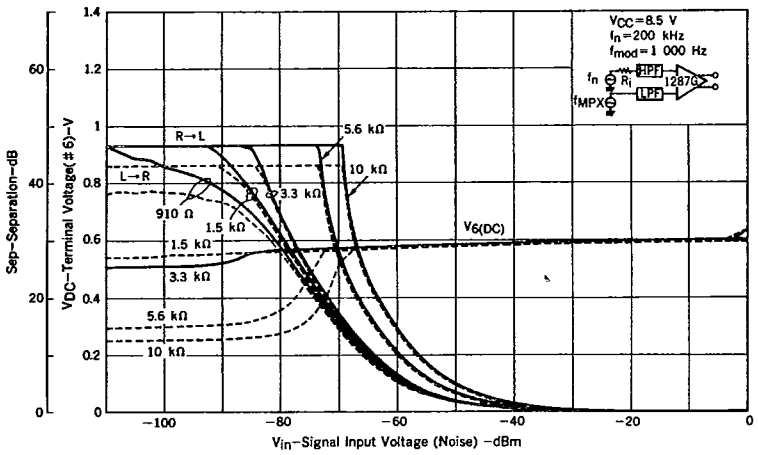
TERMINAL VOLTAGE (V_6), SEPARATION vs. NOISE INPUT VOLTAGE



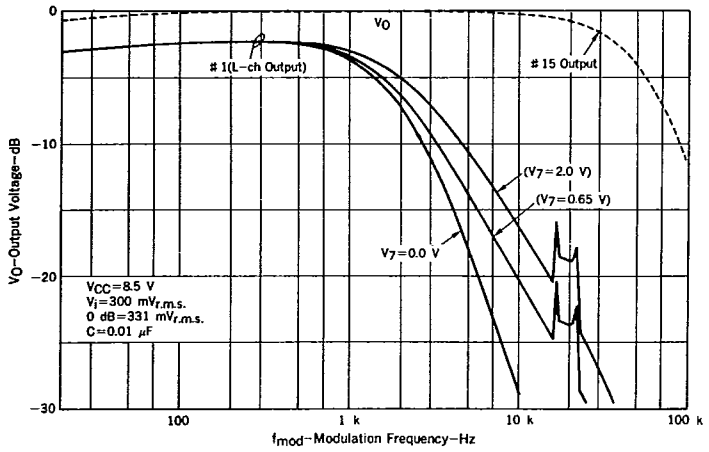
项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

电子工程师之家http://www.eehome.cn

TERMINAL VOLTAGE (V_6), SEPARATION vs. NOISE INPUT VOLTAGE



OUTPUT VOLTAGE vs. FREQUENCY



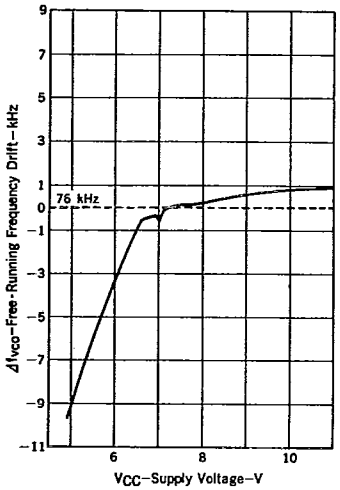
5

项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

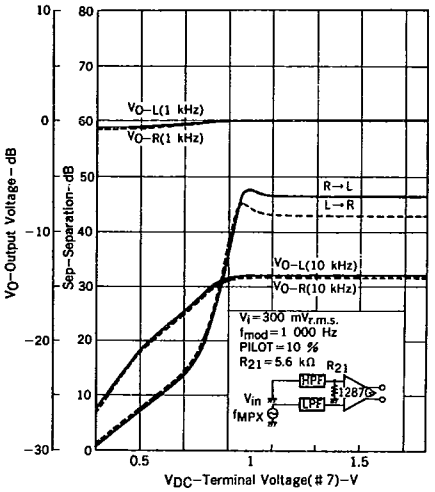
电子工程师之家http://www.eehome.cn

T-77-05-05

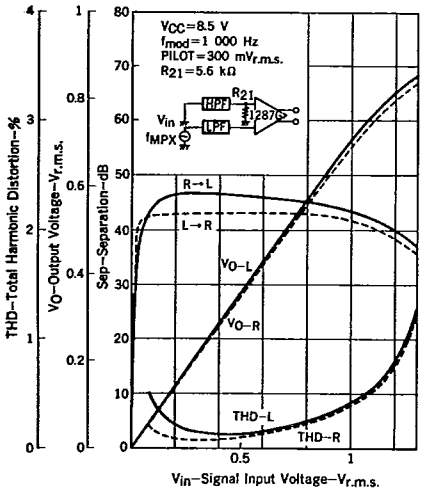
FREE RUNNING FREQUENCY vs. SUPPLY VOLTAGE



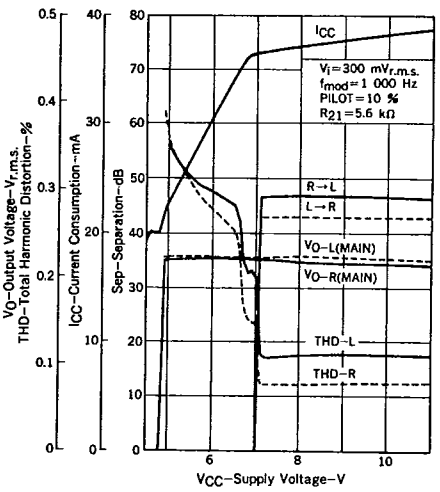
OUTPUT VOLTAGE, SEPARATION vs. TERMINAL VOLTAGE (V_7)



SEPARATION, OUTPUT VOLTAGE, TOTAL HARMONIC DISTORTION vs. INPUT VOLTAGE



SEPARATION, CIRCUIT CURRENT, OUTPUT VOLTAGE vs. SUPPLY VOLTAGE

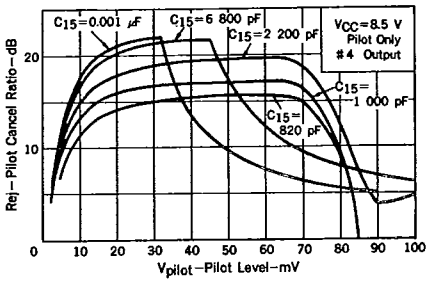


项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

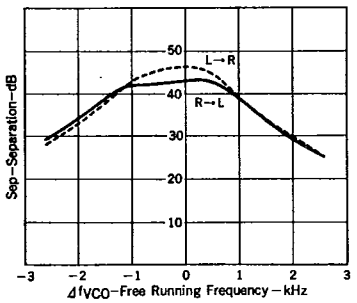
N E C ELECTRONICS INC 05E D 6427525 0022867 7
电子工程师之家http://www.eehome.cn

6427525 N E C ELECTRONICS INC 05E 22867 D
T-77-05-05

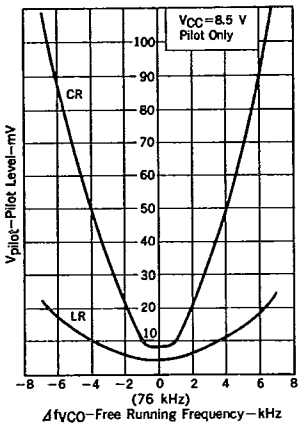
PILOT CANCEL RATIO vs. PILOT LEVEL



SEPARATION vs. FREE RUNNING FREQUENCY

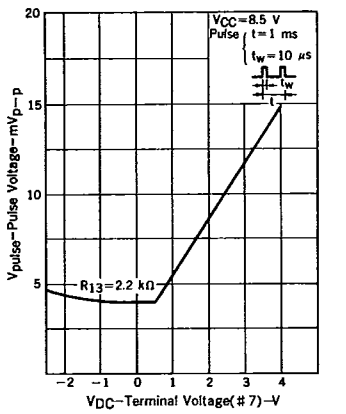


PILOT LEVEL vs. FREE RUNNING FREQUENCY

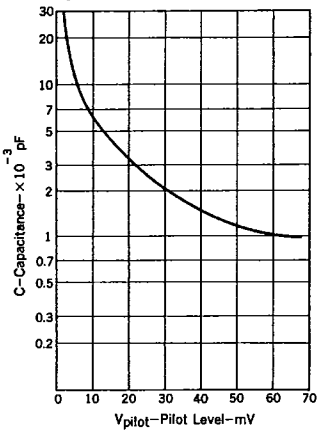


5

PULSE VOLTAGE vs. TERMINAL VOLTAGE



CAPACITANCE vs. PILOT LEVEL

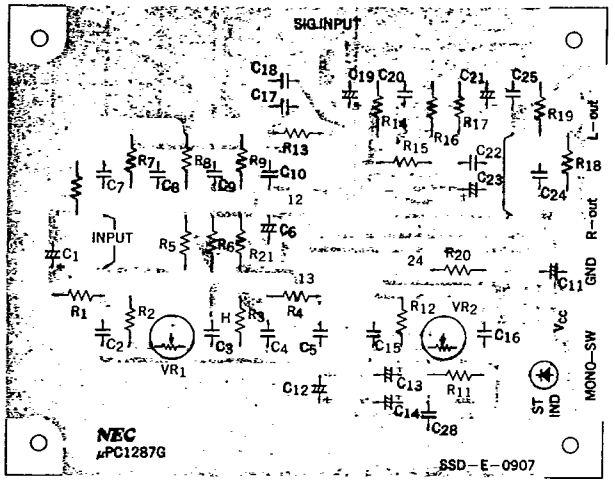


项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

电子工程师之家http://www.eehome.cn

T-77-05-05

OUTBOARD COMPONENTS MOUNTED ON A PRINTED-CIRCUIT BOARD



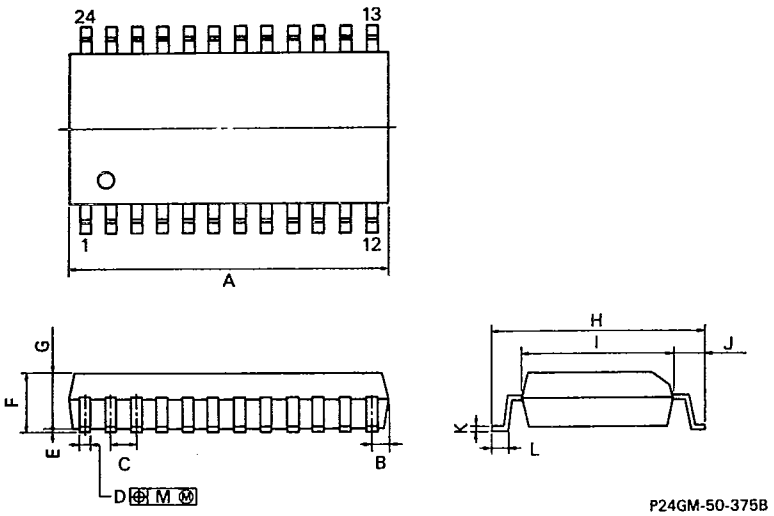
R_1 = 12 kΩ	R_{11} = 1 kΩ	R_{21} = 5.6 kΩ	C_1 = 2.2 μF	C_{11} = 100 μF	C_{21} = 1 μF
R_2 = 10 kΩ	R_{12} = 15 kΩ	VR_1 = 22 kΩ	C_2 = 180 pF	C_{12} = 1 μF	C_{22} = 0.01 μF
R_3 = 18 kΩ	R_{13} = 2.2 kΩ	VR_2 = 5 kΩ	C_3 = 150 pF	C_{13} = 0.47 μF	C_{23} = 0.47 μF
R_4 = 12 kΩ	R_{14} = 22 kΩ		C_4 = 270 pF	C_{14} = 0.22 μF	C_{24} = 0.022 μF
R_5 = 10 kΩ	R_{15} = 12 kΩ		C_5 = 18 pF	C_{15} = 0.006 8 μF	C_{25} = 0.022 μF
R_6 = 10 kΩ	R_{16} = 82 kΩ		C_6 = 1 μF	C_{16} = 470 pF	C_{26} = 4.7 μF
R_7 = 5.6 kΩ	R_{17} = 22 kΩ		C_7 = 120 pF	C_{17} = 390 pF	C_{27} = 4.7 μF
R_8 = 5.6 kΩ	R_{18} = 3.9 kΩ		C_8 = 120 pF	C_{18} = 0.01 μF	C_{28} = 1 500 pF
R_9 = 5.6 kΩ	R_{19} = 3.9 kΩ		C_9 = 150 pF	C_{19} = 10 μF	
R_{10} = 33 Ω	R_{20} = 470 Ω		C_{10} = 82 pF	C_{20} = 680 pF	

项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442

电子工程师之家http://www.eehome.cn

T-77-05-05

24PIN PLASTIC SOP (375 mil)



P24GM-50-375B

NOTE

Each lead centerline is located within 0.12 mm (0.005 inch) of its true position (T.P.) at maximum material condition.

ITEM	MILLIMETERS	INCHES
A	15.54 MAX.	0.612 MAX.
B	0.78 MAX.	0.031 MAX.
C	1.27 (T.P.)	0.050 (T.P.)
D	$0.40^{+0.10}_{-0.05}$	$0.016^{+0.004}_{-0.003}$
E	0.1 ± 0.1	0.004 ± 0.004
F	2.9 MAX.	0.115 MAX.
G	2.50	0.098
H	10.3 ± 0.3	$0.406^{+0.012}_{-0.013}$
I	7.2	0.283
J	1.6	0.063
K	$0.15^{+0.10}_{-0.05}$	$0.006^{+0.004}_{-0.002}$
L	0.8 ± 0.2	$0.031^{+0.009}_{-0.008}$
M	0.12	0.005

5

项目开发 芯片解密 零件配单 TEL:15013652265 QQ:38537442