

SANYO

No. 3047A

LA1861MMonolithic Linear IC
Car-Use Single-Chip Tuner System**Applications**

Car-use IF, noise canceller, multiplex

Functions

IF amp, peak detector, AF preamp, AFC output, signal meter, soft muting, IF buffer output, noise canceller, adjustment-free VCO, pilot cancel (level follow-up type), HCC, SNC

Maximum Ratings at Ta = 25°C

				unit
Maximum Supply Voltage	Vccmax	Pin 8	10	V
Allowable Power Dissipation	Pdmax	Ta=25°C	720	mW
Input Voltage	VinIF	Pins 36,35 (IF input)	±0.7	Vp-p
	VinMPX	Pin 26(NC.MPX input)	1.0	Vrms
Input Current	ILmax	Pin 25 (ST lamp	20	mA
		drive current)		
Output Current	ISDmax	Pin 5 (SD output)	1.0	mA
Operating Temperature	Topg		-30 to +80	°C
Storage Temperature	Tstg		-40 to +150	°C

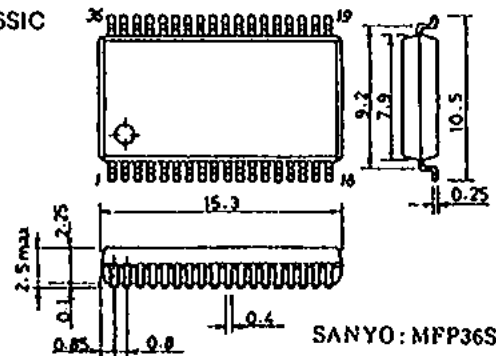
Operating Conditions at Ta=25°C

				unit
Recommended Supply Voltage	Vcc		8.5	V
Operating Voltage Range	Vcc op		7.5 to 10	V

Operating Characteristics at Ta=25°C, Vcc=8.5V, f=10.7MHz, see specified Test Circuit,

			min	typ	max	unit
Quiescent Current	Iccq	No signal, SW-1 is off unless otherwise specified.		45	70	mA
Current Dissipation	Icc-100	Vin=100dBu		47	72	mA
Demodulation Output	Vo	Vin=100dBu, 1kHz,	200	320	450	mVrms
		100% modulation, pin 15 output				
Total Harmonic Distortion	THD(1)	Monaural, Vin=100dBu, 1kHz,		0.3	1.2	%
	THD(2)	Main, Vin=100dBu, 1kHz,		0.5	1.2	%
Signal to Noise Ratio	S/N	Vin=100dBu, 1kHz, 100% modulation	64	71		dB
Input Limiting	Vin lim	Referenced to Vin=100dBu, at output 3dB attenuation, IF input level, soft muting	30	39	48	dB

Continued on next page.

Case Outline 3129-M36SIC
(unit: mm)

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Specifications and information herein are subject to change without notice.

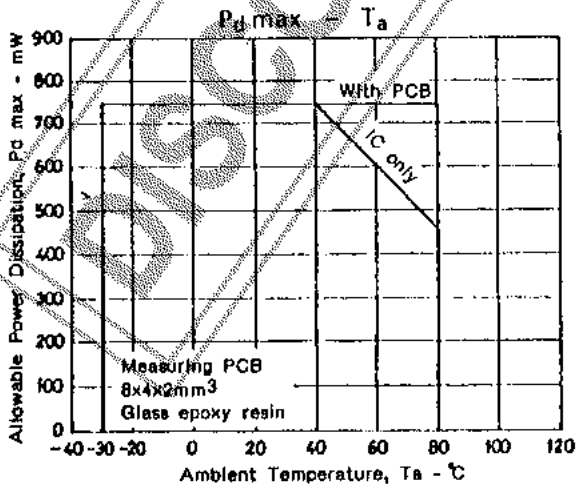
SANYO Electric Co., Ltd. Semiconductor Overseas Marketing Div.
Natsume Bldg., 18-6, 2-chome, Yushima, Bunkyo-ku, TOKYO 113 JAPAN

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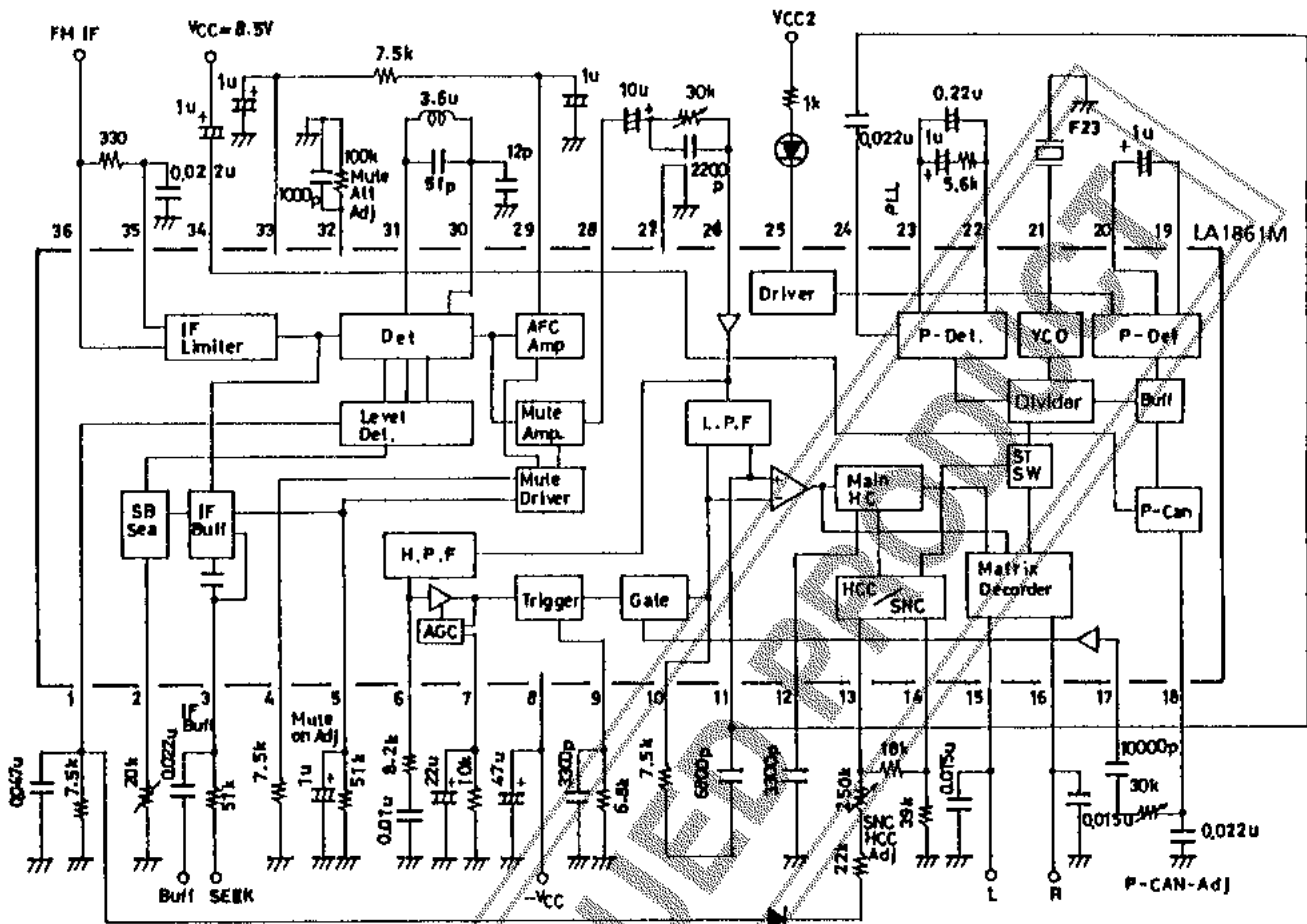
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		min	typ	max	unit
Muting Attenuation(1)	Mute Att V5=5.0V, Vin=100dBu, 1kHz, 100% modulation	22	26	30	dB
Muting Attenuation(2)	Mute Att V5=2.0V, Vin=100dBu, 1kHz, 100% modulation	6	11	16	dB
Muting Bandwidth	BW Mute Vin=100dBu, V5=2V	150	215	330	kHz
AM Suppression Ratio	AMR Vin=100dBu, FM400Hz, 100% modulation, AM 1kHz, 30% modulation	47	60		dB
Muting Drive Output	V5-0 No signal	3.5	4.7		V
	V5-100 Vin=100dBu		0	0.3	V
Signal Intensity Indicator Output	V1-0 No signal		0.5	1.5	V
	V1-50 Vin=50dBu	1.4	2.4	3.4	V
	V1-100 Vin=100dBu	5.5	6.5	7.5	V
IF Count Output Sensitivity	IF Input level at IF COUNT ON, SW-1 ON	31	40	49	dBu
If Buffer Output	VIF-ON Vin=100dBu, SW-1 ON	200	300	480	mVrms
Input Impedance	Zin f=1kHz		20		kΩ
Output Noise Voltage	VNO Pin 26 grounded		27		μV
Gate Time	Tgate Vin=100mVp-p, 1μsec, f=1kHz	14	25		μs
Noise Sensitivity	SN Vin=1μsec, f=1kHz			35	mVp-o
Channel Separation	Sep f=1kHz, L+R=90%, PILOT=10% IHF-BPF inserted	36	50		dB
Lamp on Level	PILOT modulation factor at lamp on	1.0	2.5	5.0	%
Lamp Hysteresis	hy Lamp on level-lamp off level		3.2	6.5	dB
Capture Range	C.R C.R=(f-456)/456X100		±1.2		%
SCA Rejection	SCA rej L+R=90%, PILOT=10%, SCA(67kHz)×10%		75		dB
SNC Output Attenuation	AttSNC V14=0.6V, L-R=90%, PILOT=10%	-10.0	-5.5	-1.0	dB
SNC Output Voltage	Vo sub V14=0.1V, L-R=90%, PILOT=10%			5	mV
HCC Output Attenuation	AttHCC(1) V13=0.6V, L+R=90%, PILOT=10%	-15	-5	0	dB
	AttHCC(2) V13=1.1V, L+R=90%, PILOT=10%	-2.0		0	dB
Power Supply Ripple Rejection	Rr 50Hz, 100mVrms		27		dB
Channel Balance	CB IPin15 output-pin 16 output		0	1.5	dB
Pilot Cancel Level	Lch regulation, Lch measurement DIN audio-filter inserted*	15	22		dB
Stereo Lamp Current	Minimum stereo operation current	1.0			mA
Pin 25 Saturation Voltage	IL=10mA		1.0		V

*: Where no filter is specified, insert IHF BPF in MPX output for measurement.



Sample Application Circuit



Pin Names

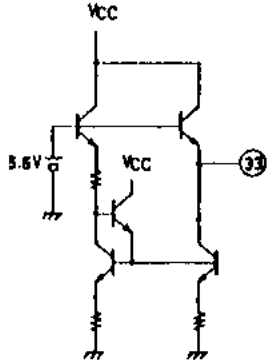
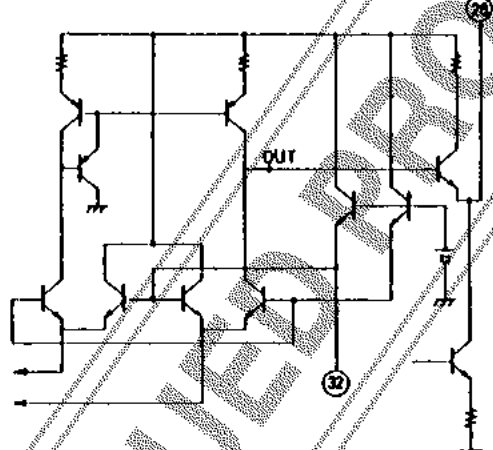
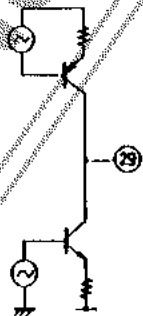
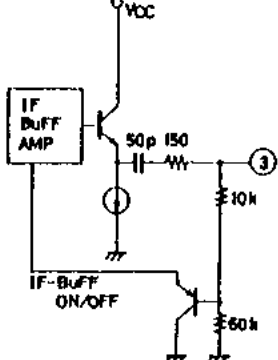
Pin No.	Name	Pin No.	Name
1	S meter output	19	Pilot detection
2	IF buffer sensitivity control	20	Pilot detection
3	IF buffer output	21	VCO
4	Mute start point control	22	Phase detection
5	Mute drive terminal	23	Phase detection
6	Noise sensitivity control	24	PLL input
7	Noise AGC sensitivity control	25	Stereo indicator lamp terminal
8	Vcc	26	Noise canceller input
9	Gate time control	27	GND
10	Memory circuit	28	Muting amp output (AF output)
11	LPF output	29	AFC output
12	High cut attenuation control	30	Peak detector input
13	HCC control input	31	IF output
14	SNC control Input	32	Muting attenuation control
15	MPX Lch output	33	Regulated voltage output
16	MPX Rch output	34	Pilot cancel signal detection
17	Pilot cancel signal input	35	IF input
18	Pilot cancel signal output	36	IF bypass

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Pin Description

Pin No.	Function	Internal Equivalent Circuit	Remarks
35 36	IF input IF bypass		
1	S meter output		Current-drive-type S-meter circuit
4	MUTE-Adj		
30 31	Peak detector input Regulated voltage output		

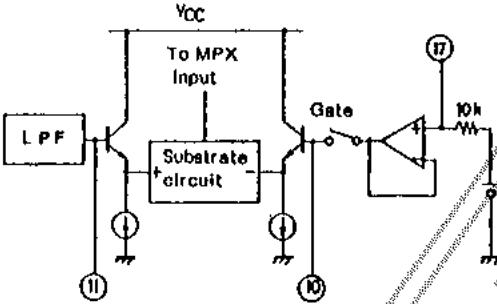
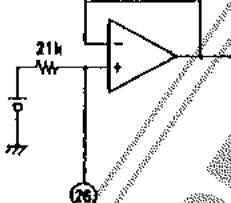
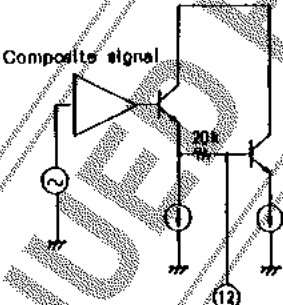
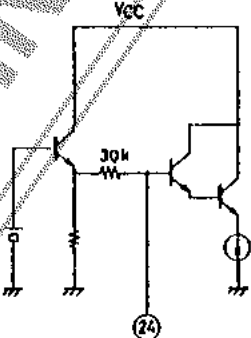
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Pin No.	Function	Internal Equivalent Circuit	Remarks
33	Regulated voltage output		
28 32	Muting circuit output Muting attenuation adj		
29	AFC output		
3	IF buffer output		<p>Control signal For SEEK: VDD For STOP: GND When no IF count is made, pin 3 can be left open</p>

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Pin No.	Function	Internal Equivalent Circuit	Remarks
2	IF buffer ON adj		
5	Mute Drive		
6 7	Noise sensitivity adj Noise AGC		
9	Gate time adj		<p>pin 9 voltage</p> <p>Gate opens when pin 9 voltage is 1.4V (2VD) or greater.</p>

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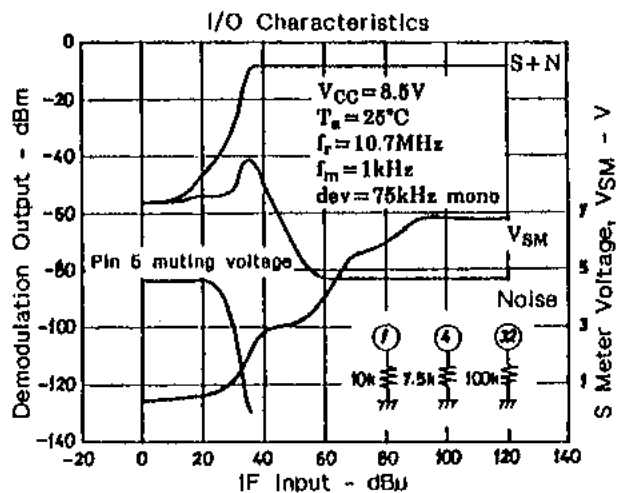
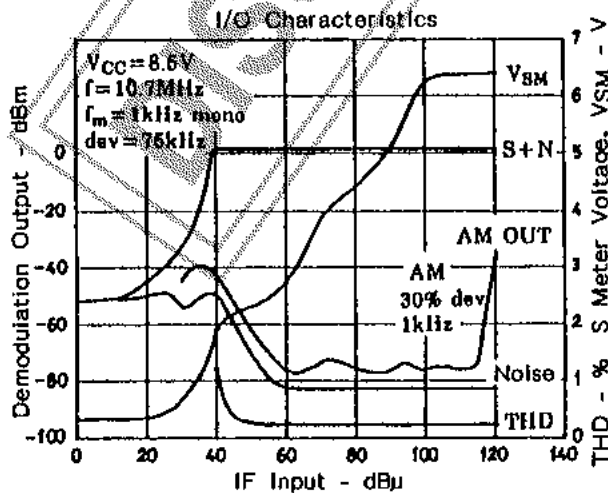
Pin No.	Function	Internal Equivalent Circuit	Remarks
10 11 17	Memory circuit L.P.F. output Pilot cancel signal Input		
26	Noise canceller Input		
12	High cut capacity connection		High cut frequency setting terminal
24	PLL Input		

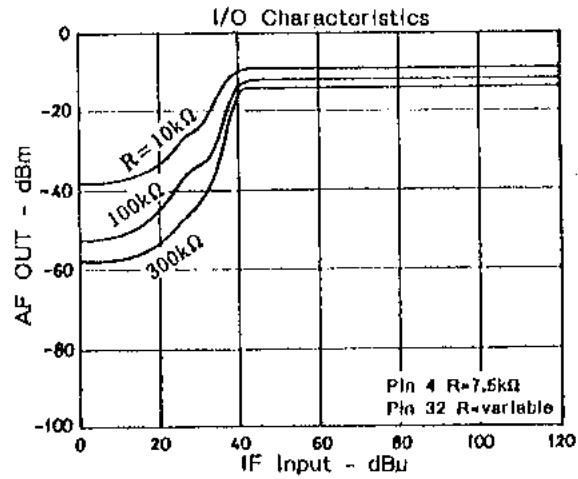
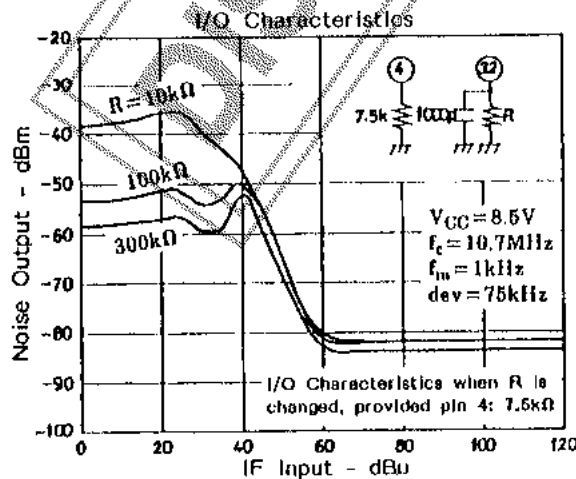
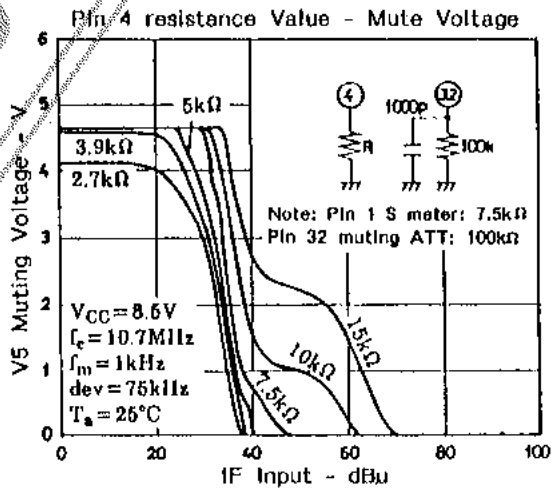
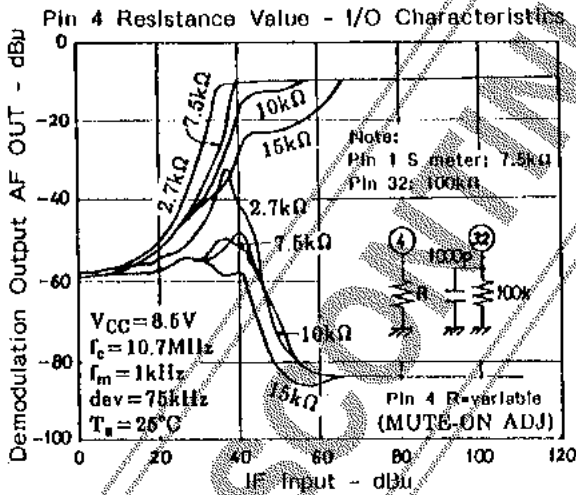
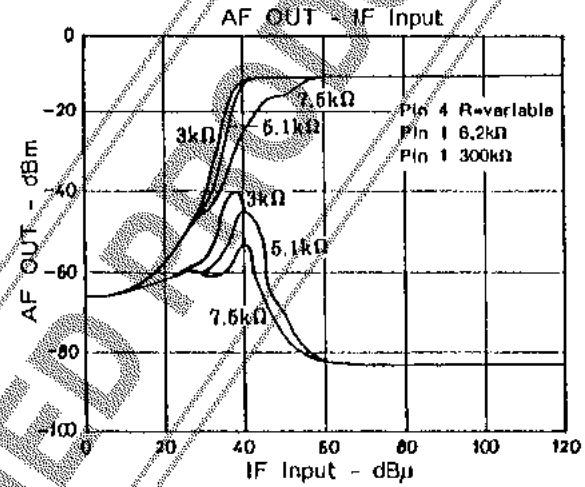
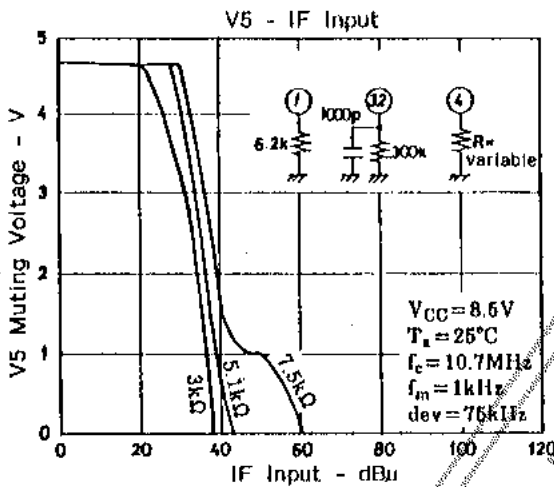
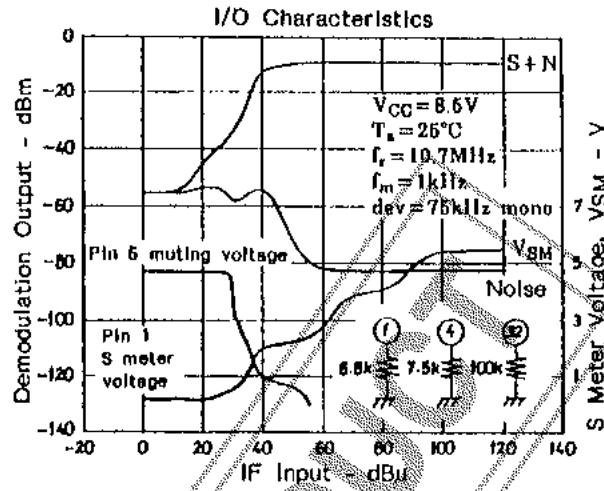
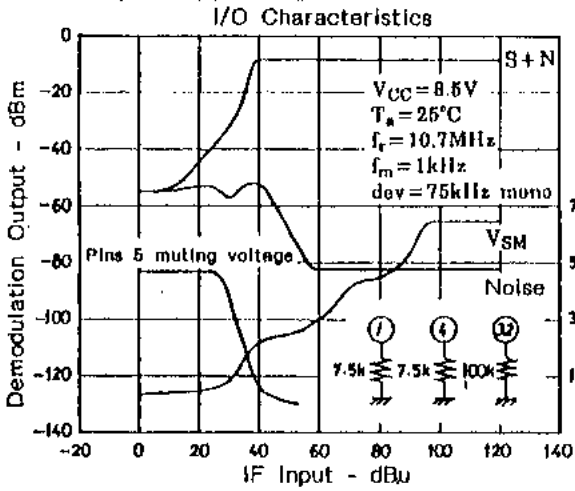
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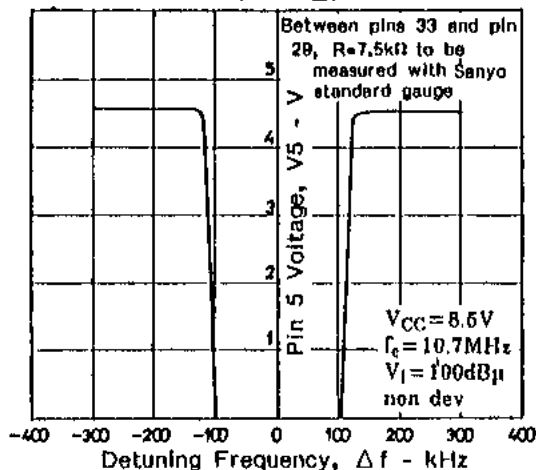
Pin No.	Function	Internal Equivalent Circuit	Remarks
<p>18 34</p>	<p>Pilot cancel signal output Pilot cancel signal detection</p>		
<p>15 16</p>	<p>MPX OUT</p>		<p>Output R=33k Load R built-in</p>
<p>23 22</p>	<p>Phase detection</p>		
<p>21</p>	<p>VCO</p>		
<p>20 19</p>	<p>Pilot detection</p>		

Pin No.	Function	Internal Equivalent Circuit	Remarks
13	HCC control input		
14	SNC control input		
25	ST display terminal		ST display terminal MONO:(H) ST.:(L)

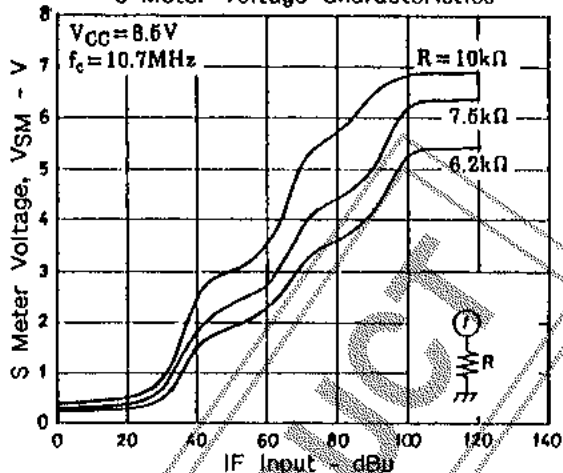




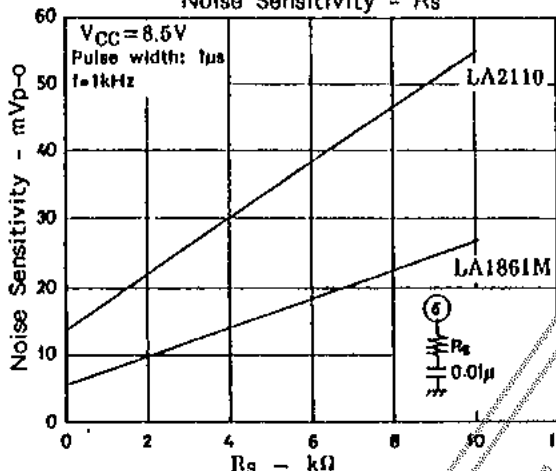
V5 - Δf



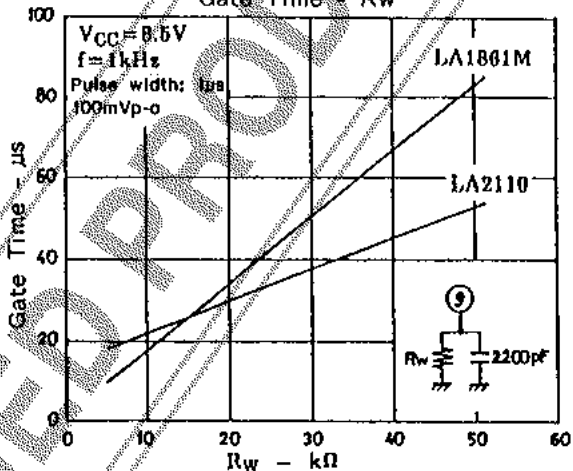
S Meter Voltage Characteristics



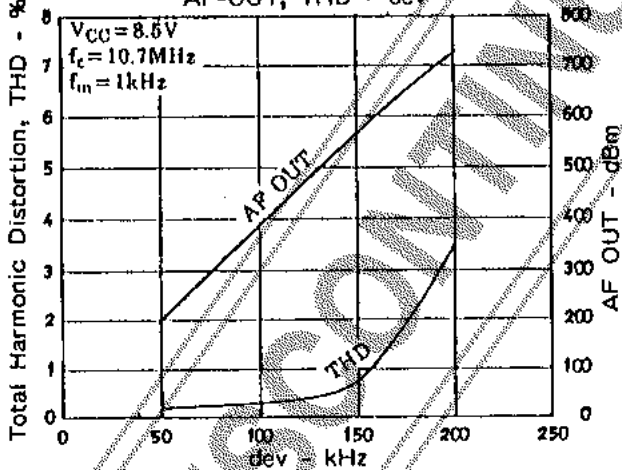
Noise Sensitivity - R_s



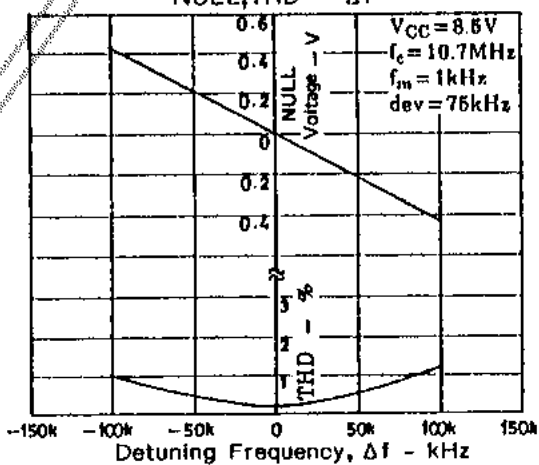
Gate Time - R_w



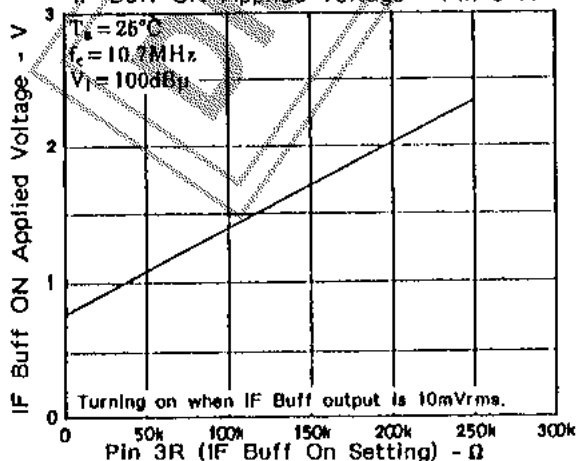
AF-OUT, THD - dev



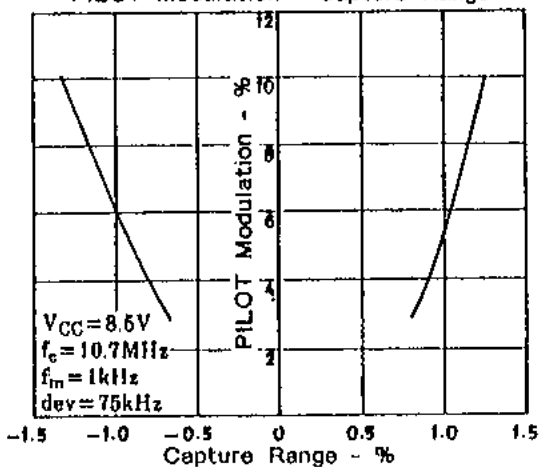
NULL, THD - Δf



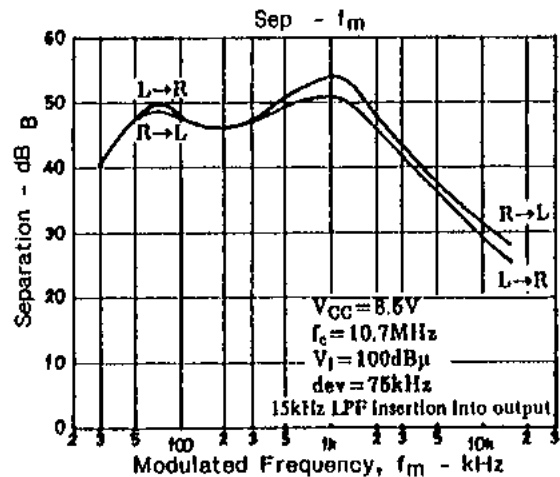
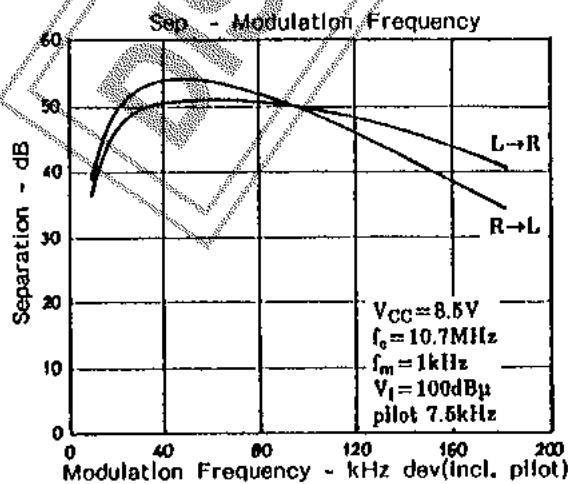
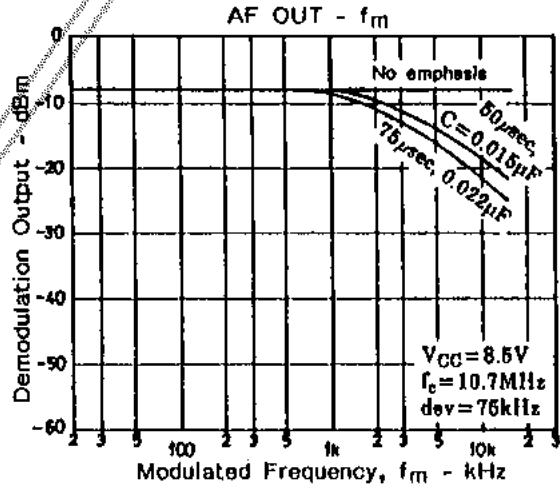
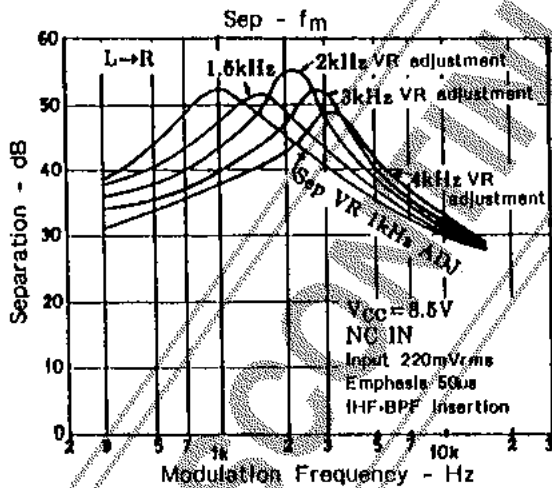
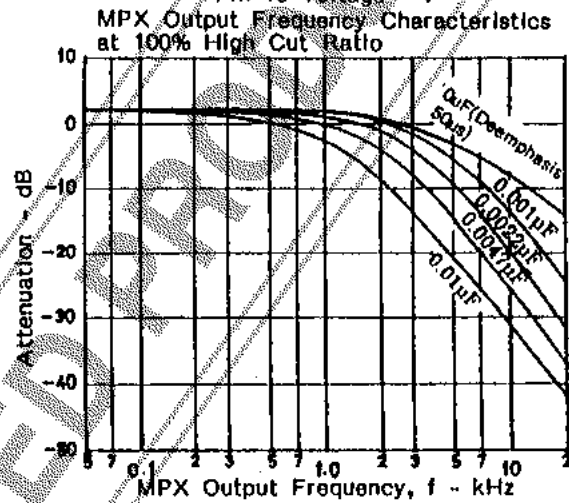
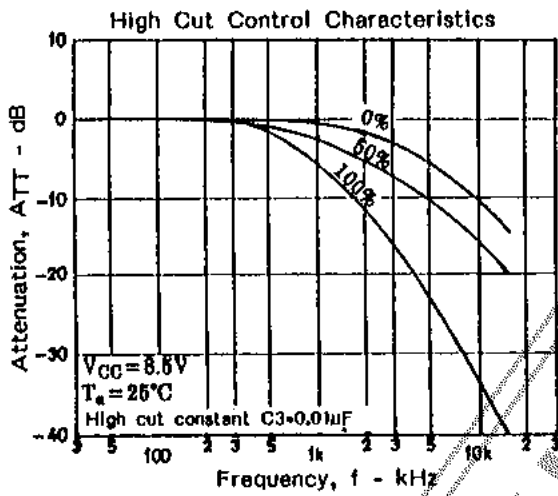
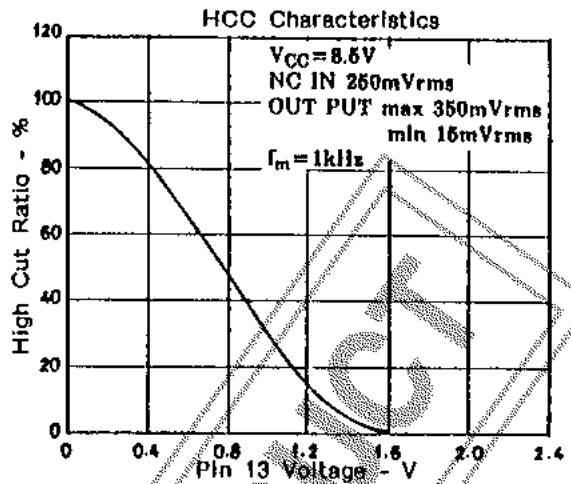
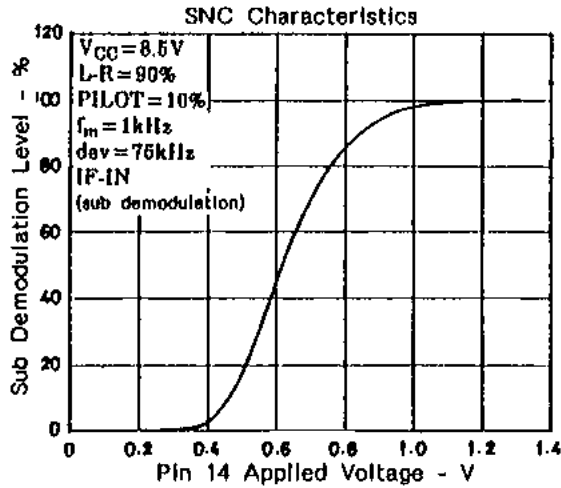
IF Buff ON Applied Voltage - Pin 3 R

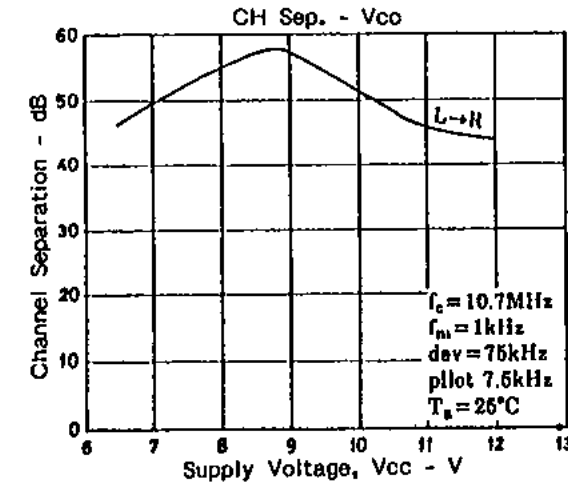
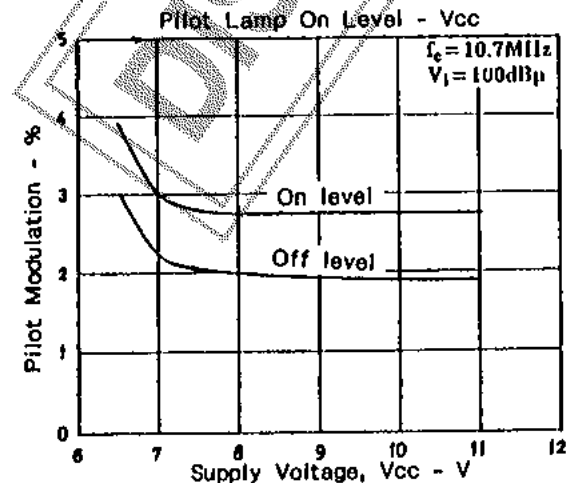
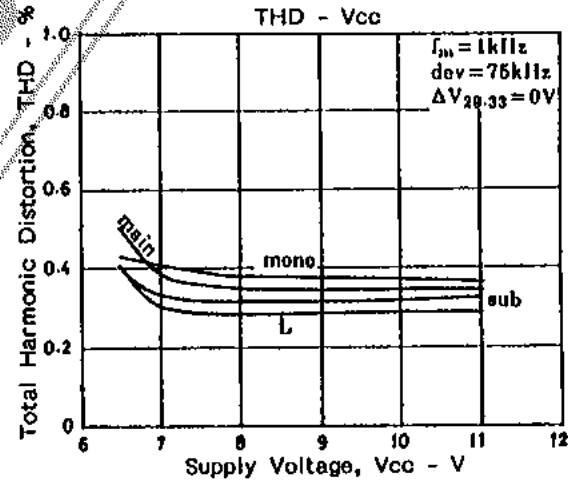
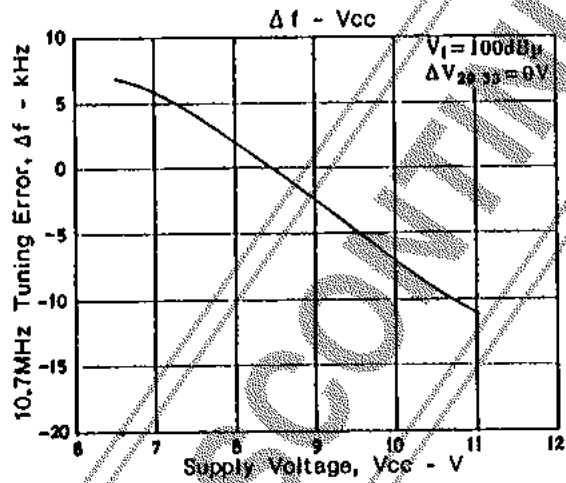
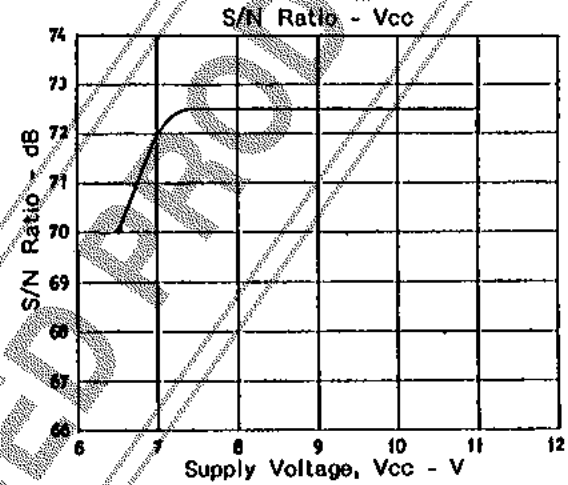
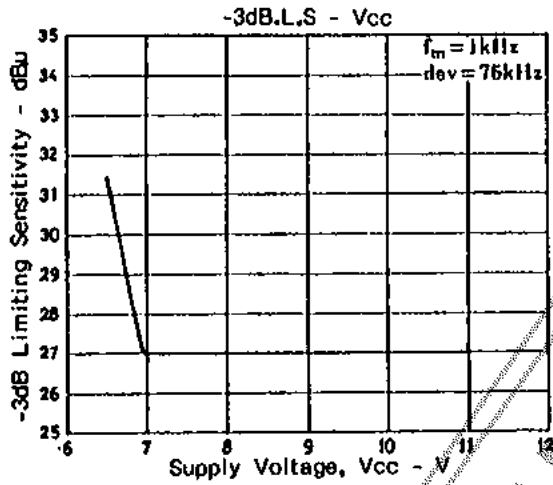
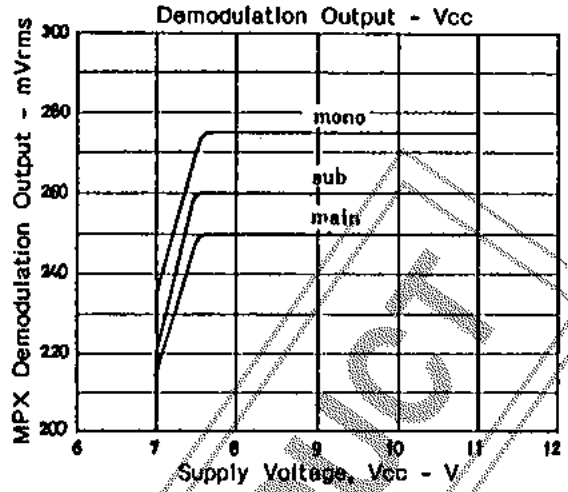
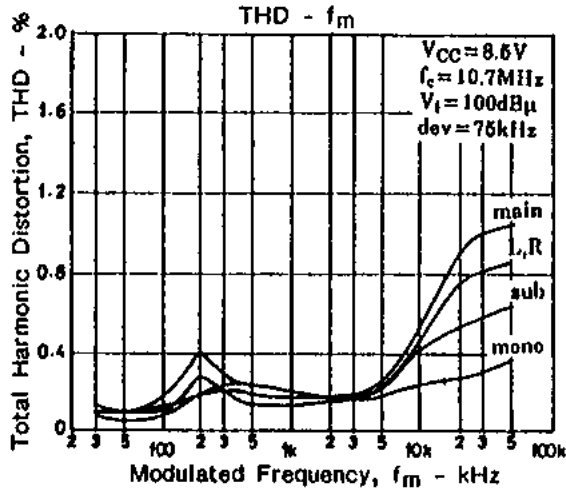


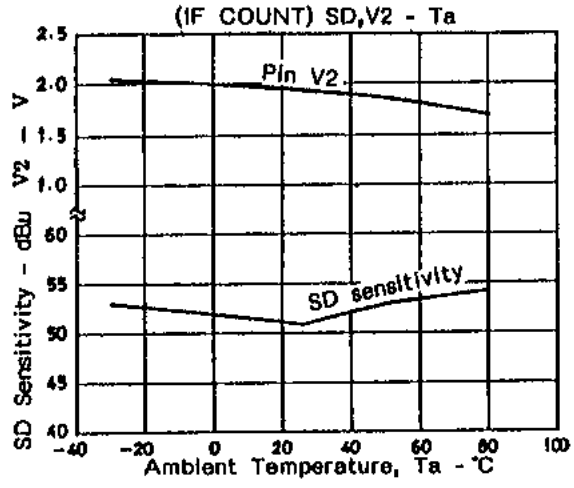
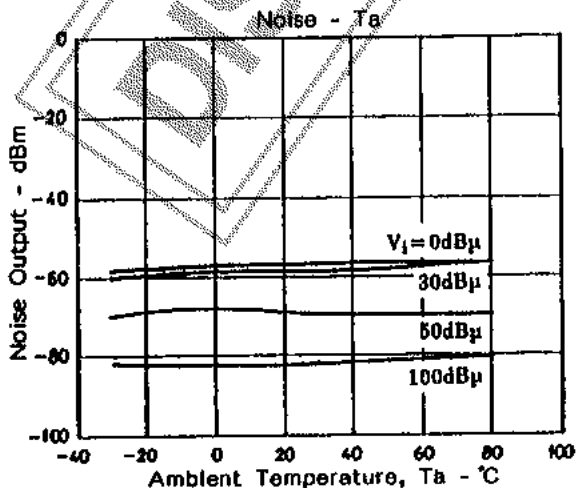
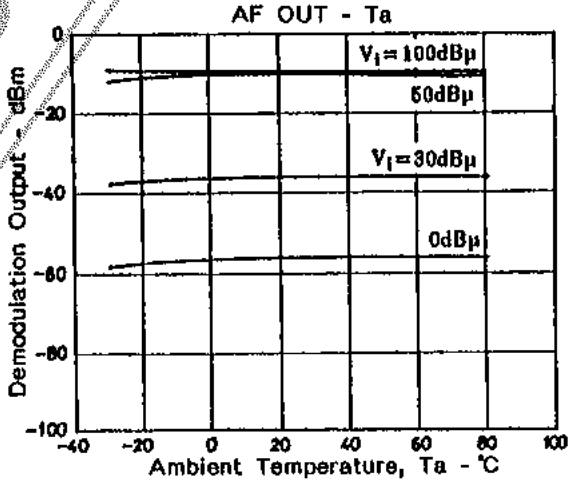
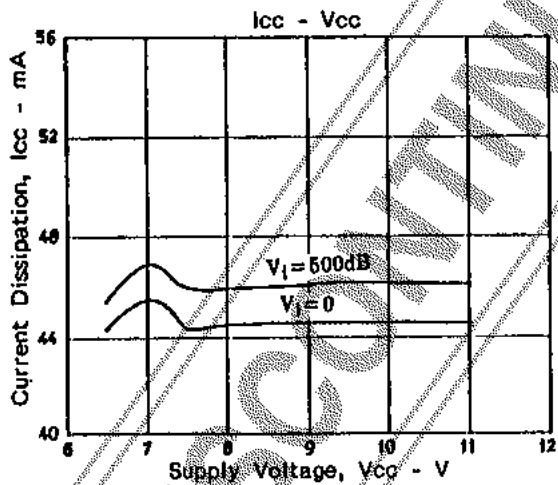
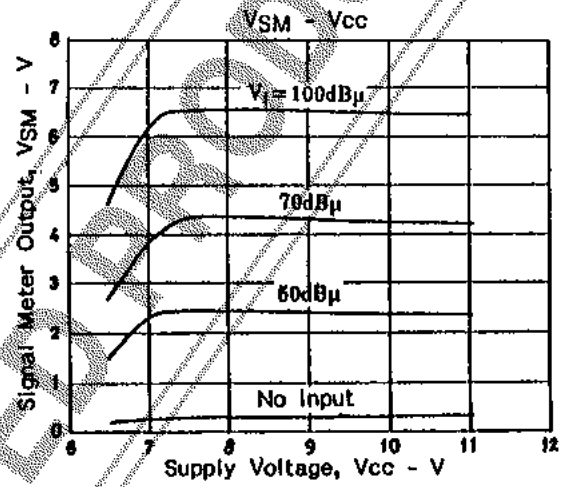
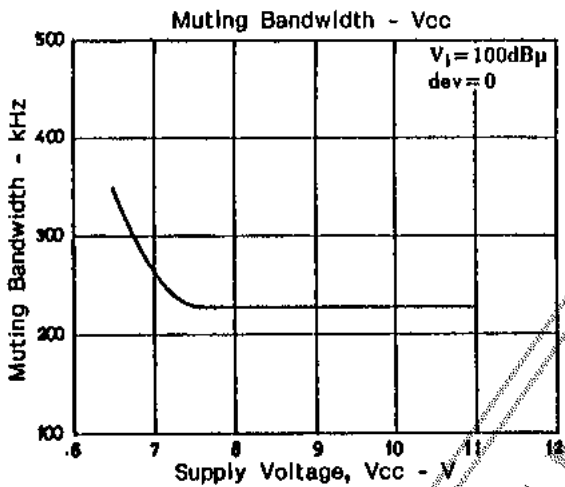
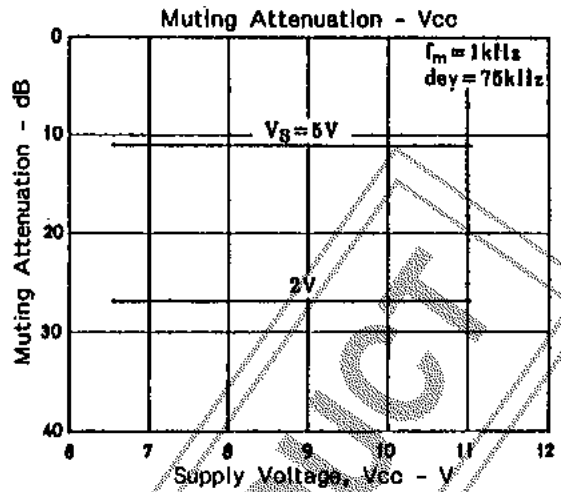
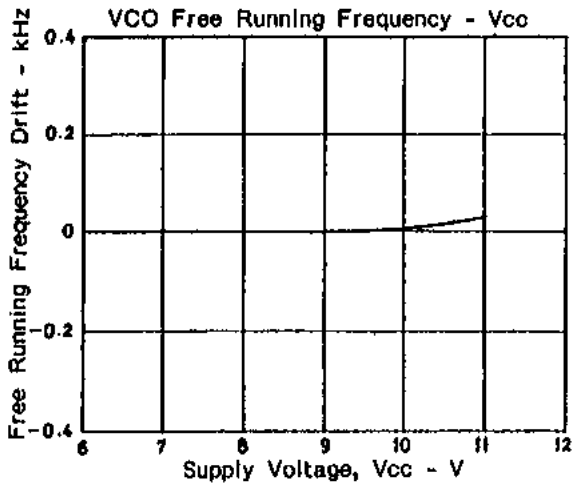
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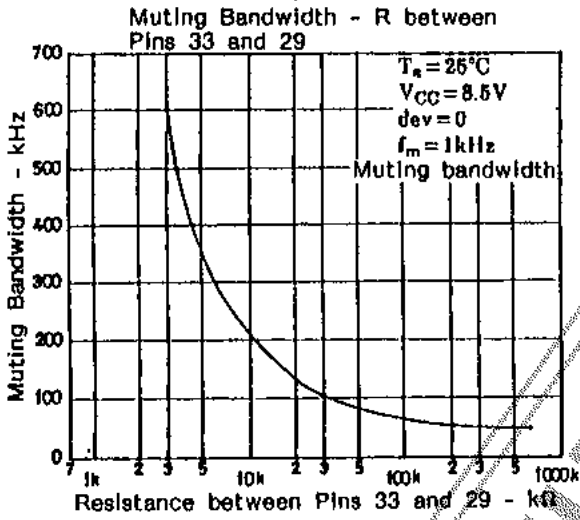
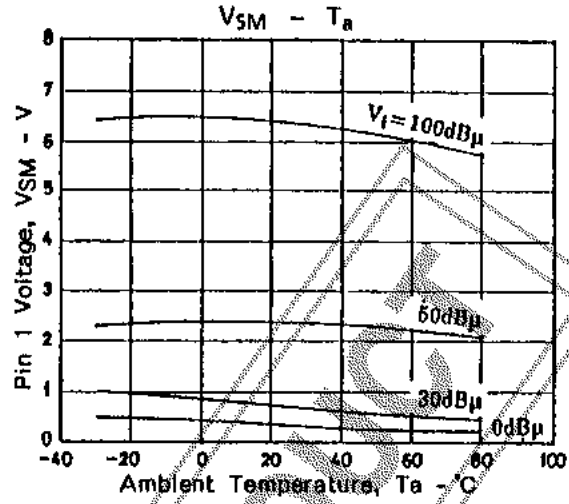
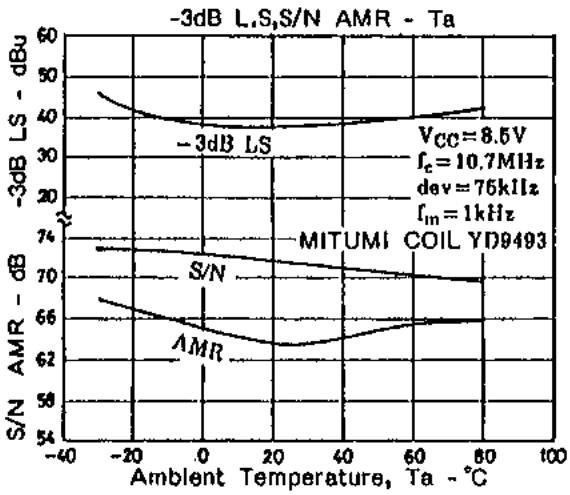


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