

SANYO**Electronic Tuning-Use FM Front End
for Car Radio, Home Stereos****Overview**

- The LA1177 is an FM front end IC for use in car radio, home stereo applications. It requires fewer external parts. The on-chip oscillator and oscillation buffer facilitate designing of electronic tuning sets.

Features

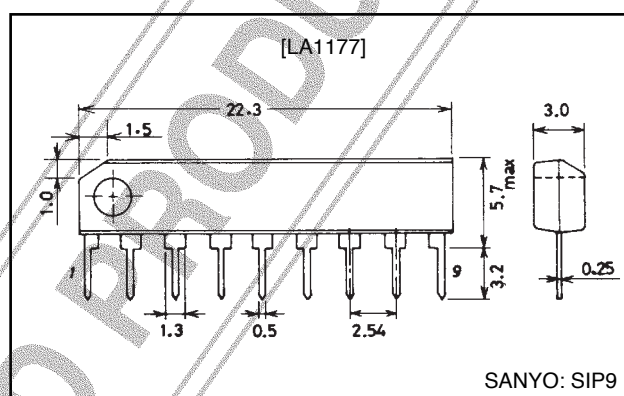
- Wide-band AGC circuit (Improvement in intermodulation, cross modulation characteristics).
- On-chip local oscillation buffer (For electronic tuning).

Functions

- Oscillator, oscillation buffer.
- Mixer.
- Wide-band AGC circuit.
- IF amplifier.

Package Dimensions

unit: mm

3017C-SIP9**Specifications****Maximum Ratings** at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC \text{ max}}$	Pins 2, 9	10	V
Allowable power dissipation	$P_d \text{ max}$	$T_a \leq 70^\circ\text{C}$	440	mW
Operating temperature	T_{opr}		-20 to +70	$^\circ\text{C}$
Storage temperature	T_{stg}		-40 to +125	$^\circ\text{C}$

Operating Conditions at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		8	V
Operating voltage range	$V_{CC \text{ op}}$		8 to 9	V

Electrical Characteristics at $T_a=25^\circ\text{C}$, $V_{CC}=8\text{V}$, $f_{in}=88\text{MHz}$

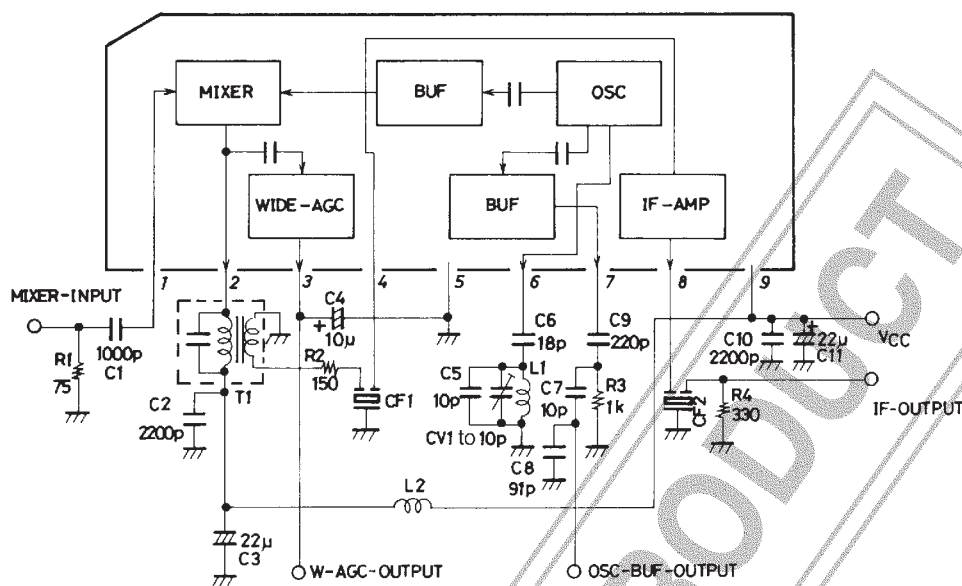
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	I_{CCO}	No input	21	26	31	mA
AGC high-level voltage	V_{AGC-H}	$V_{IN}=0\text{dB}\mu$	7.7	8.0		V
AGC low-level voltage	V_{AGC-L}	$V_{IN}=100\text{dB}\mu$		0.07	0.3	V
AGC mixer input voltage	$V_i \text{ AGC}$	$V_{AGC} \leq 2\text{V}$, Pin 3	73	80	87	$\text{dB}\mu$
IF saturation output voltage	V_{IF-max}	$V_{IN}=1.0\text{dB}\mu$	108	112	116	$\text{dB}\mu$
Input limiting voltage	$V_i \text{ lim}$		76	83	90	$\text{dB}\mu$
Voltage gain	V_G	$V_{IN}=65\text{dB}\mu$	88	92	96	$\text{dB}\mu$
Local OSC output voltage	V_{OSC}	No input, 75Ω termination	80	84	88	$\text{dB}\mu$

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93097HA (KT)/3079TA/1268KI/8016KI, TS No.2257-1/8

Evaluation Circuit and Internal Equivalent Circuit Block Diagram



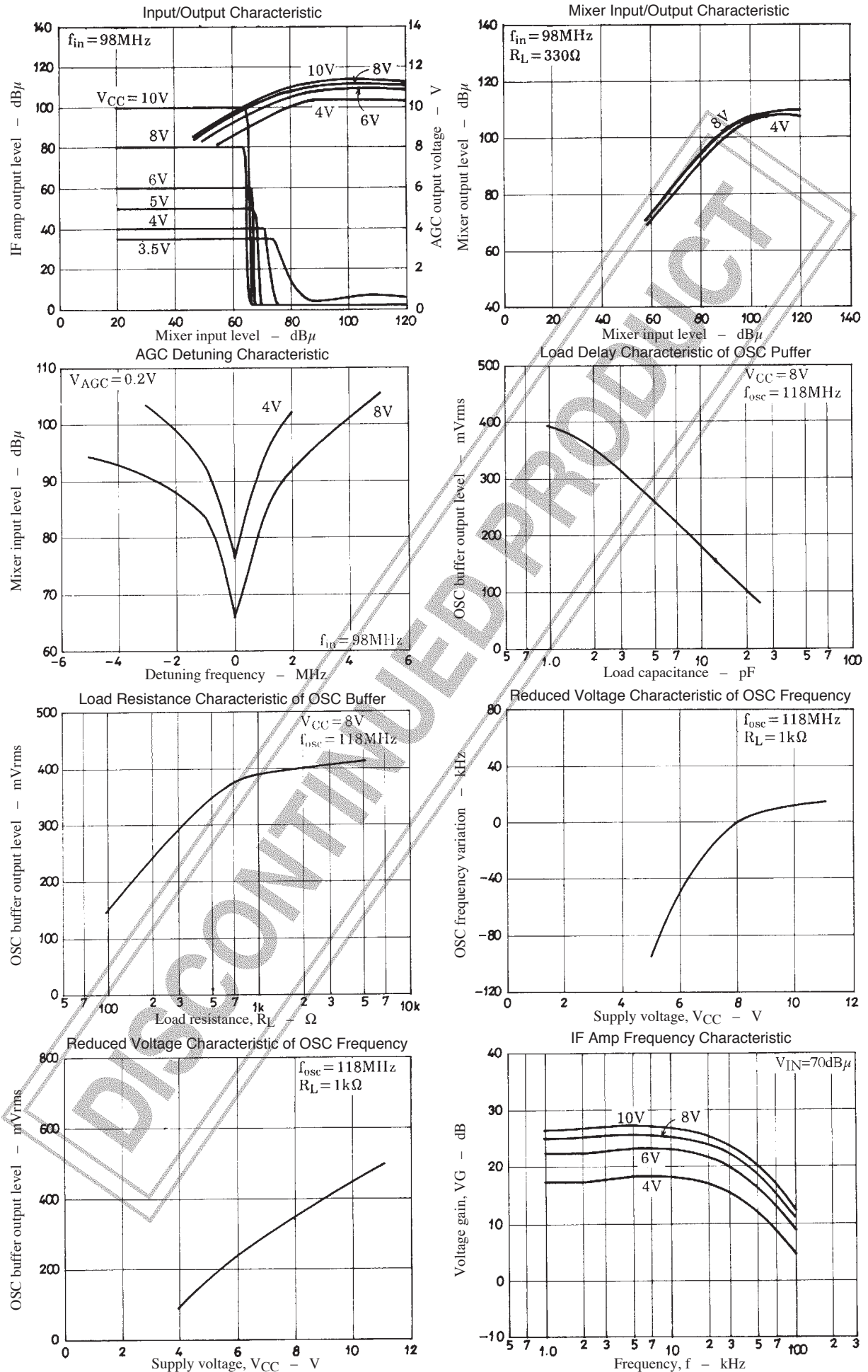
Unit (resistance : Ω , capacitance : F)

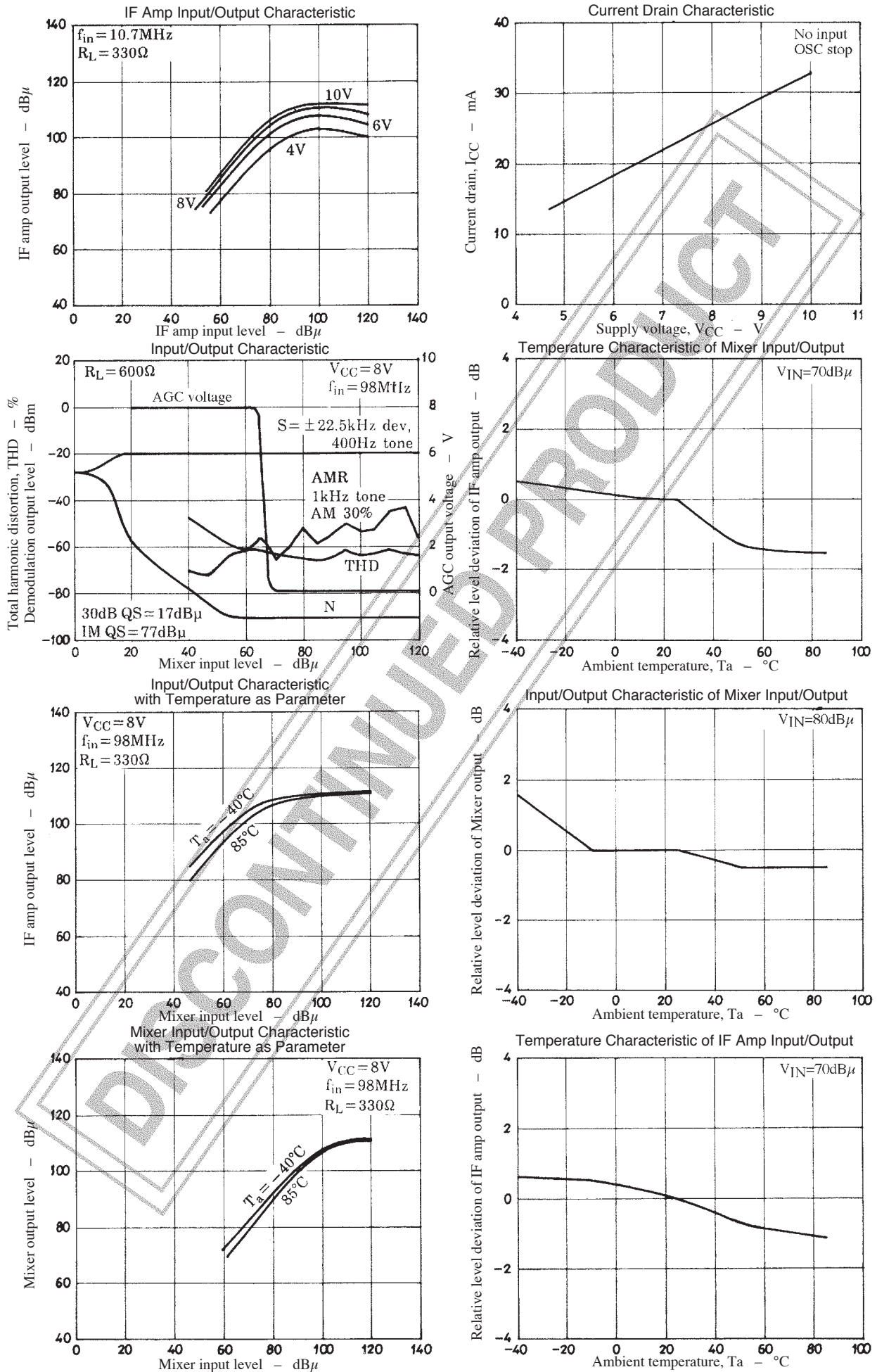
T1 : YT30224 (Mitsumi)
 L1 : HU-50448 (Mitsumi)
 CF1-CF2 : SFE10.7MA (Murata)

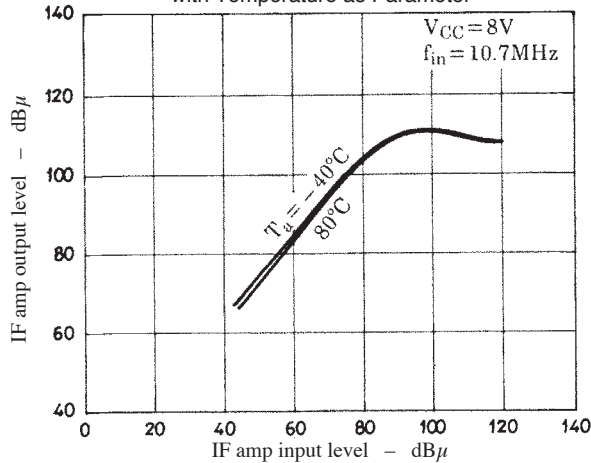
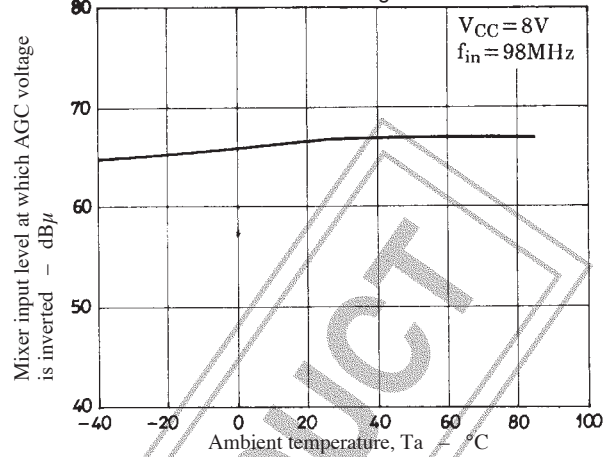
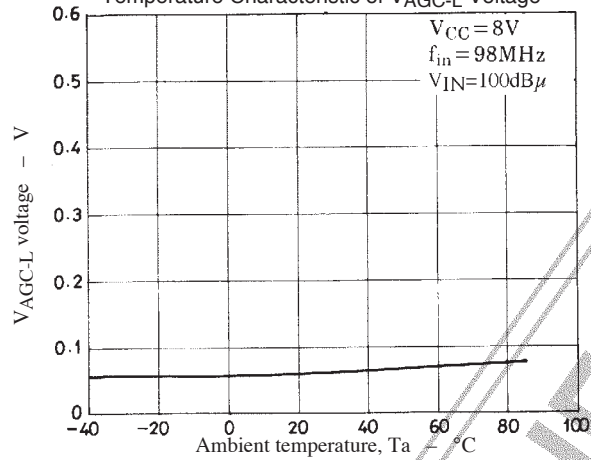
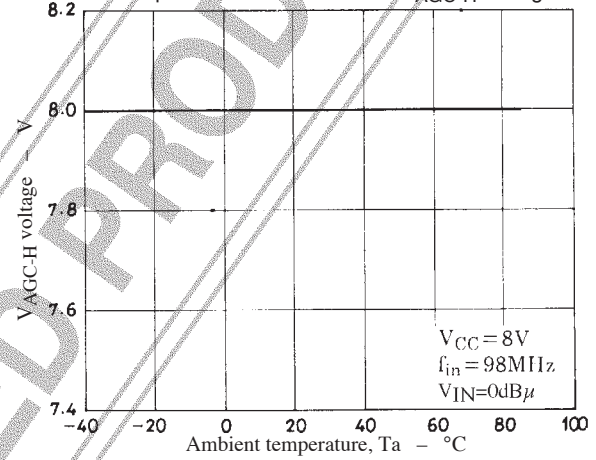
Typical Voltage on Each Pin

Pin No.	Typical voltage	Description	Remarks
1	2.7V	Mixer input	
2	8.0V	Mixer output	
3	8.0V	AGC input	No input
4	2.0V	IF input	
5	0V	GND	
6	4.9V	Oscillator base terminal	
7	1.4V	Oscillation buffer output	
8	4.4V	IF output	
9	8.0V	VCC	

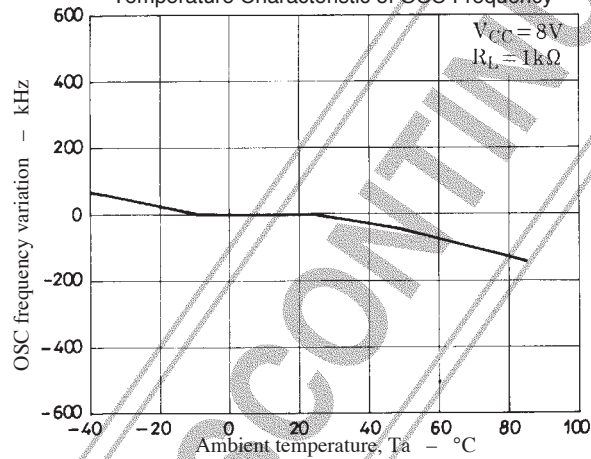
Note : Extreme caution should be exercised when applying voltage across pin 9 (+) and other pins as dielectric breakdown may occur.



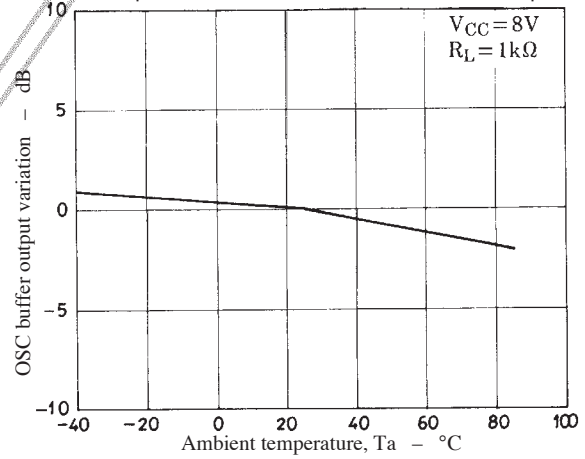


IF Amp Input/Output Characteristic
with Temperature as ParameterTemperature Characteristic of Mixer Input level
at which AGC Voltage is InvertedTemperature Characteristic of V_{AGC-L} VoltageTemperature Characteristic of V_{AGC-H} Voltage

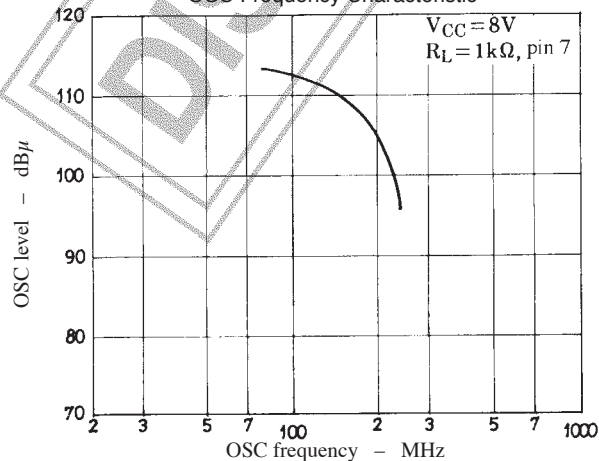
Temperature Characteristic of OSC Frequency



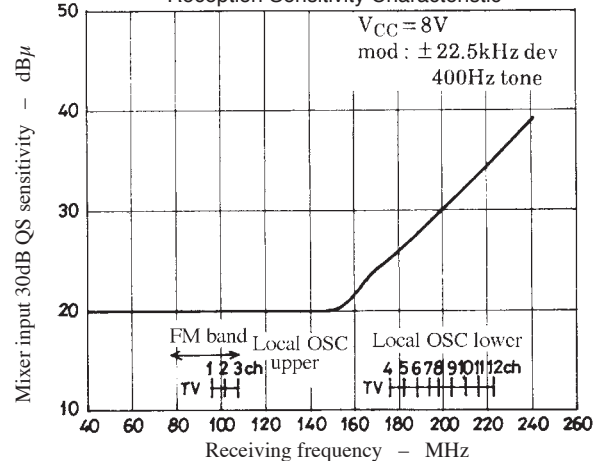
Temperature Characteristic of OSC Buffer Output

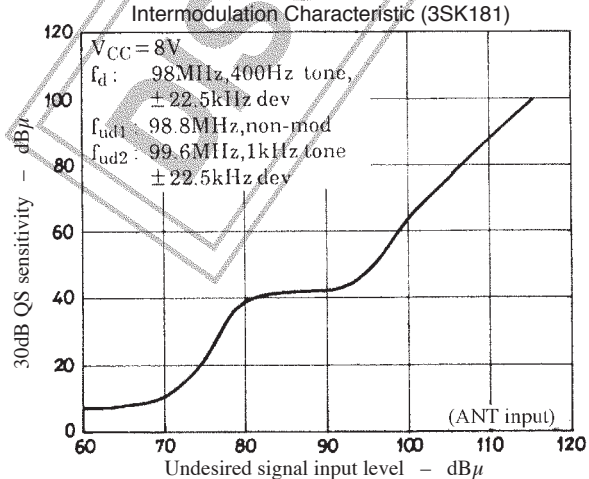
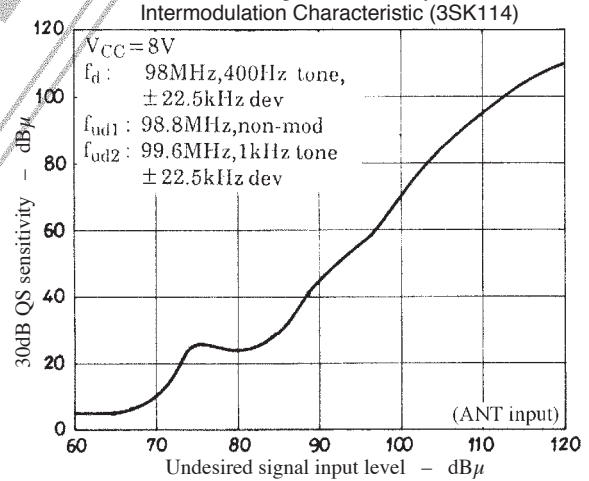
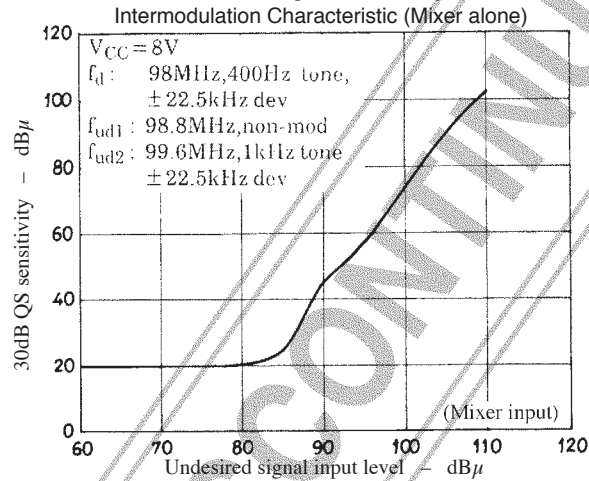
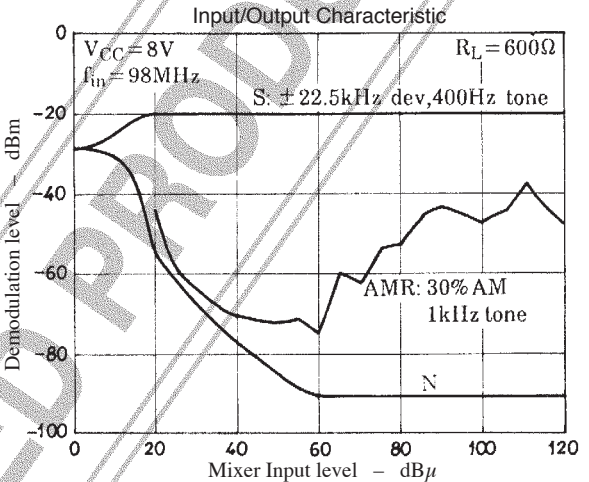
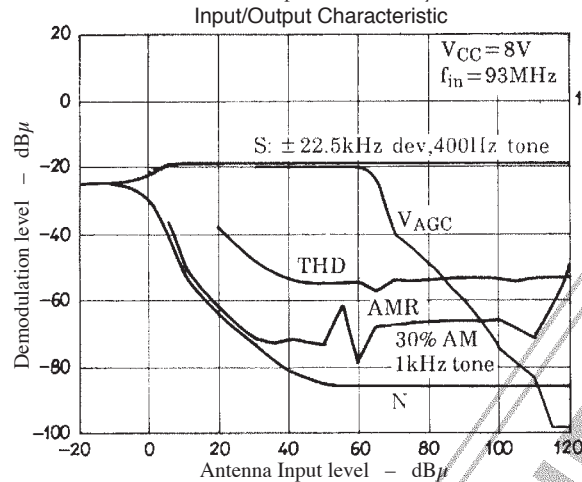
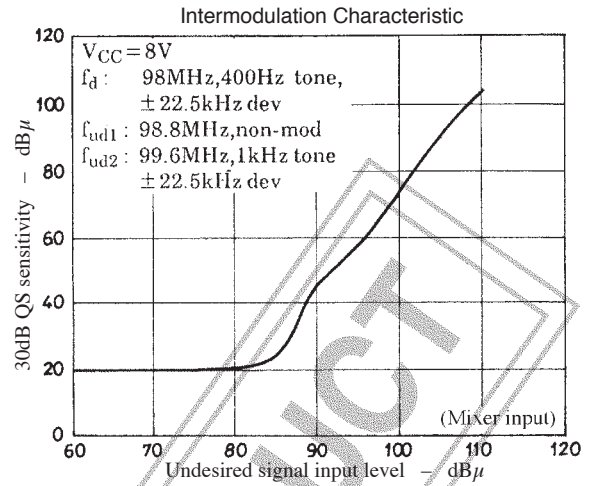
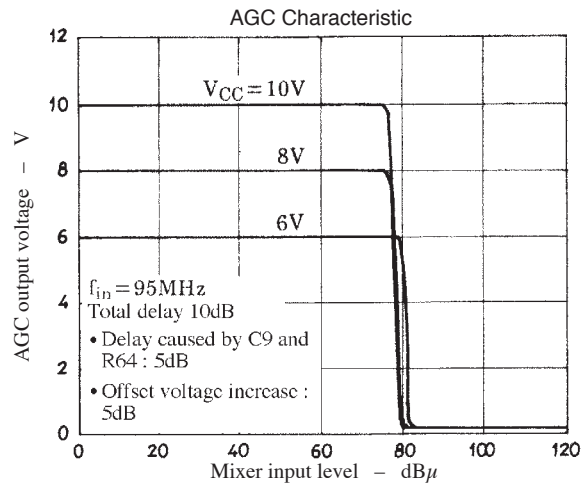


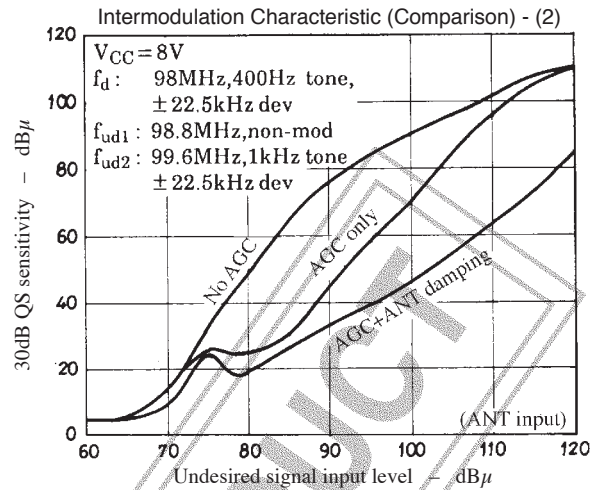
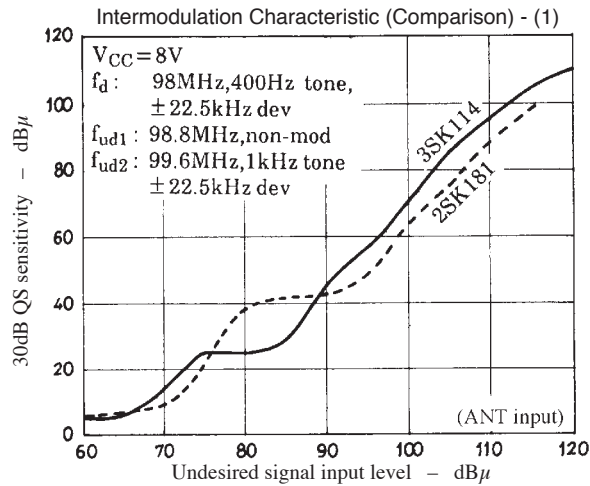
OSC Frequency Characteristic



Reception Sensitivity Characteristic







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