Ordering number : EN6017A

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SANYO Semiconductors
DATA SHEET

Monolithic Linear IC

LA1225M — FM IF Detector IC

Overview

The LA1225M is a Low-voltage operation (1.8V or higher) FM IF detector IC for the electronic tuning system.

Features

- Low-voltage operation (1.8V or higher)
- Supports electronic tuning systems (provides built-in SD output and IF count output functions)
- FM detector circuit accepts an even wider input frequency range. (Supports the use of an external phase capacitor.)
- Miniature package: MFP-10S

Functions

- IF amplifier
- Quadrature detector
- Signal meter
- SD
- IF buffer

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		9.0	V
Allowable power dissipation	Pd max	Ta ≤ 85°C	100	mW
Operating temperature	Topr		-20 to +85	°C
Storage temperature	Tstg		-55 to +150	°C

Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		3.0	V
Operating supply voltage range	V_{CC} op		1.8 to 8.0	V

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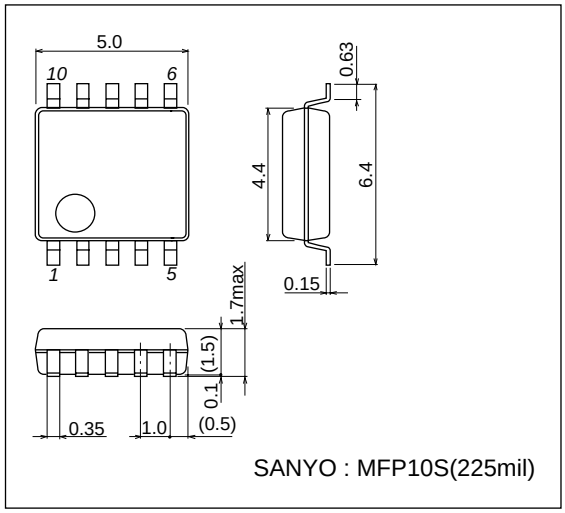
Operating Characteristics at Ta = 25°C, V_{CC} = 3.0V, f_C = 10.7MHz

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	I_{CCO}	No input	3.0	4.0	5.0	mA
Demodulator output	V_O	100dBμ, 100% mod., fm = 1kHz	70	150	220	mV
Total harmonic distortion	THD	100dBμ, 100% mod., fm = 1kHz		0.5	0.8	%
Signal-to-noise ratio	S/N	100dBμ, 100% mod., fm = 1kHz	65	73		dB
3dB sensitivity	-3dBL.S	100dBμ, 100% mod., fm = 1kHz output reference, when the input is -3dB	19	28	37	dBμ
SD sensitivity	SD_{ON}	0% mod.	35	50	65	dBμ
IF counter buffer output	V_{IFBuff}	100dBμ	90	130	170	mV

Package Dimensions

unit : mm

3086B



SANYO : MFP10S(225mil)

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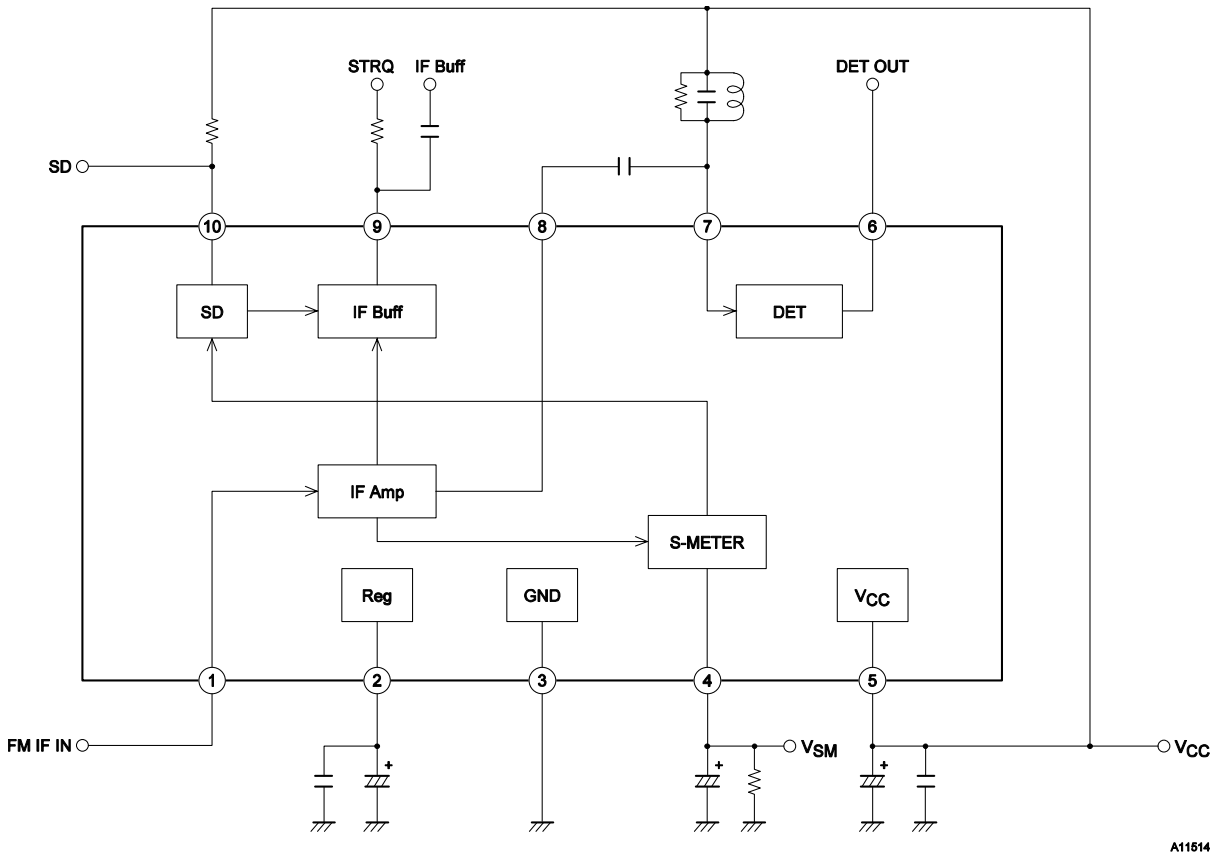
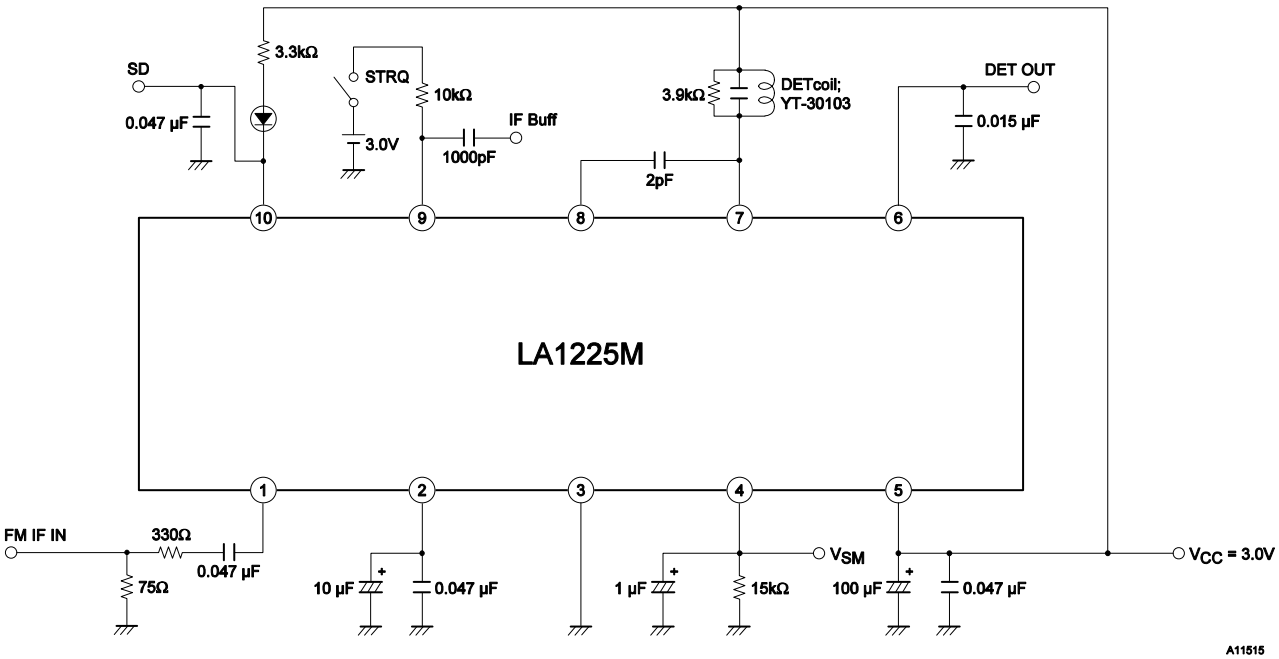
Block Diagram and Test Circuit



Sample Application Circuit



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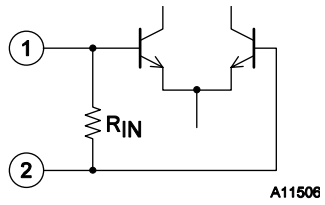
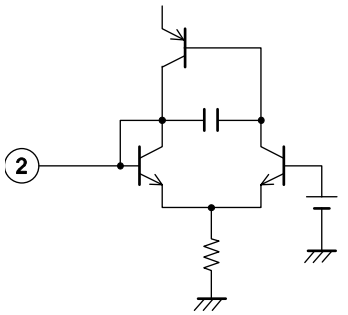
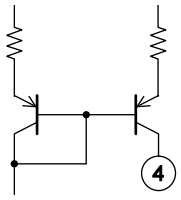
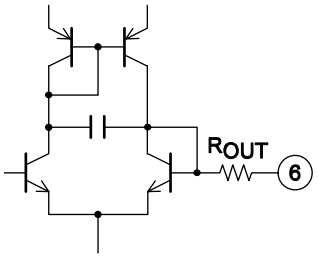
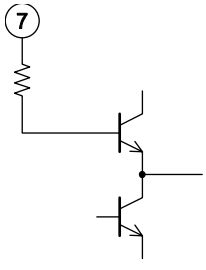
Pin Functions No-Signal Voltage at V_{CC} = 3.0V

Pin No.	Function	No-signal voltage (V)	Equivalent circuit	Notes
1	IF input	1.2		Input impedance R_{IN} = 330Ω
2	Reg	1.2		Vreg = 1.2V
3	GND	0		
4	S-meter output	0.1		Open collector output. The SD sensitivity can be adjusted with an external resistor connected to this pin.
5	V_{CC}	3.0		
6	Demodulated output	1.5		Output impedance R_{OUT} = 3kΩ
7	DET	3.0		The detector coil is inserted between pin 7 and pin 5 (V_{CC}).

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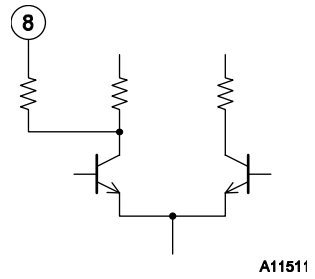
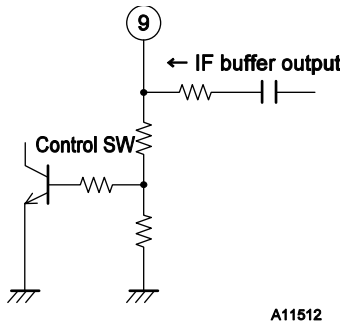
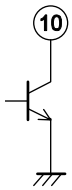
Pin No.	Function	No-signal voltage (V)	Equivalent circuit	Notes
8	Limiter amplifier output	2.8		Pin 8 and pin 7 (DET) are connected through a capacitor.
9	IF buffer (Also used for control SW)	0		The IF buffer output is turned on when the voltage applied to the pin is the recommended 1.5V or higher.
10	SD	1.6		This is an active-low output. This is an open-collector output and can directly drive an LED. ($I_C$max = 20mA)

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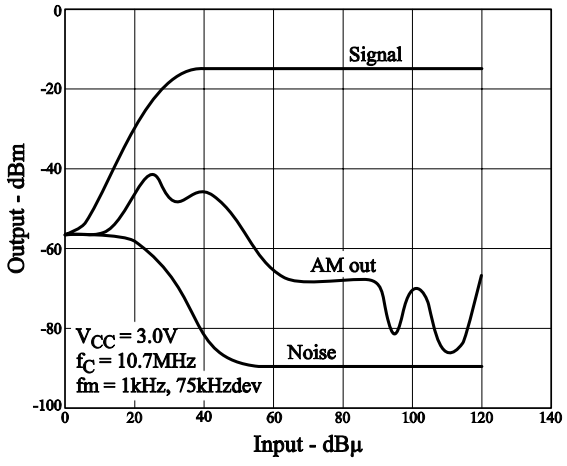
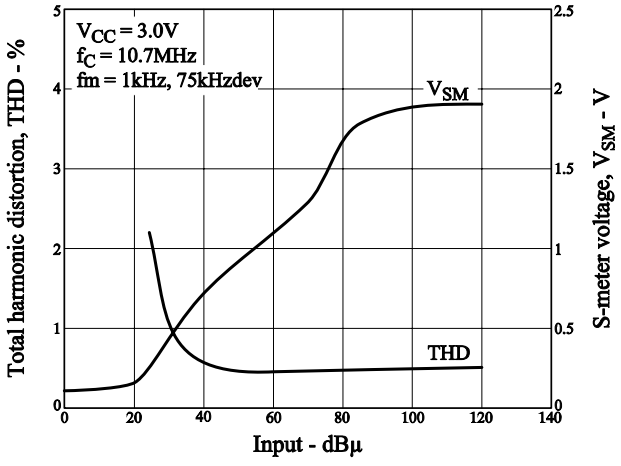
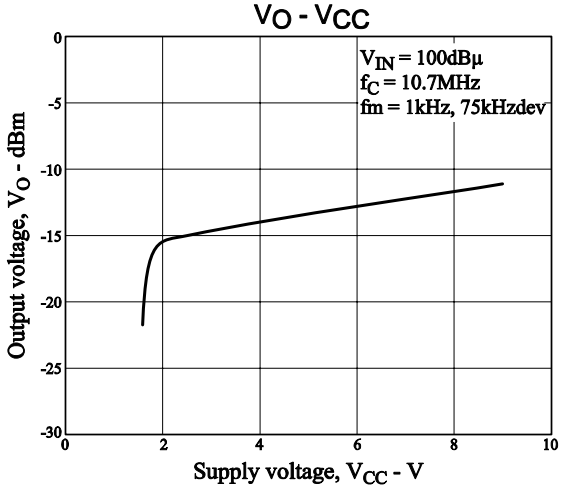
I/O Characteristics



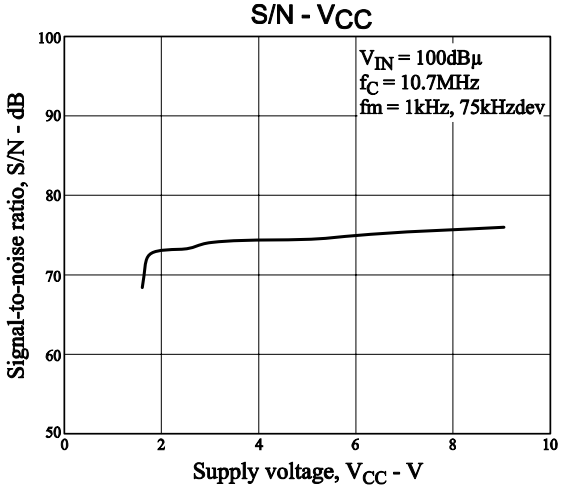
I/O Characteristics



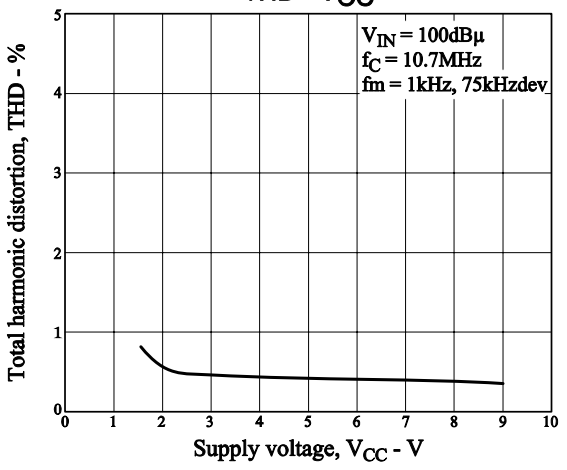
V_O - V_{CC}



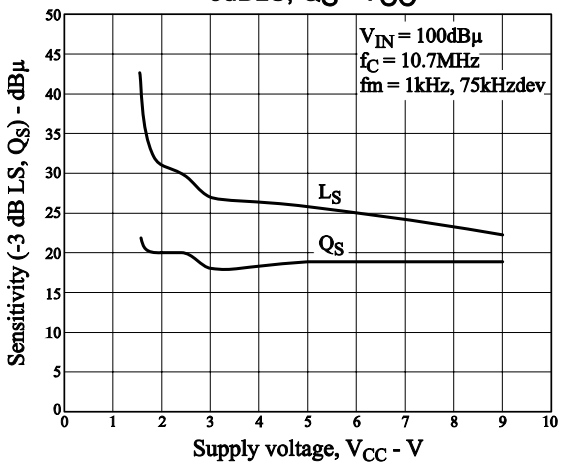
S/N - V_{CC}



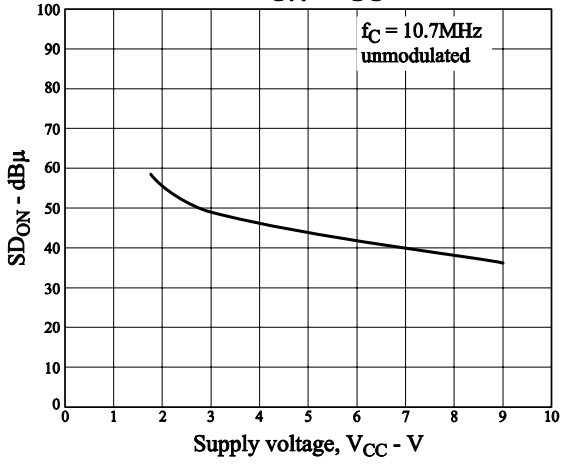
THD - V_{CC}



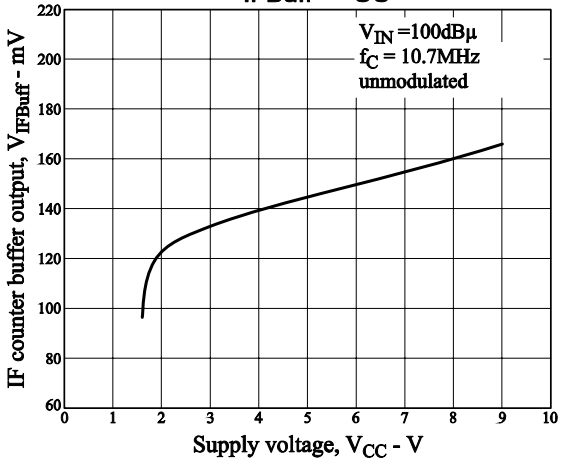
-3dBLS, Q_S - V_{CC}



SD_{ON} - V_{CC}



V_{IFBuff} - V_{CC}



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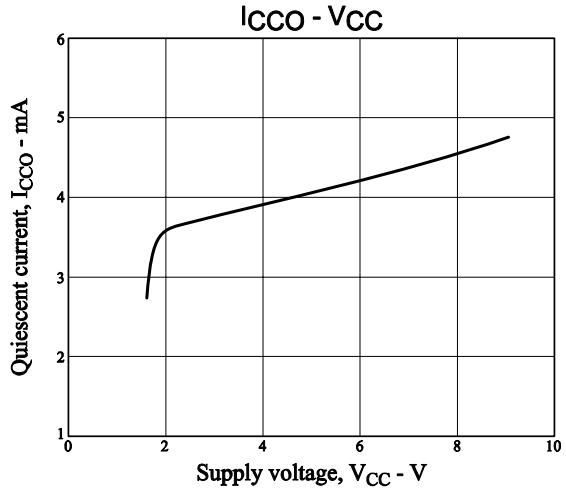

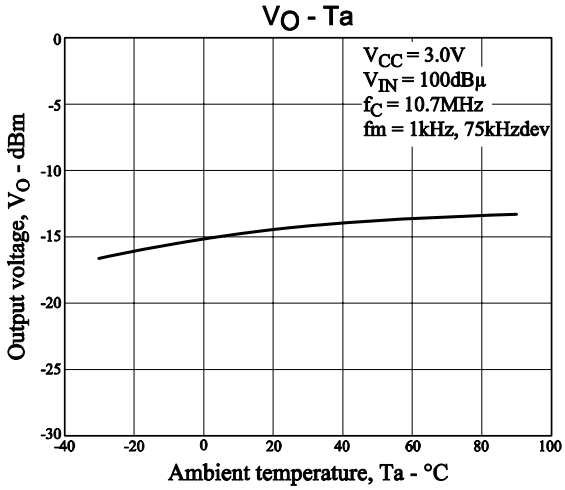

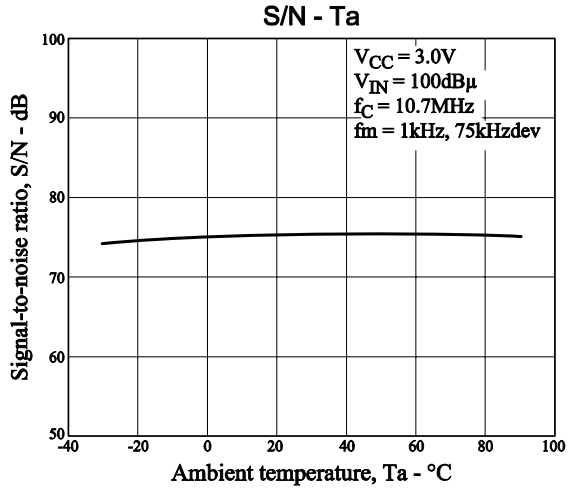

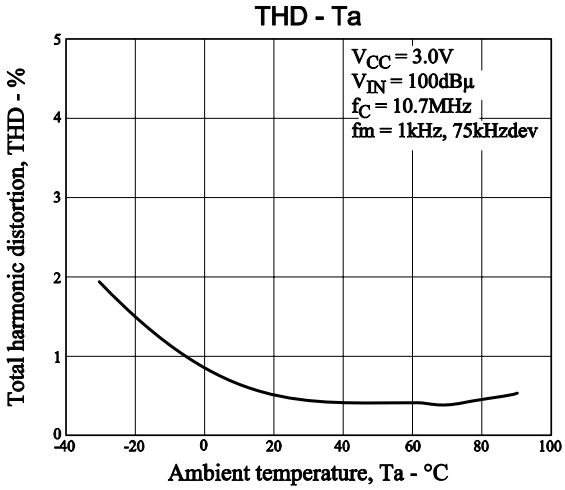

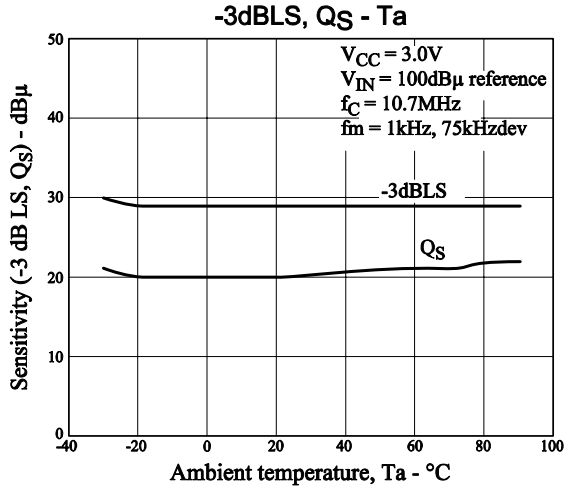

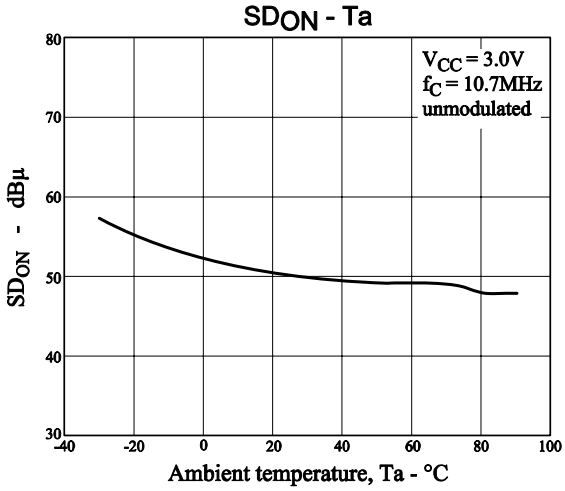

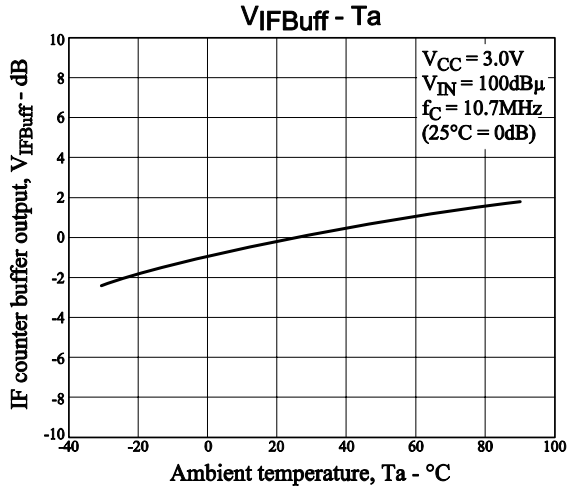

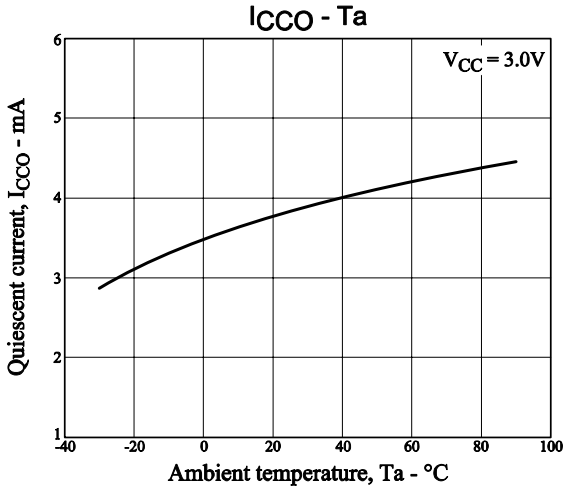

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