SONY

CXL5520M/P

CMOS-CCD Baseband 1H Delay Line

Description

CXL5520 is a CMOS-CCD baseband 1H delay line designed for TV signal processing.

Features

- Single 5V power supply
- Low power consumption
- Built-in line locked PLL circuit
- Built-in 2 comb filters
  (Addition of delayed and non-delayed output signal.)
- Built-in peripheral circuits

Absolute Maximum Ratings (Ta = 25°C)

• Supply voltage	V_{DD}	+6	V
• Operating temperature	Topr	–10 to +60	°C
• Storage temperature	Tstg	–55 to +150	°C
• Allowable power dissipation			
	P_D		
	CXL5520M	400	mW
	CXL5520P	800	mW

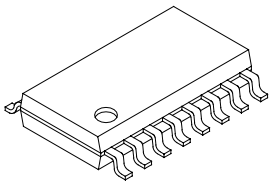
Recommended Operating Condition (Ta = 25°C)

Supply voltage	V_{DD}	5V ± 5%

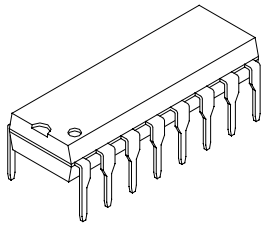
Recommended Clock Condition (Ta = 25°C)

• Top pulse voltage	V_{CLK}	3 to 7	V
• Frequency	f_{CLK}	15.625	kHz
• Input clock waveform	Sandcastle pulse		

CXL5520M
16 pin SOP (Plastic)



CXL5520P
16 pin DIP (Plastic)



Input Signal Amplitude

• ± (R-Y) PAL and NTSC	Vsig	525	mVp-p	(Typ.)
• ± (B-Y) PAL and NTSC	Vsig	665	mVp-p	(Typ.)
• ± (R-Y) SECAM	Vsig	1.05	Vp-p	(Typ.)
• ± (B-Y) SECAM	Vsig	1.33	Vp-p	(Typ.)

Function

- 2 comb filters outputs
  (Addition of delayed and non-delayed output signal.)
- Timing generator and clock driver
- Line Locked PLL circuit (Sandcastle pulse)
- Autobias circuit
- Pulse clamp circuit
- Sample and hold circuit and output Amp.

Structure

CMOS-CCD

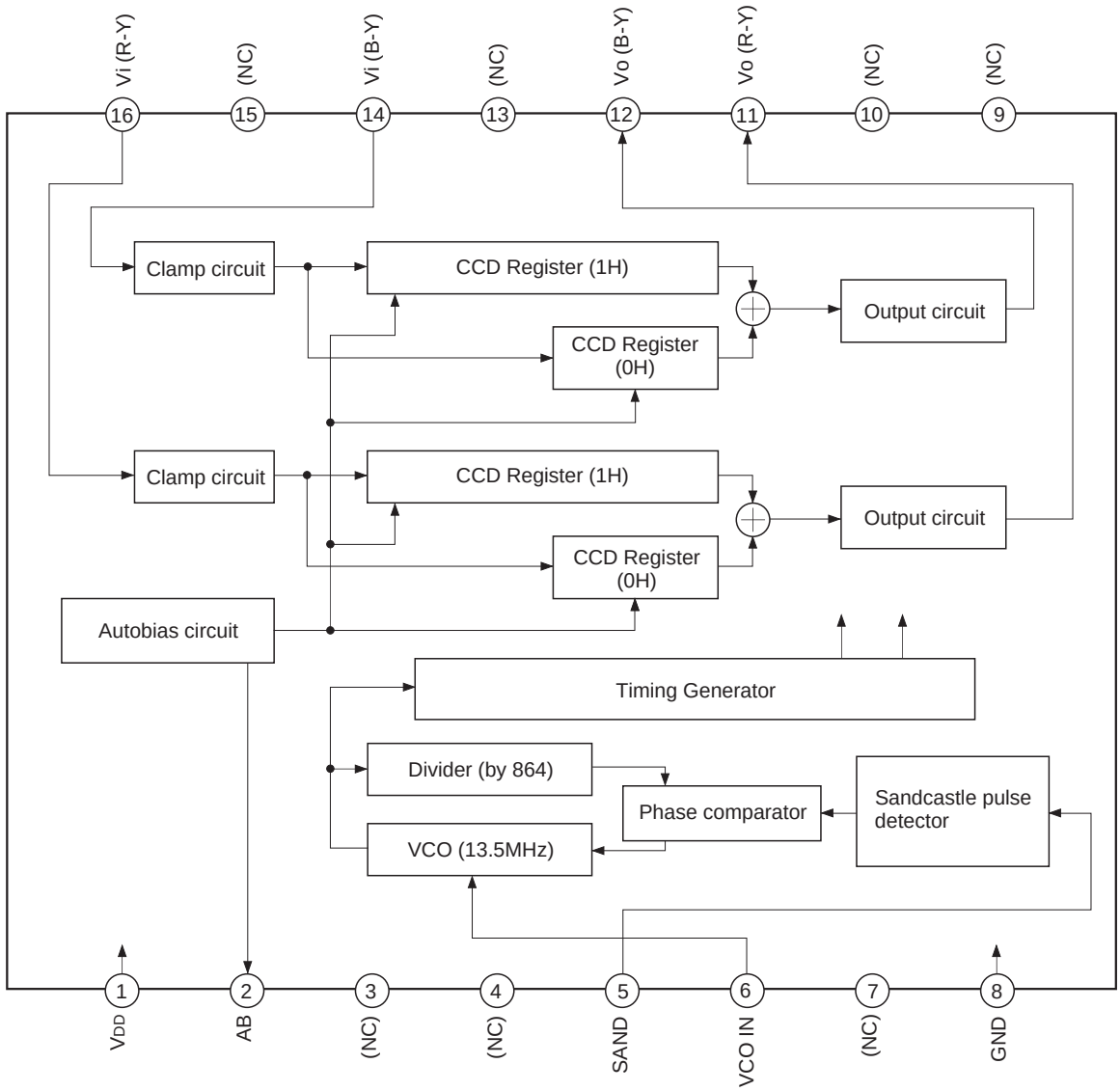
Pin Description

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	V_{DD}	+5V supply voltage	9	(NC)	not connected
2	AB	Autobias output	10	(NC)	not connected
3	(NC)	not connected	11	Vo (R-Y)	± (R-Y) output signal
4	(NC)	not connected	12	Vo (B-Y)	± (B-Y) output signal
5	SAND	Sandcastle pulse input	13	(NC)	not connected
6	VCO IN	VCO input	14	Vi (B-Y)	± (B-Y) input signal
7	(NC)	not connected	15	(NC)	not connected
8	GND	Ground	16	Vi (R-Y)	± (R-Y) input signal

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E95X04-PS

Block Diagram and Pin Configuration (Top View)



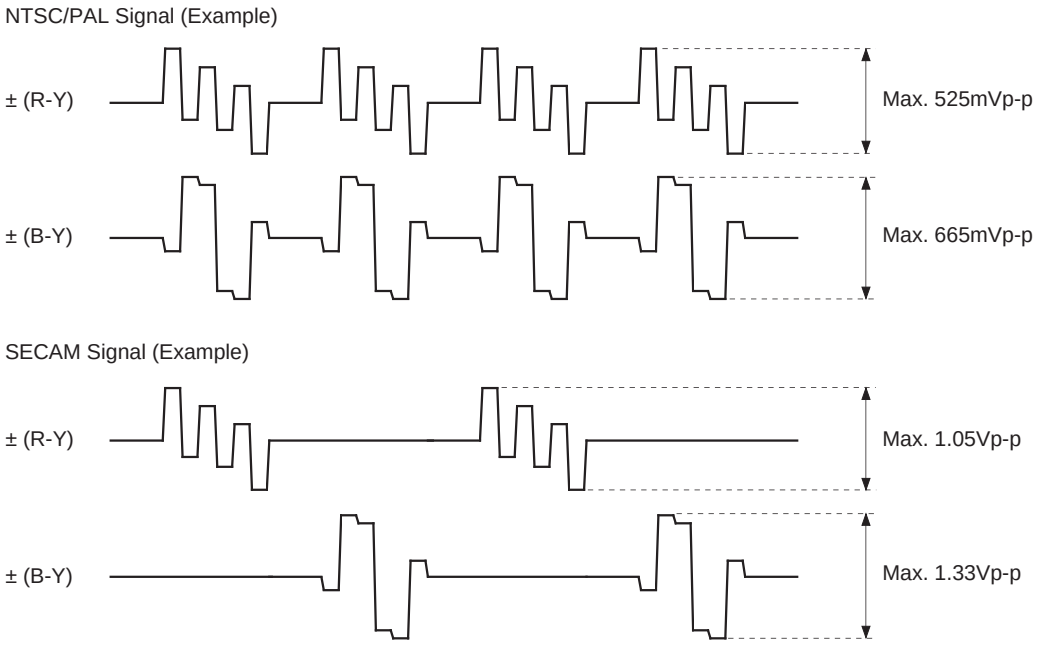
Electrical Characteristics (Ta = 25°C, V_{DD} = 5V, f_{CLK} = 15.625kHz, Sandcastle pulse)
See Electrical Characteristics Measurement Circuit.

Item	Symbol	Condition	SW condition				Min.	Typ.	Max.	Unit	Note
			1	2	3	4					
Supply current	I_{DD}	—	—	—	—	—	—	15	25	mA	1
Output DC voltage	$V_{DC}R$	No signal input	—	b	—	—	1	2	3	V	2
	$V_{DC}B$		b	—	—	—					
Output signal (peak to peak value)	VoR	Standard input	—	b	b	a	—	1.05	—	V	3
	VoB		a	—	a	a	—	1.33	—		
Gain	Gnt	Ratio of Output/Input signal	—	b	b	a	5	6	7	dB	4
	Gseca		a	—	a	a	–1	0	1		
Noise voltage	VnR	Noise voltage (No signal input) (RMS value)	—	b	b	b	—	1	5	mV	5
	VnB		b	—	a	b					
Noise	SNR	Signal to Noise ratio (Vo = 1Vp-p)	—	b	b	b	52	56	—	dB	6
	SNB		b	—	a	b					

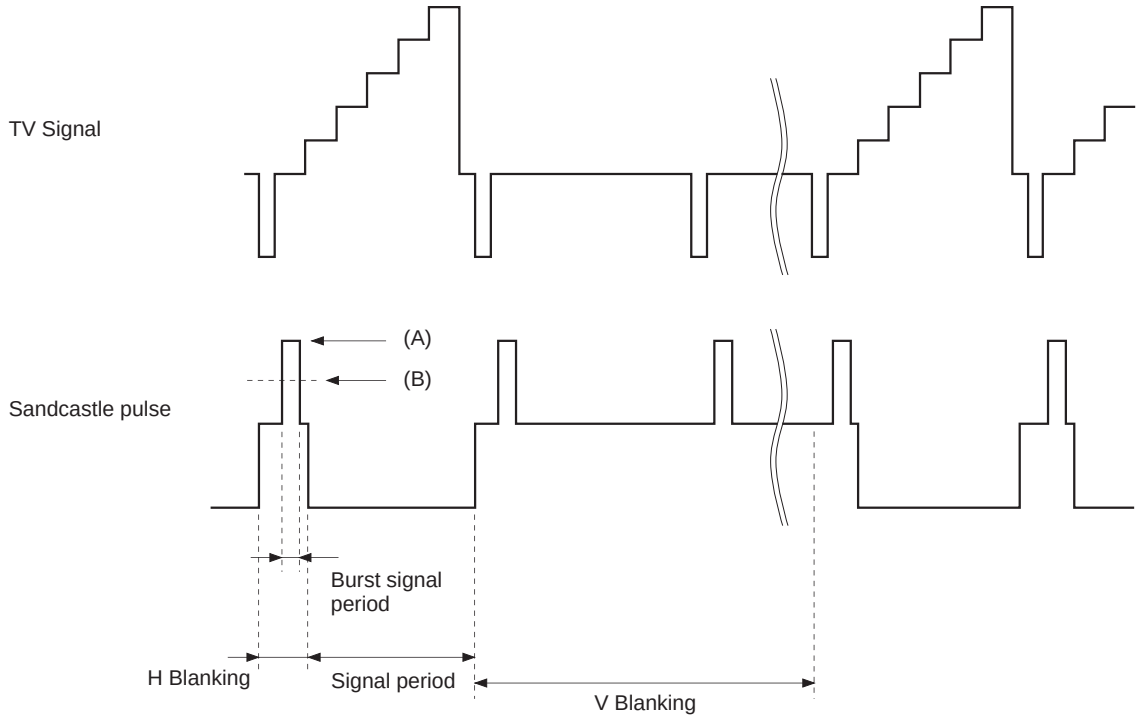
Notes

1) This is the IC supply current value.
2) Measure the output voltage level when no signal input.
3) Measure the output signal peak-to-peak voltage level when the input signals are following level (peak-to-peak voltage).
   ±R-Y signal 525mVp-p
   ±B-Y signal 665mVp-p
4) Gnt means the ratio of Output/Input signal when NTSC, PAL signal input.
   Gseca means the ratio of Output/Input signal when SECAM signal input.
   Signal wave form of NTSC/PAL and SECAM are shown in following.
5) Measure the noise voltage at f = 10kHz to 1MHz, and no signal input.
6) Measure the Signal to Noise ratio at f = 10kHz to 1MHz, and output signal = 1Vp-p.

Input Signal

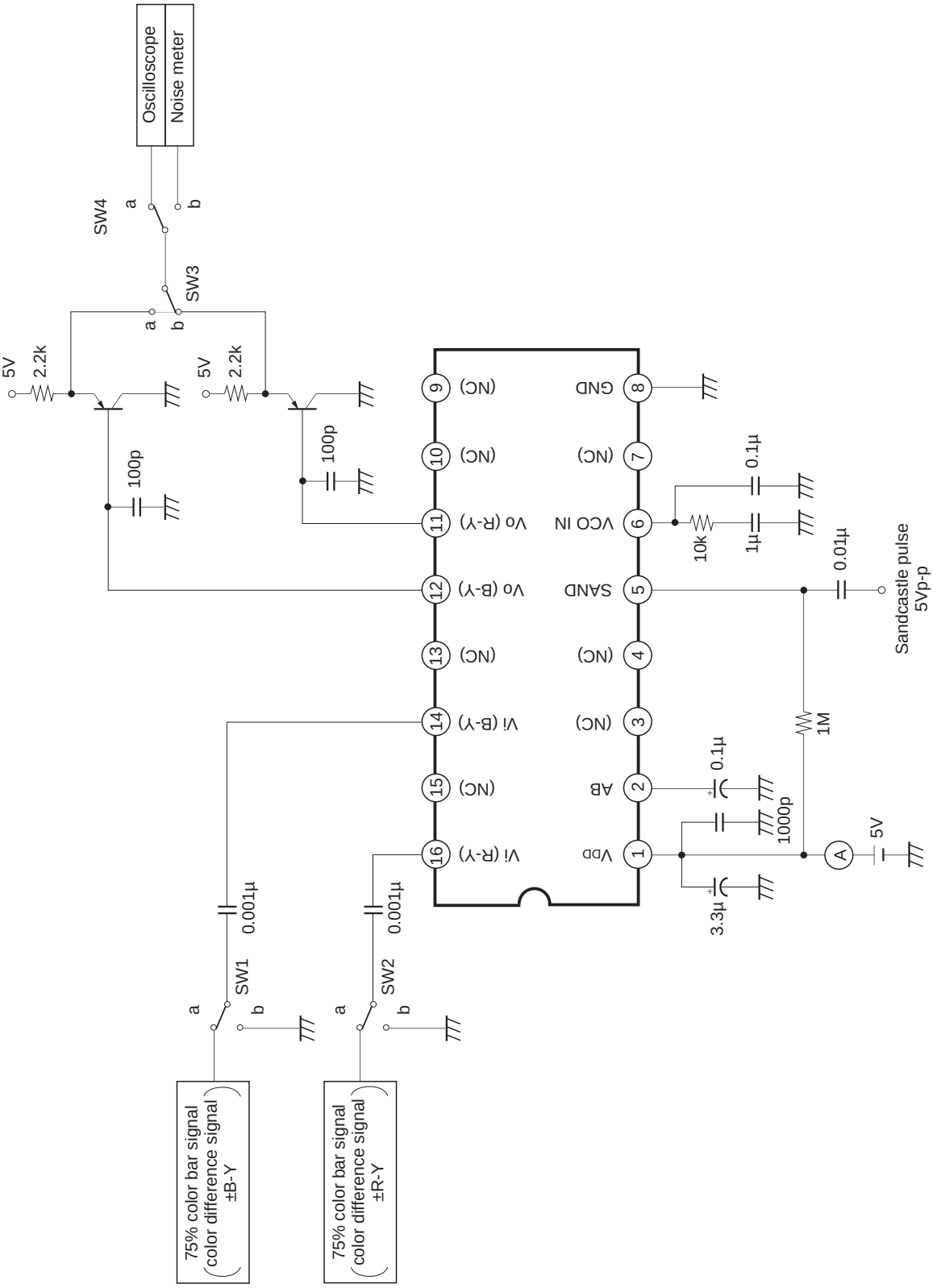


Sandcastle Pulse

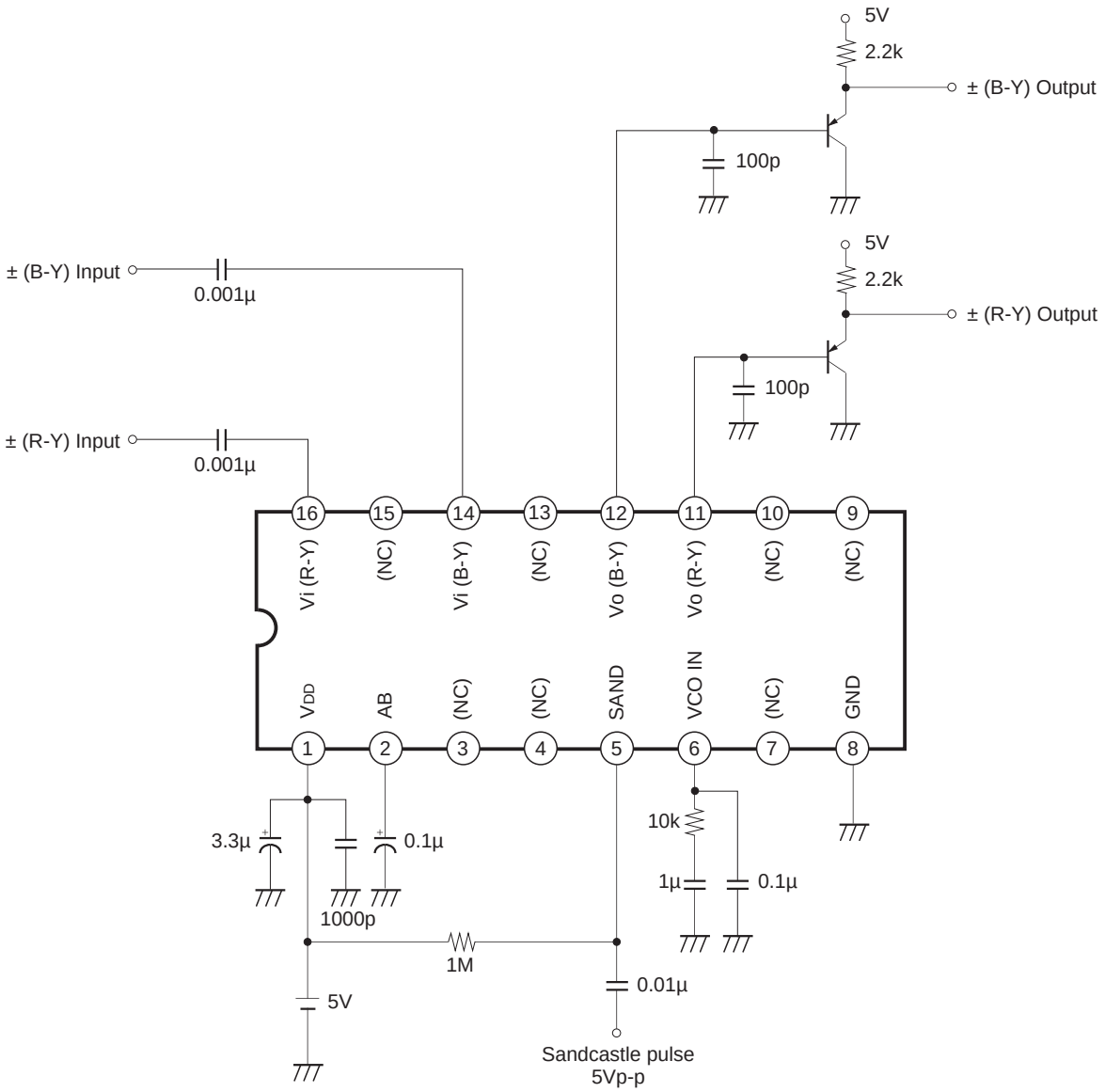


(A) : Peak level (Internal clamp level): V_{DD} (5V Typ.)
(B) : Internal slice level: V_{DD} – 1V (4V Typ.)
Sandcastle pulse frequency = 15.625kHz (Typ.)

Electrical Characteristics Measurement Circuit



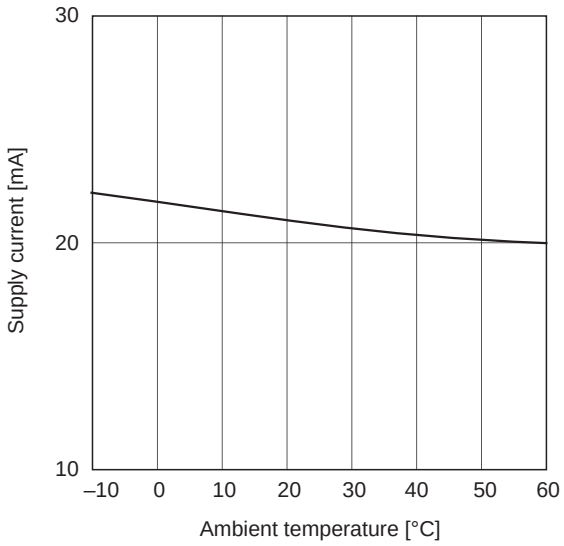
Application Circuit



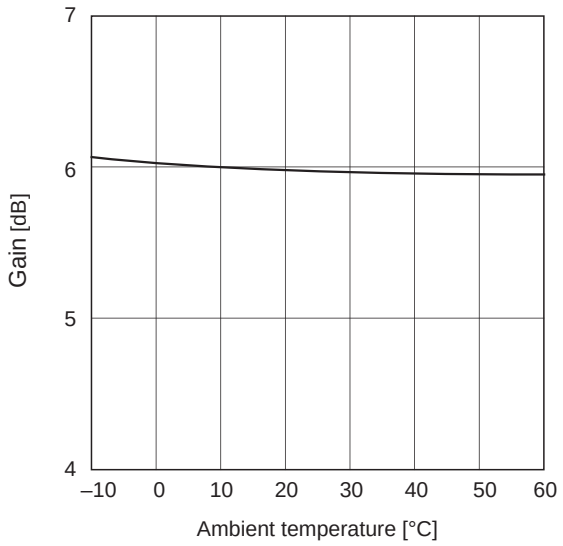
Application circuits shown are typical examples illustrating the operation of the devices. Sony cannot assume responsibility for any problems arising out of the use of these circuits or for any infringement of third party patent and other right due to same.

Example of Representative Characteristics

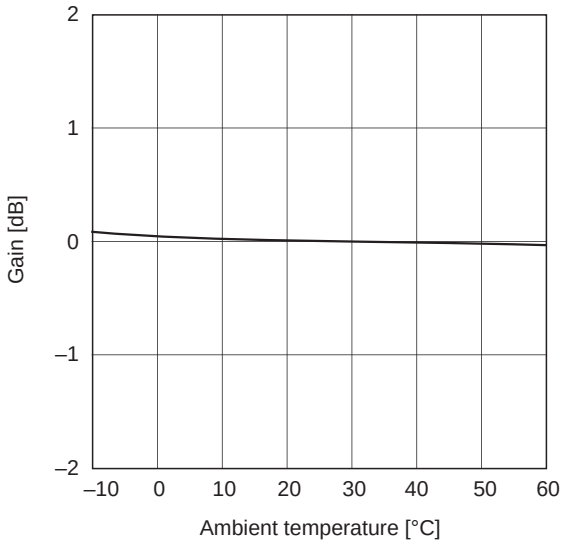
Supply current vs. Ambient temperature



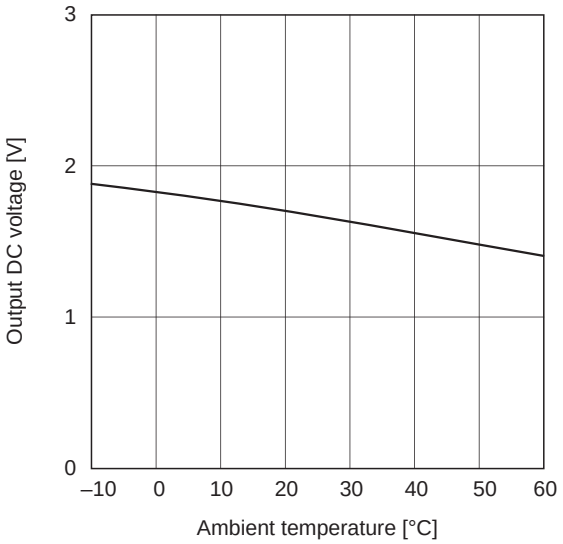
Gain (PAL mode) vs. Ambient temperature



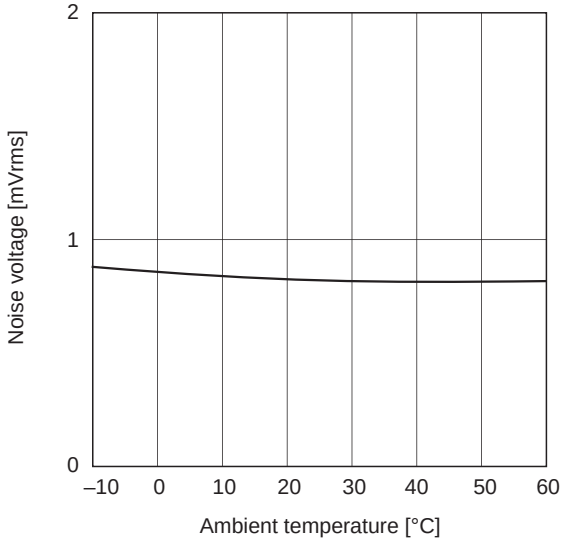
Gain (SECAM mode) vs. Ambient temperature



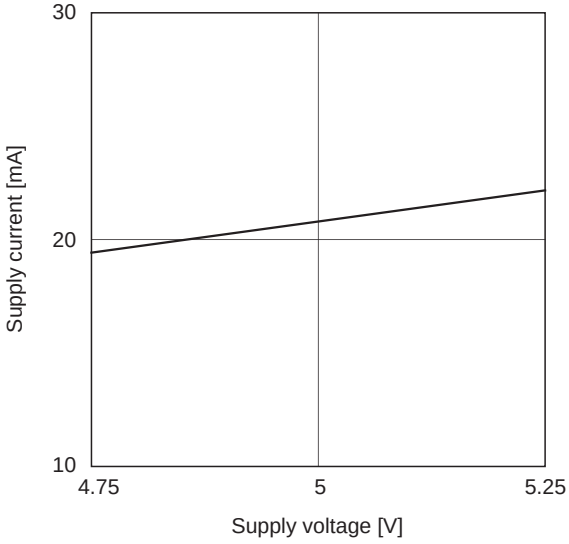
Output DC voltage vs. Ambient temperature



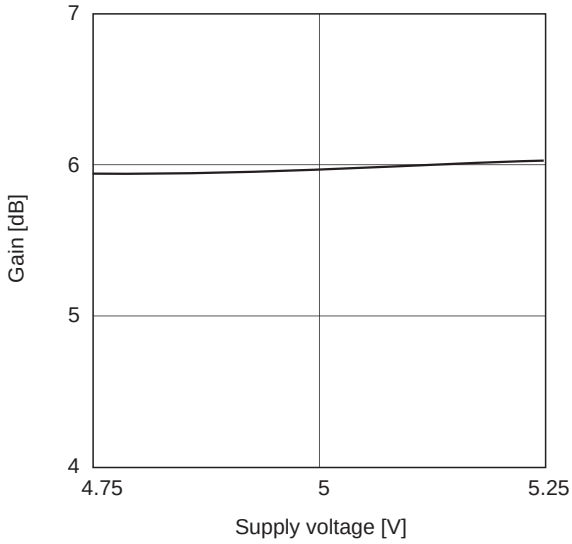
Noise voltage vs. Ambient temperature



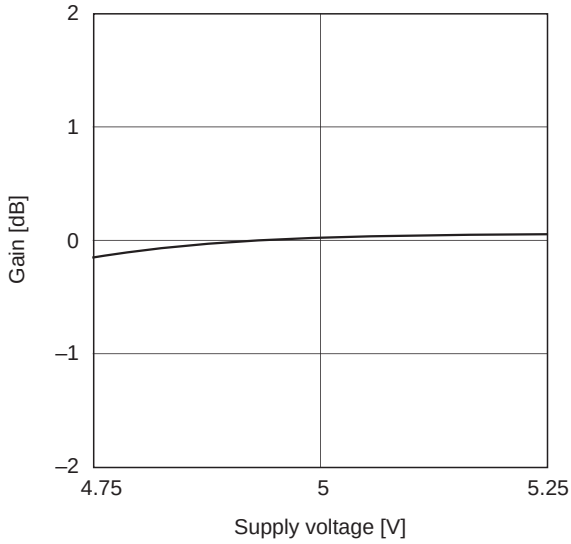
Supply current vs. Supply voltage



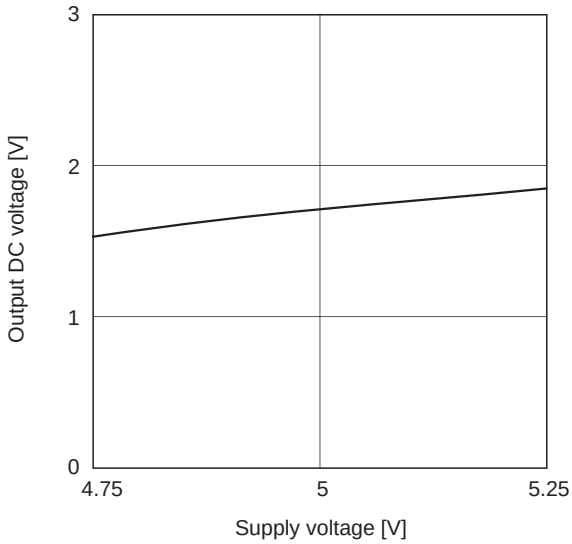
Gain (PAL mode) vs. Supply voltage



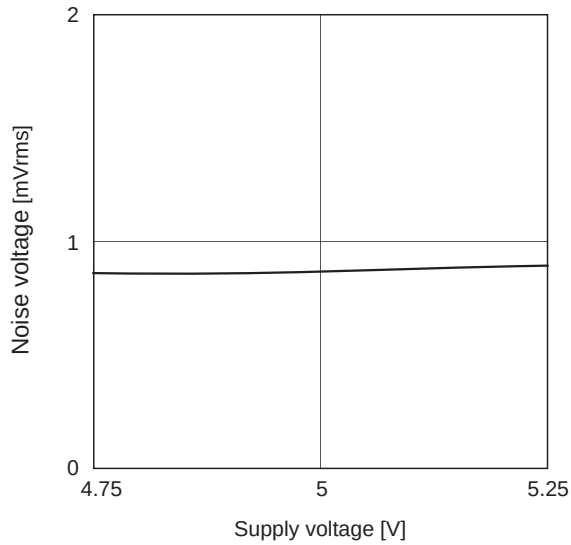
Gain (SECAM mode) vs. Supply voltage



Output DC voltage vs. Supply voltage



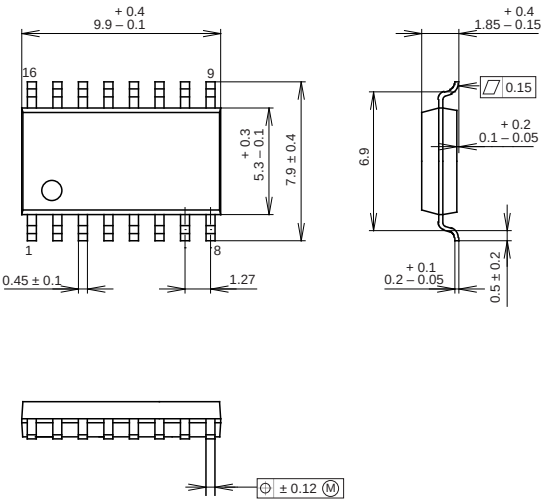
Noise voltage vs. Supply voltage



Package Outline Unit: mm

CXL5520M

16PIN SOP (PLASTIC) 300mil



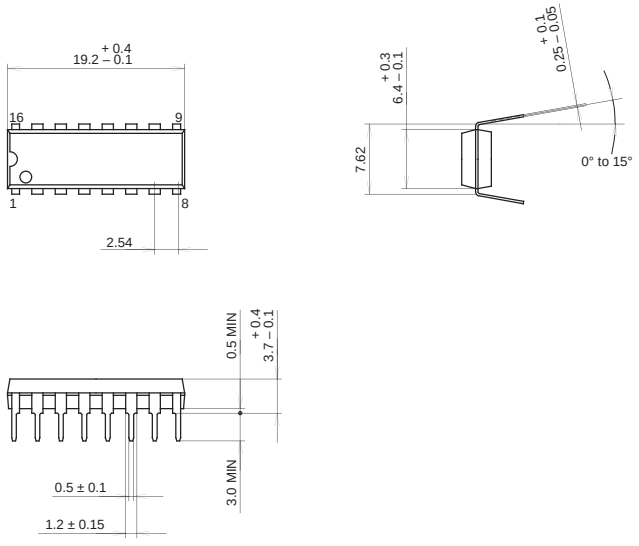
PACKAGE STRUCTURE

SONY CODE	SOP-16P-L01
EIAJ CODE	*SOP016-P-0300-A
JEDEC CODE	

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER ALLOY
PACKAGE WEIGHT	0.2g

CXL5520P

16PIN DIP (PLASTIC) 300mil



PACKAGE STRUCTURE

SONY CODE	DIP-16P-01
EIAJ CODE	*DIP016-P-0300-A
JEDEC CODE	Similar to MO-001-AE

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER
PACKAGE WEIGHT	1.0 g