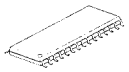
47μF AC-Coupling Capacitor
4in-2out Video Driver with Isolation Amplifier

■GENERAL DESCRIPTION

NJW1342 is 47uF AC-Coupling Capacitor 4in-2out Video Driver with Isolation Amplifier. It can remove common mode noise because internal Isolation amplifier. It can reduce (47uF) usual output capacitor by NJRC original “ASC(Advanced SAG Correction)”, and contributes to space saving.

NJW1342 is the best for the switch of the video signal of car AV.

■PACKAGE OUTLINE

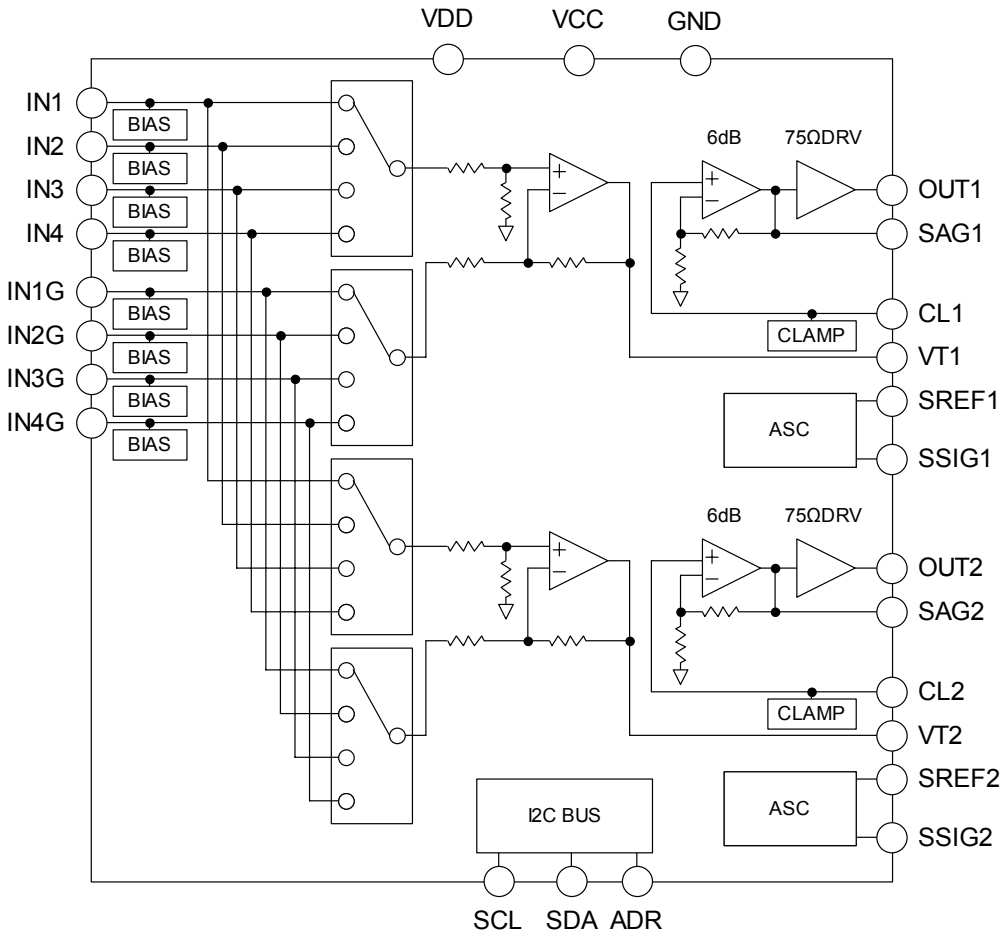


NJW1342V

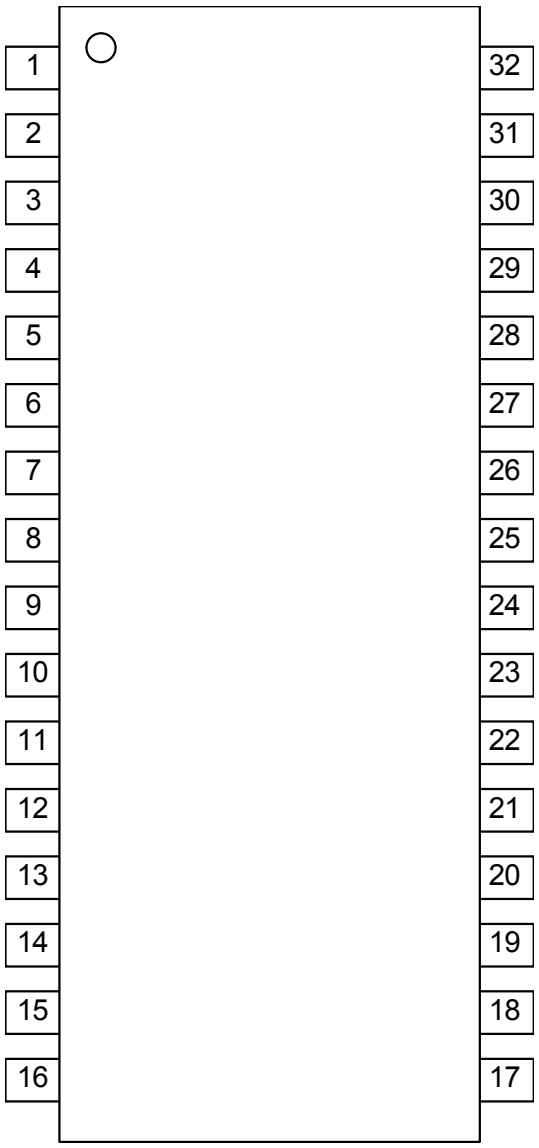
■FEATURES

- Operating Voltage 3.0 to 6.0V
- Small output coupling capacitor 47μF
- Internal Isolation Amplifier
- 4-inputi 2-outout selector
- Internal 6dB Amplifier, 75ohm Driver
- I2C Bus Interface
- Bi-CMOS Technology
- Package Outline SSOP32

■BLOCK DIAGRAM



■PIN CONFIGRATION



1. VCC	17. SDA
2. IN1	18. SCL
3. IN1G	19. SREF2
4. GND	20. SSIG2
5. IN2	21. SAG2
6. IN2G	22. OUT2
7. NC	23. CL2
8. IN3	24. VT2
9. IN3G	25. VCC
10. VCC	26. GND
11. IN4	27. VT1
12. IN4G	28. CL1
13. NC	29. OUT1
14. VDD	30. SAG1
15. ADR	31. SSIG1
16. GND	32. SREF1

■**ABSOLUTE MAXIMUM RATINGS** (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	7.0	V
Power Dissipation	P_D	1100(note1)	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +150	°C

(Note1) At on a board of EIA/JEDEC specification. (114.3 x 76.2 x 1.6mm Two layers, FR-4)

■**RECCOMENDED OPERATING CONDITIONS** (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating voltage	Vopr		3.0	-	5.5	V

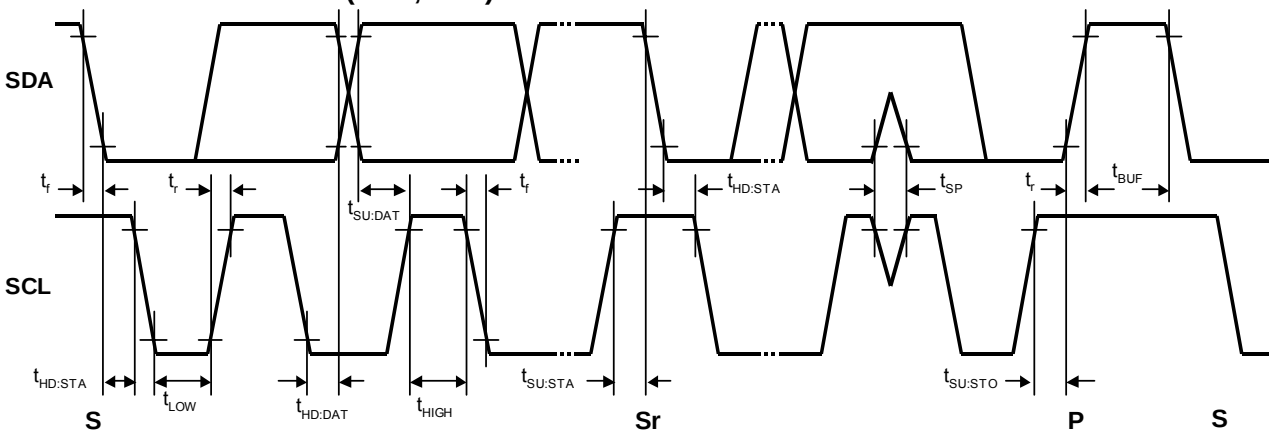
■**ELECTRICAL CHRACTERISTCS**(VCC,VDD=5V, RL=150ohm,Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	Icc1	No signal	-	60	100	mA
Supply Current	Icc2	OUT1:autive, OUT2:power save	-	30	60	mA
Supply Current	Icc3	OUT1:power save, OUT2:active	-	30	60	mA
Supply Current	Icc4	VDD	-	0.5	1	mA
Supply Current at Power Save Mode	Isave	Power save mode	-	2	4	mA
Maximum Output Level	Vom	Vin=100kHz,sin-signal,THD=1%,	2.0	2.2	-	Vp-p
Voltage Gain	Gv	Vin=1MHz,1.0Vp-p sin-signal	5.5	6.0	6.5	dB
Frequency Characteristic	Gf	Vin=10MHz / 1MHz ,1.0Vpp sin-signal	-1.0	0	1.0	dB
Common Mode Noise Ratio	CMR	Vin=20KHz,Vin=1Vpp	-	-55	-	dB
Cross-talk	CT-1	Vin=4.43MHz, 1.0Vp-p sin-signal	-	-60	-	dB
Differential Gain	DG	Vin=1.0Vp-p 10step video-signal	-	0.5	-	%
Differential Phase	DP	Vin=1.0Vp-p 10step video-signal	-	0.5	-	deg

■**PORT**

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
ADR Input Voltage High Level	V_{ADRH}		2.2		Vcc	
ADR Input Voltage Low Level	V_{ADRL}		0	-	1.0	V

■TIMING on the I²C BUS (SDA, SCL)



■CHARACTERISTICS OF BUS LINES (SDA, SCL) FOR I²C BUS DEVICES

I²C BUS Load Conditions
STANDARD MODE : Pull up resistance 4k□ (Connected to +3.3V), Load capacitance 200pF (Connected to GND)
FAST MODE : Pull up resistance 4k□ (Connected to +3.3V), Load capacitance 50pF (Connected to GND)

PARAMETER	SYMBOL	Standard mode			Fast mode			UNIT
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Low Level Input Voltage	V_{IL}	0.0	-	1.2	0.0	-	1.2	V
High Level Input Voltage	V_{IH}	2.4	-	5.0	2.4	-	5.0	V
Hysteresis of Schmitt Trigger Inputs	V_{hys}	-	-	-	0.25	-	-	V
Low level Output Voltage (3mA at SDA pin)	V_{OL}	0	-	0.4	0	-	0.4	V
Output Fall Time From V_{IHmin} to V_{ILmax} with a Bus Capacitance from 10pF to 400pF	t_{of}	-	-	250	$20 +0.1C_b$	-	250	ns
Pulse width of spikes which must be suppressed by the input filter	t_{SP}	-	-	-	0	-	50	ns
Input Current each I/O pin with an Input Voltage between 0.1 and $0.9V_{DDmax}$	I_i	-10	-	10	-10	-	10	μA
Capacitance for each I/O pin	C_i	-	-	10	-	-	10	pF
SCL Clock Frequency	f_{SCL}	-	-	100	-	-	400	kHz
Data Transfer Start Minimum Waiting Time	$t_{HD:STA}$	4.0	-	-	0.6	-	-	μs
Low Level Clock Pulse Width	t_{LOW}	4.7	-	-	1.3	-	-	μs
High Level Clock Pulse Width	t_{HIGH}	4.0	-	-	0.6	-	-	μs
Minimum Start Preparation Waiting Time	$t_{SU:STA}$	4.7	-	-	0.6	-	-	μs
Minimum Data Hold Time NOTE)	$t_{HD:DAT}$	0.0	-	-	0.0	-	-	μs
Minimum Data Preparation Time	$t_{SU:DAT}$	250	-	-	100	-	-	ns
Rise Time	t_r	-	-	1000	-	-	300	ns
Fall Time	t_f	-	-	300	-	-	300	ns
Minimum Stop Preparation Waiting Time	$t_{SU:STO}$	4.0	-	-	0.6	-	-	μs
Data Change Minimum Waiting Time	t_{BUF}	4.7	-	-	1.3	-	-	μs
Capacitive load for each bus line	C_b	-	-	400	-	-	400	pF
Noise Margin at the Low Level	V_{nL}	0.5	-	-	0.5	-	-	V
Noise Margin at the High Level	V_{nH}	1	-	-	1	-	-	V

C_b ; total capacitance of one bus line in pF.

NOTE). Please hold the Data Hold Time ($t_{HD:DAT}$) to 300ns or more to avoid status of unstable at SCL falling edge.

■ DEFINITION OF I²C REGISTER

♦I²C BUS FORMAT

MSB		LSB	MSB		LSB	
S	Slave Address	A	Data		A	P
1bit	8bit	1bit	8bit		1bit	1bit

S: Starting Term
A: Acknowledge Bit
P: Ending Term

♦SLAVE ADDRESS

MSB							LSB
0	0	1	0	0	0	ADR	0

R/W=0: Receive Only
R/W=1: Data is not transmitted.
ADR : Set the Slave Address by “ADR” terminal.

♦CONTROL REGISTER DEFAULT VALUE

Control register default values are as follows :

	BIT							
	D7	D6	D5	D4	D3	D2	D1	D0
Data	0	0	0	0	0	0	0	0

♦INSTRUCTION CODE

	BIT							
	D7	D6	D5	D4	D3	D2	D1	D0
Data	OUT1 MUTE	OUT1 Select		NOT USE:0	OUT2 MUTE	OUT2 Select		NOT USE:0

♦MUTE TABLE

MUTE D7	OUT1
0	MUTE OFF
1	MUTE ON

MUTE D3	OUT2
0	MUTE OFF
1	MUTE ON

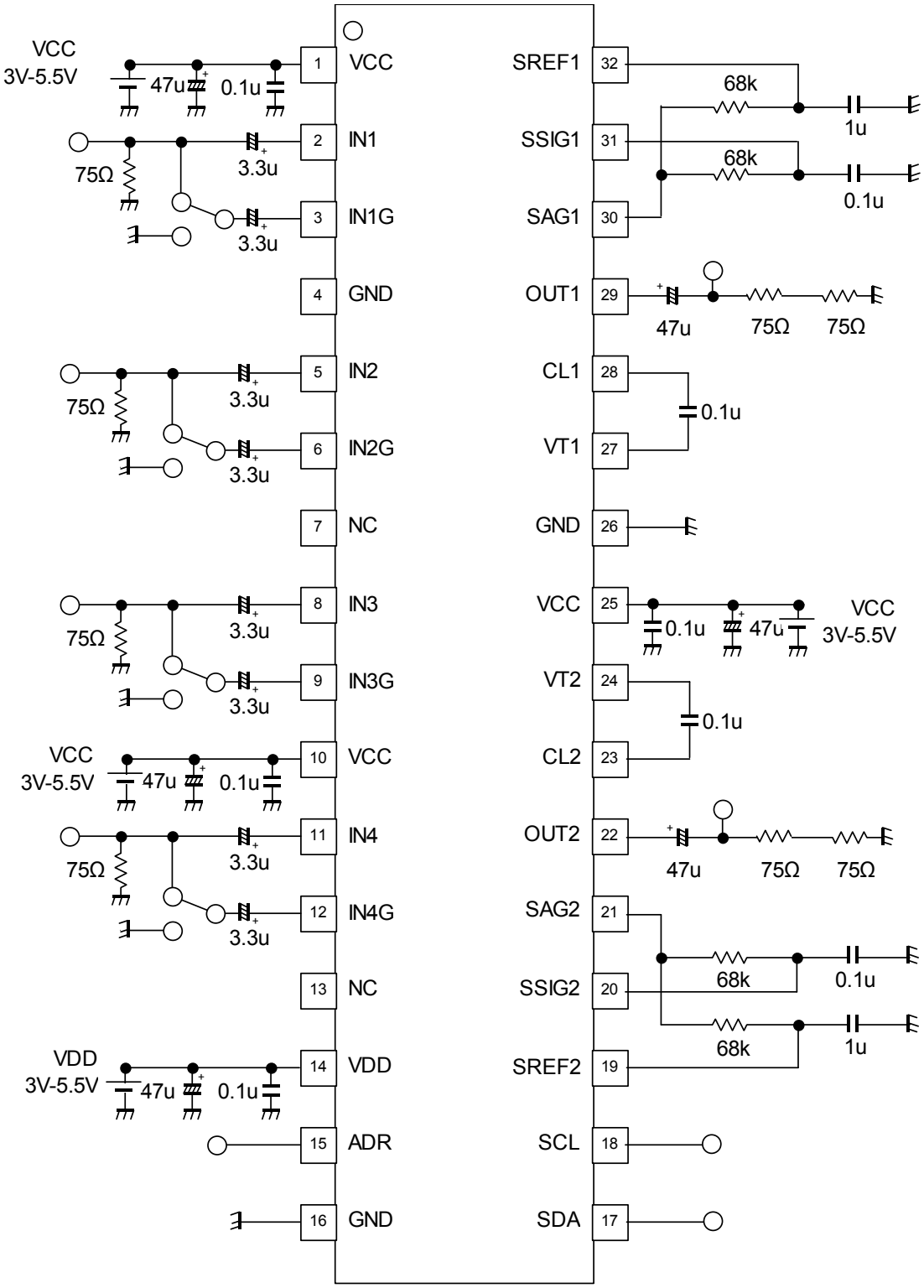
MUTE OFF: Active mode
MUTE ON: Power save mode

♦**VOUT SELECT TABLE**

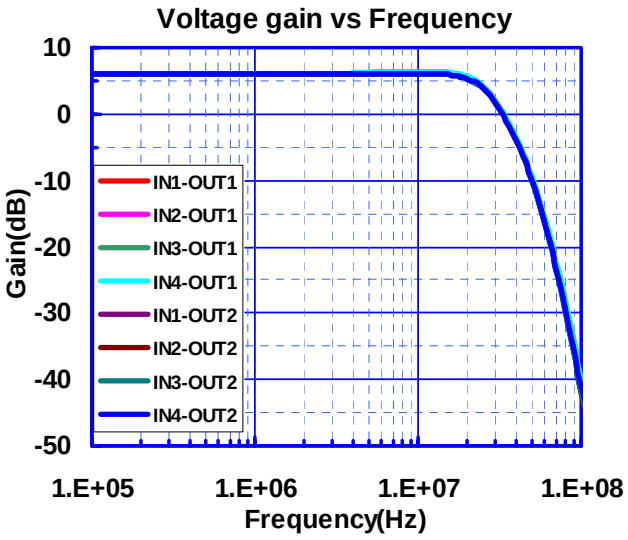
OUT1 Select			OUT1
D6	D5	D4	
0	0	0	VIN1
0	1	0	VIN2
1	0	0	VIN3
1	1	0	VIN4

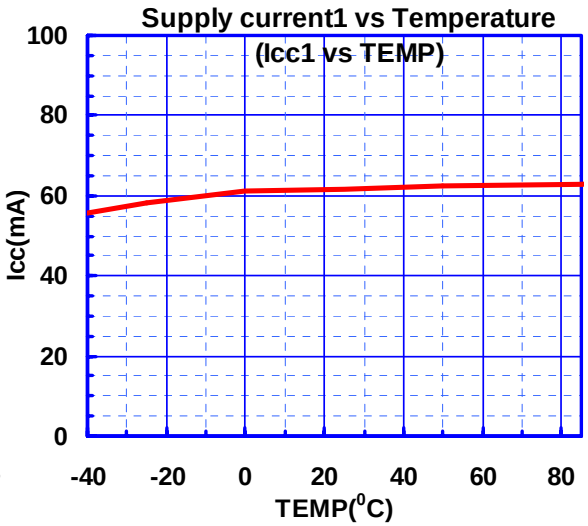
OUT2Select			OUT2
D2	D1	D0	
0	0	0	VIN1
0	1	0	VIN2
1	0	0	VIN3
1	1	0	VIN4

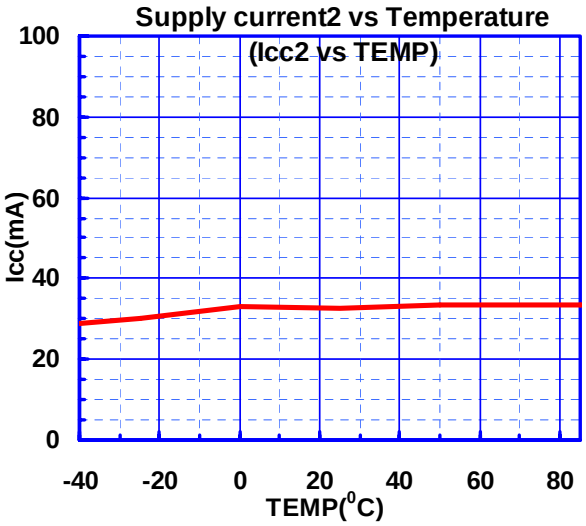
■ TEST CIRCUIT

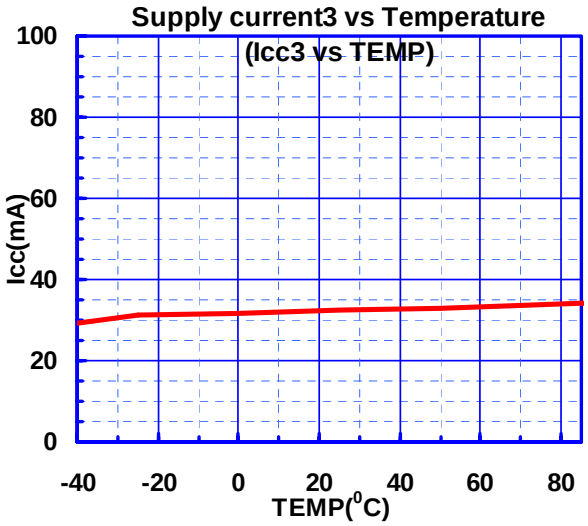


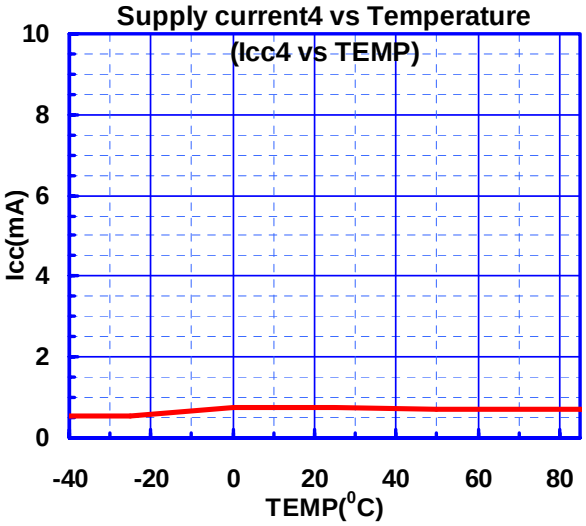
■TYPICAL CHARACTERISTICS

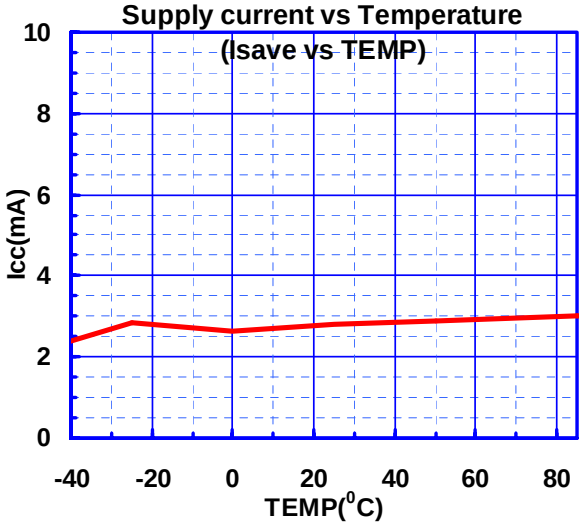






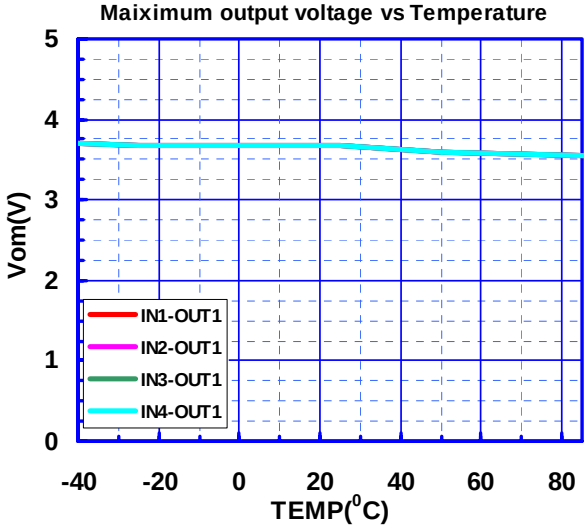




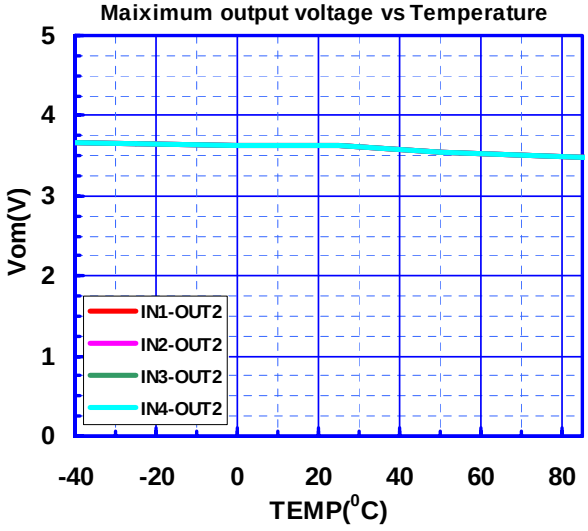


■TYPICAL CHARACTERISTICS

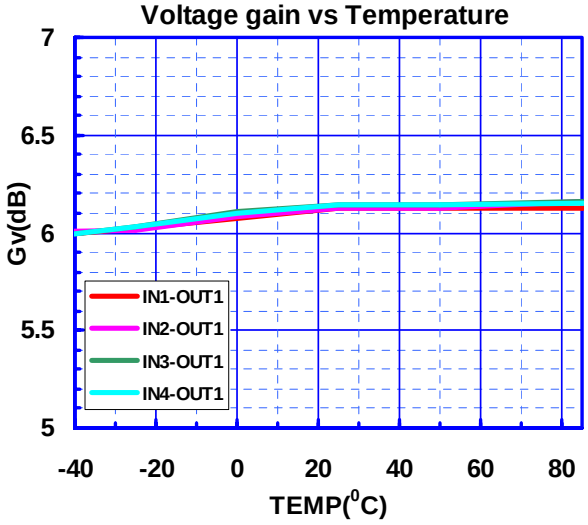
Maiximum output voltage vs Temperature



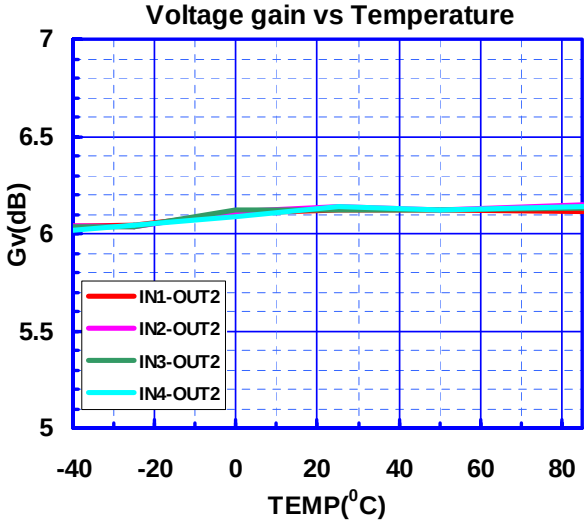
Maiximum output voltage vs Temperature



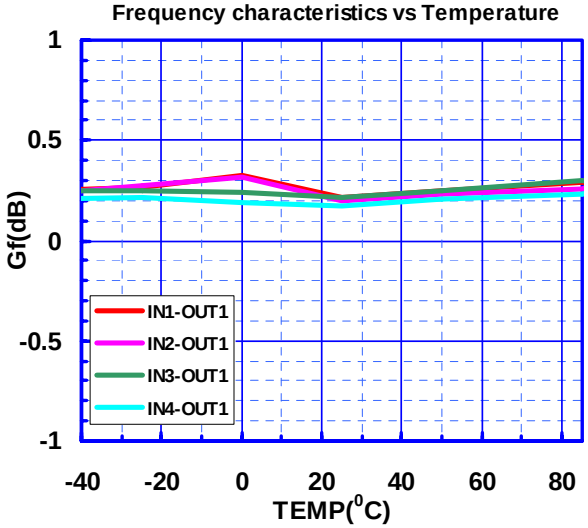
Voltage gain vs Temperature



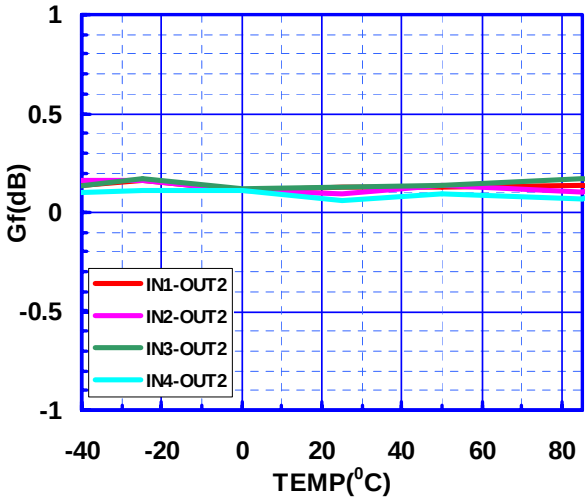
Voltage gain vs Temperature



Frequency characteristics vs Temperature



Frequency characteristics vs Temperature



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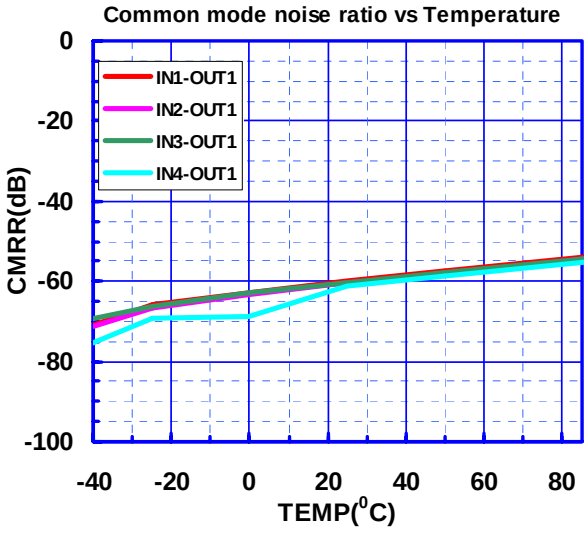

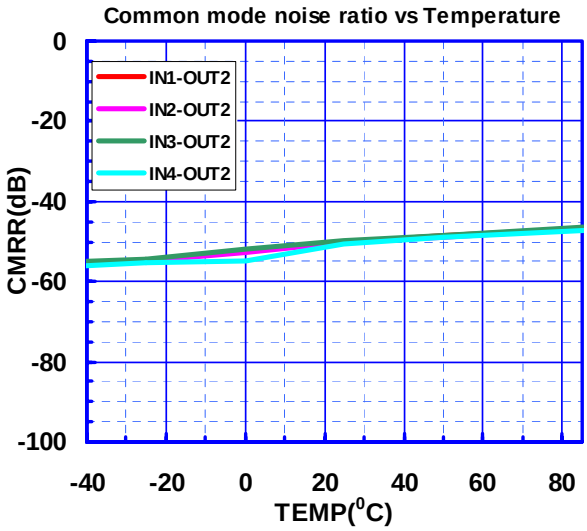

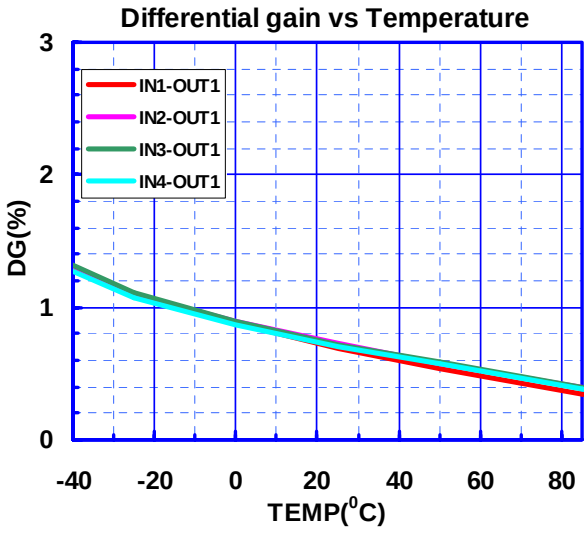

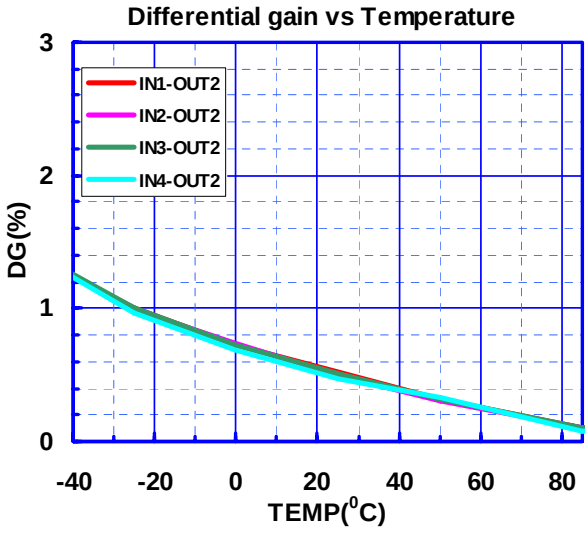

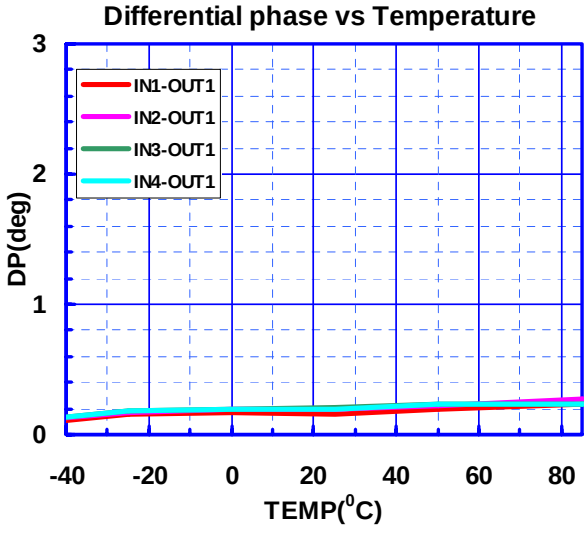

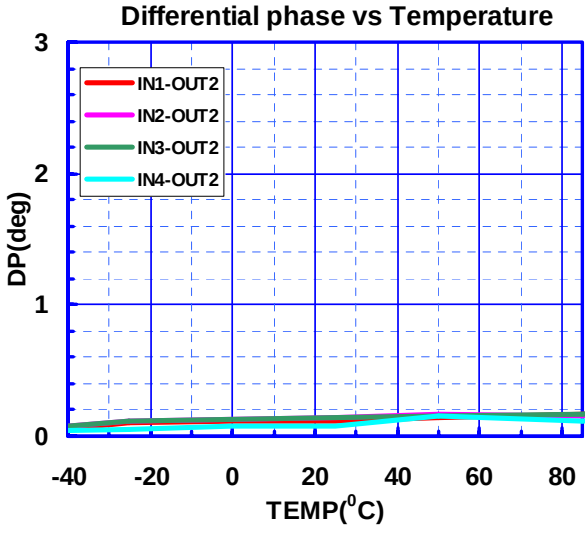

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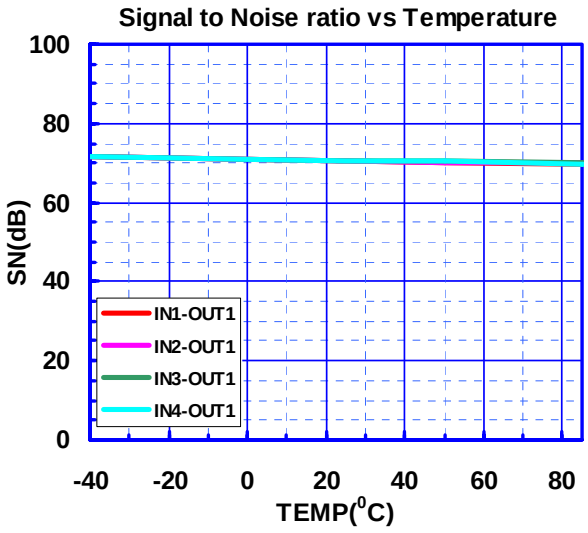

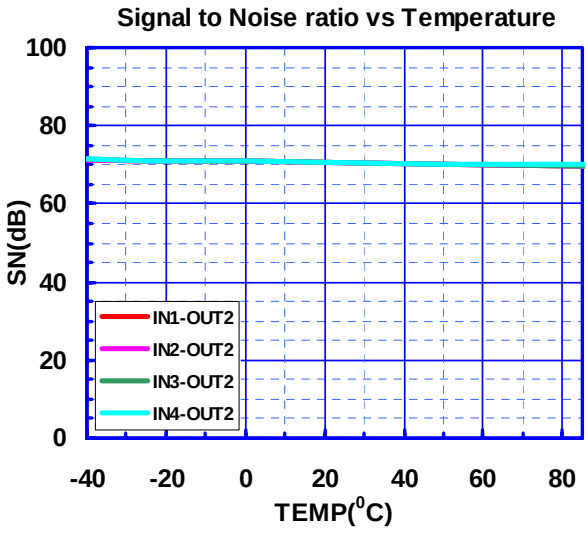

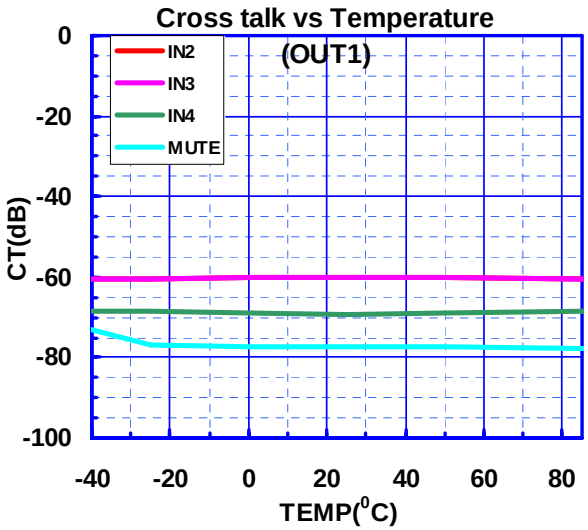

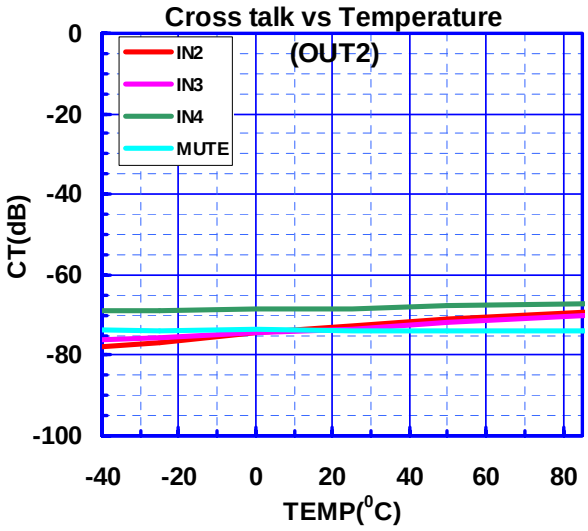

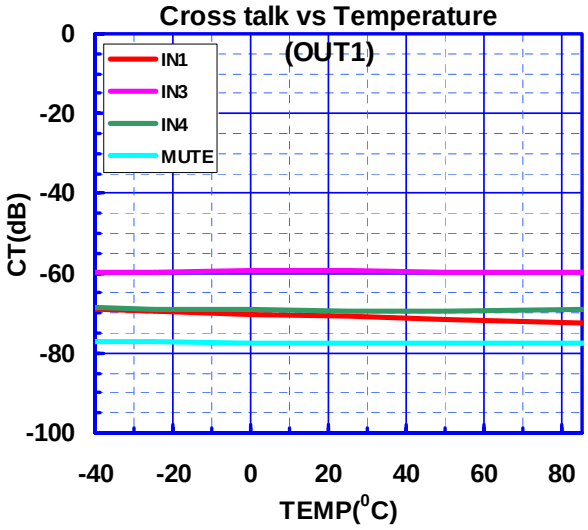

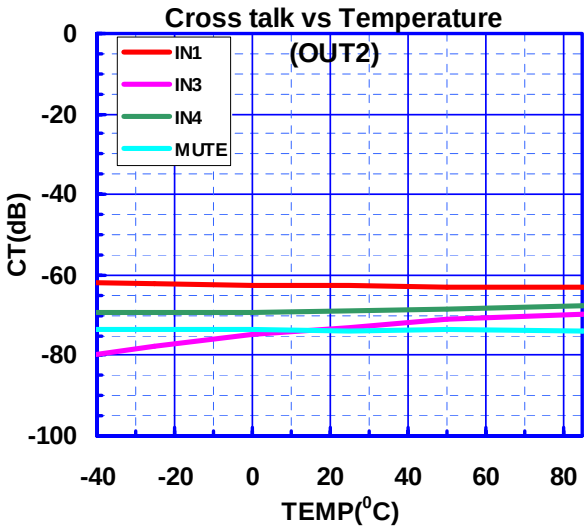

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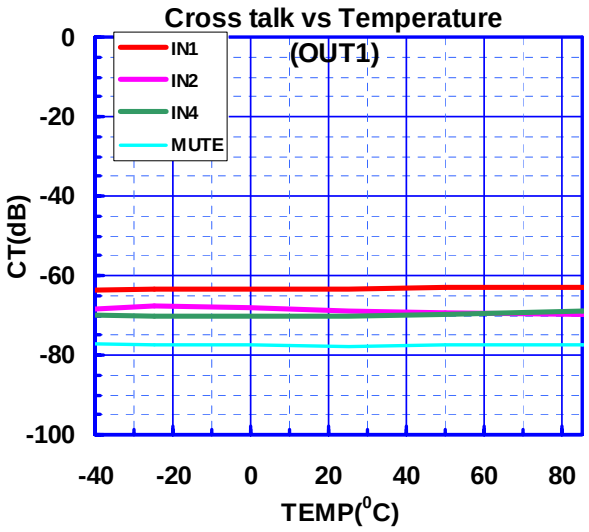

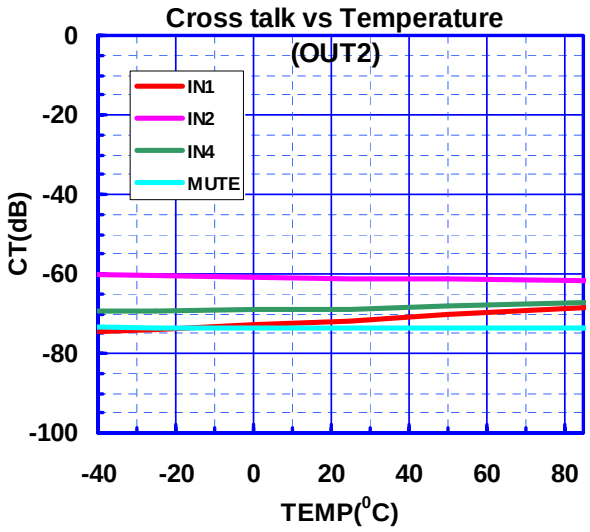

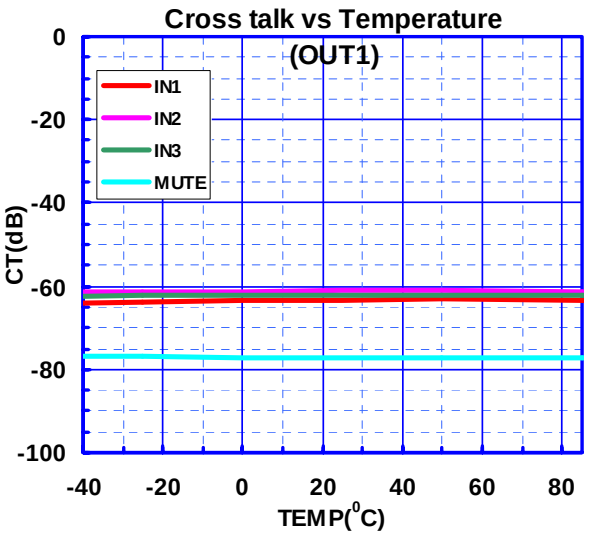

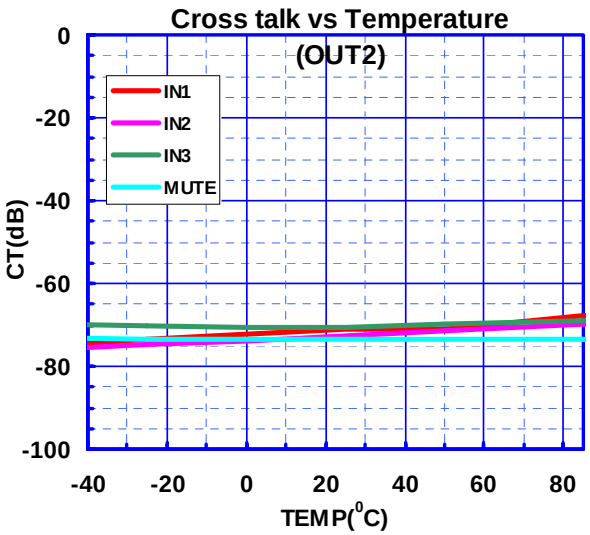

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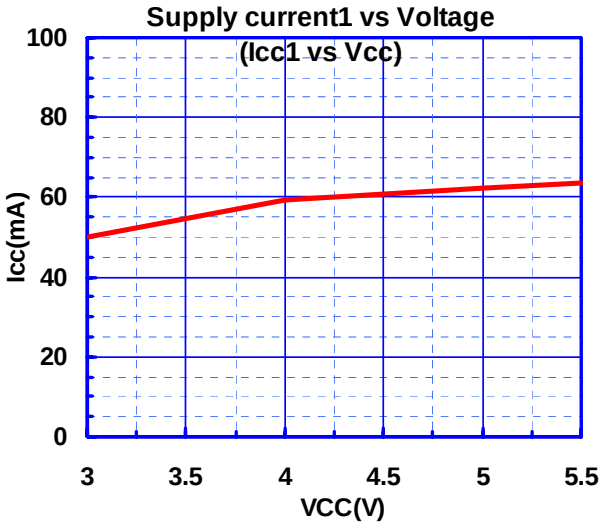
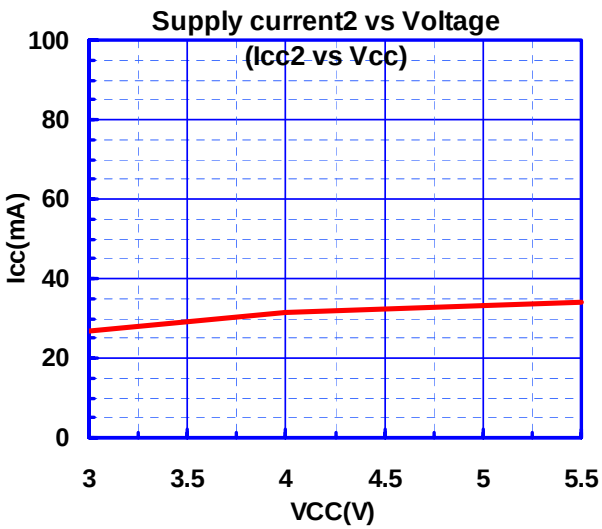
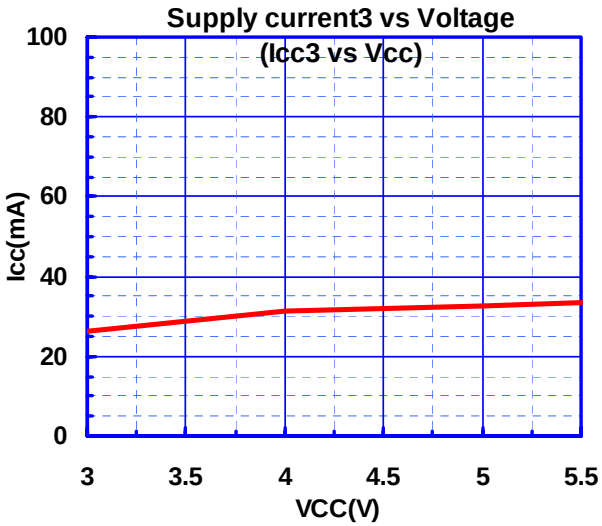
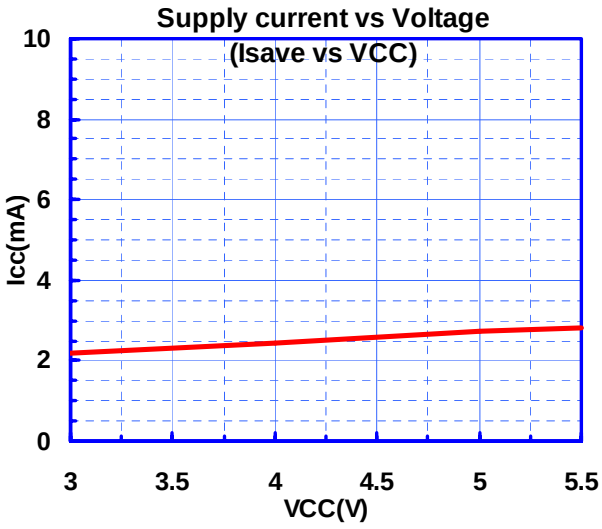
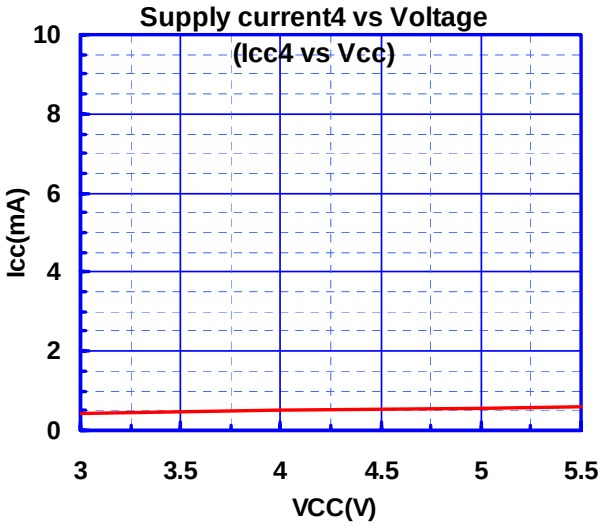


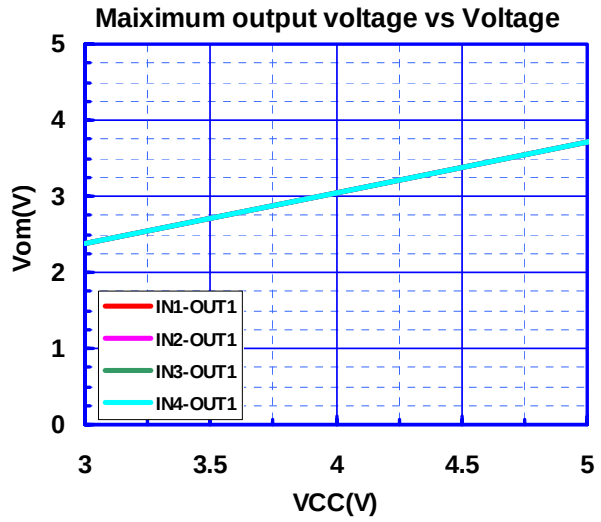


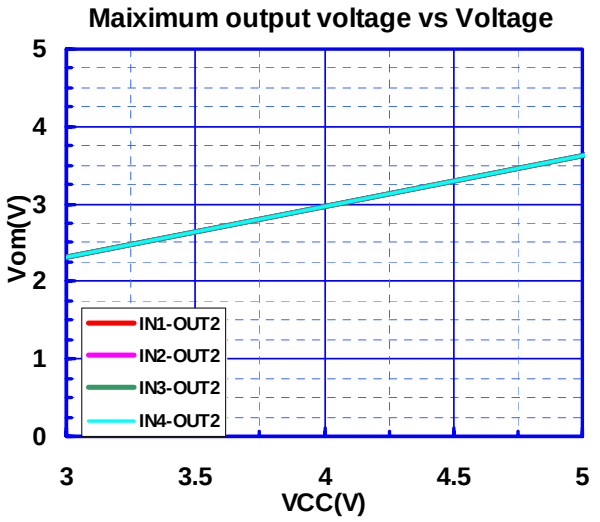


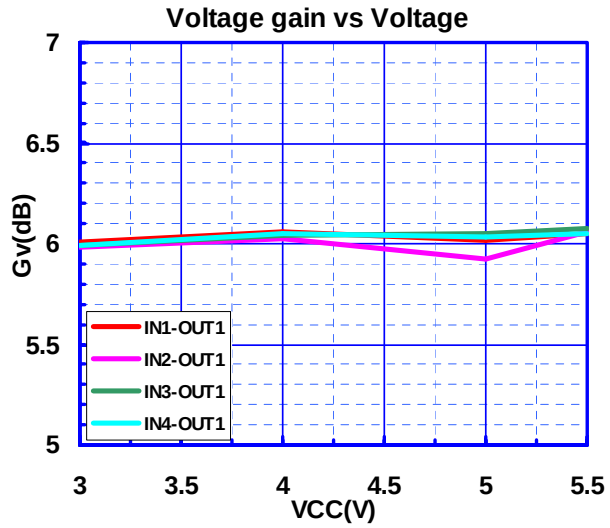


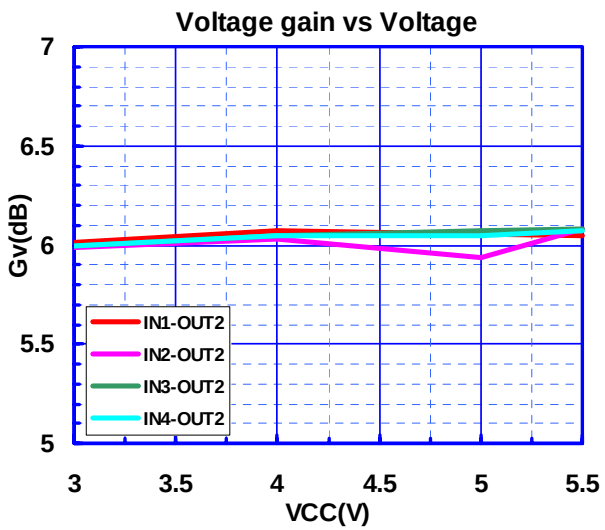


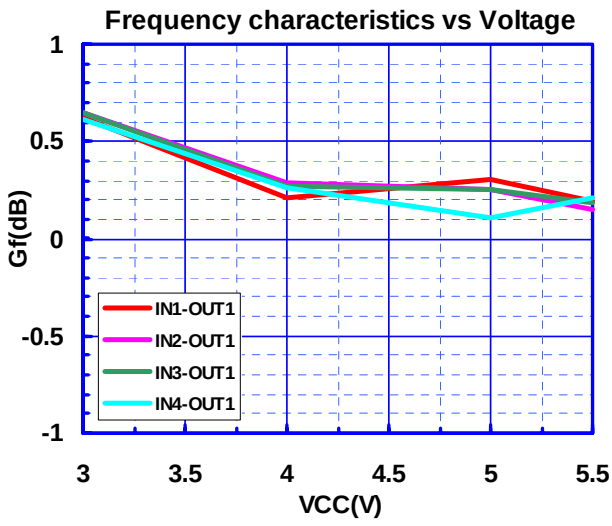
■TYPICAL CHARACTERISTICS

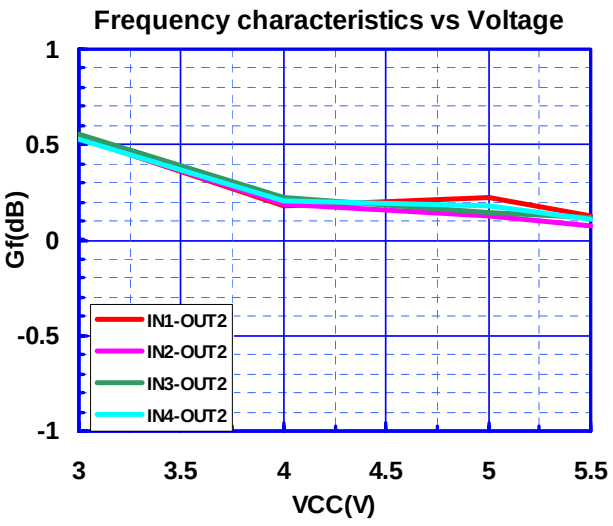




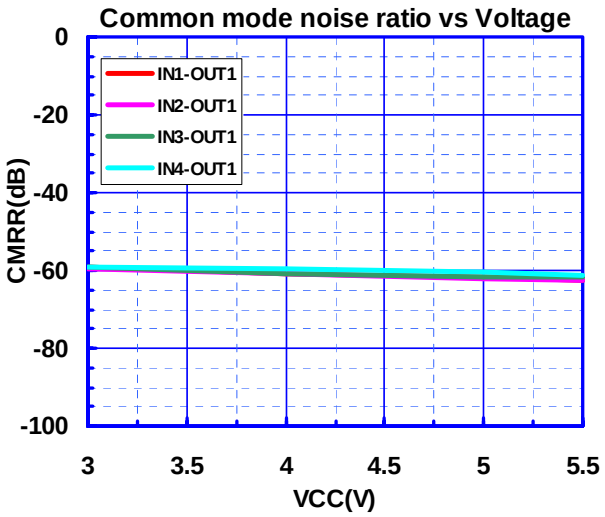


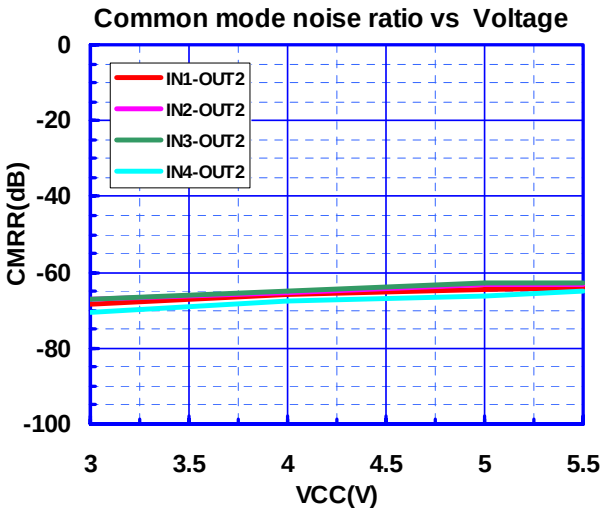


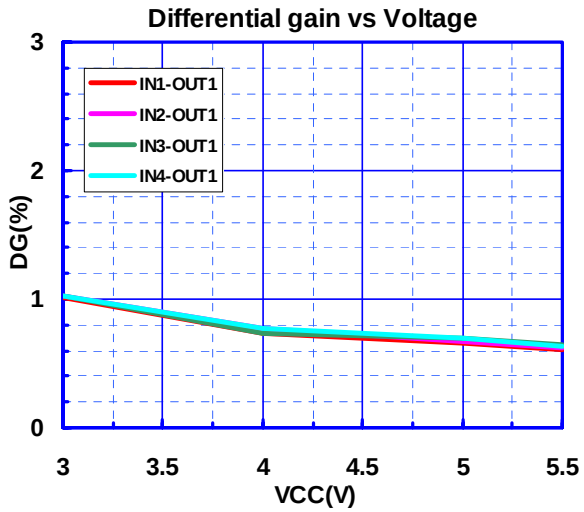


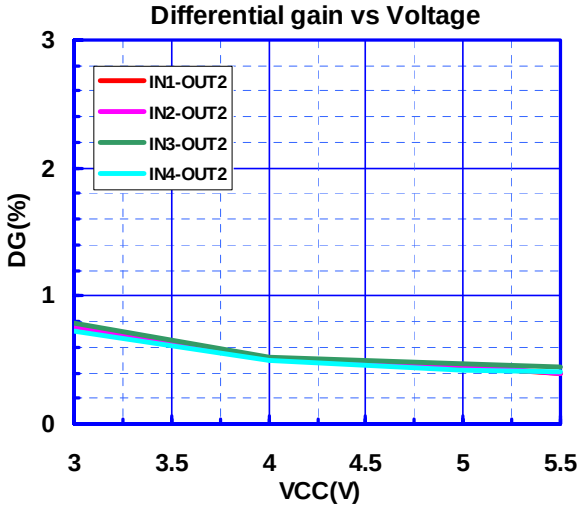


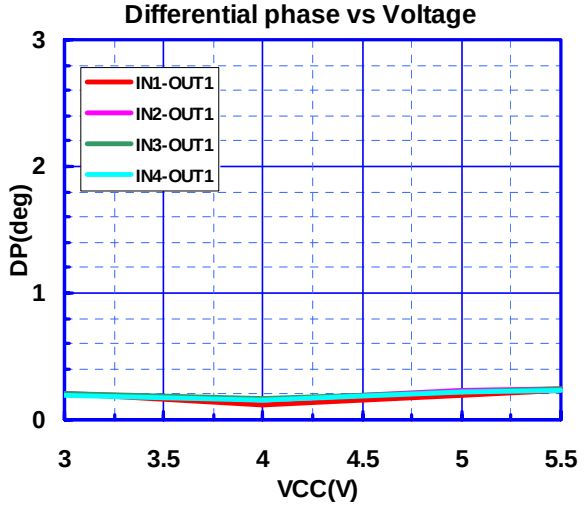
■TYPICAL CHARACTERISTICS

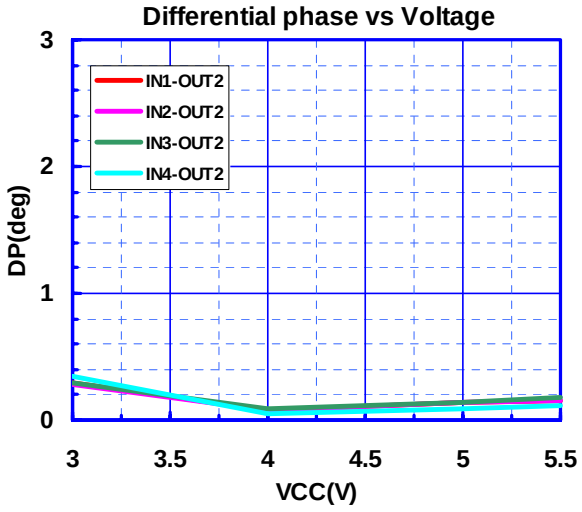












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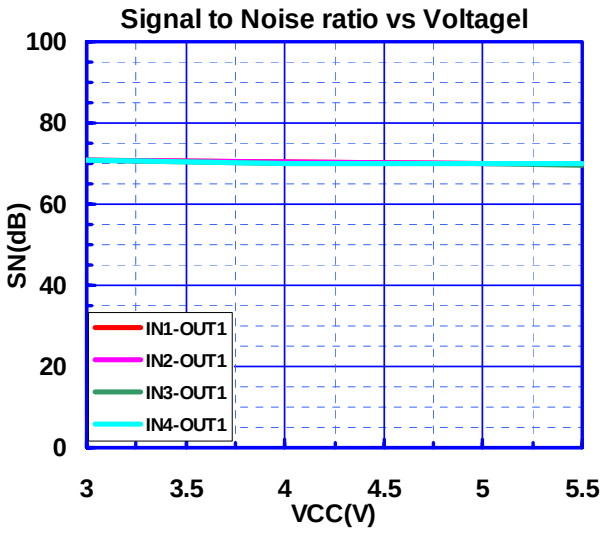

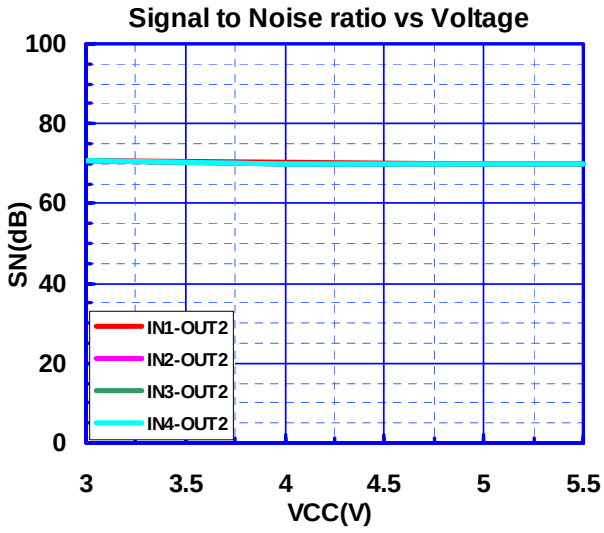

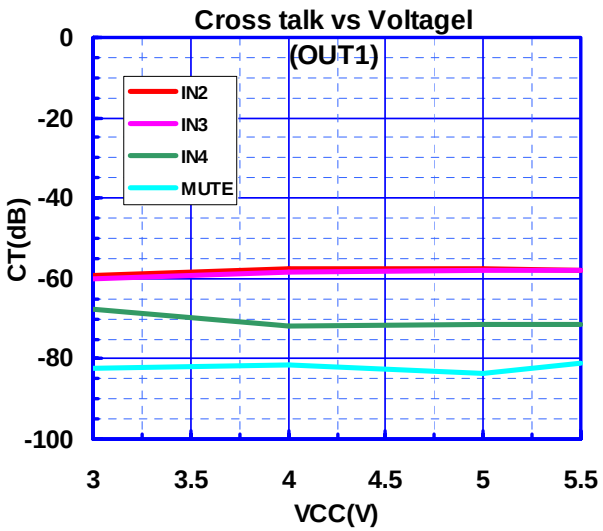

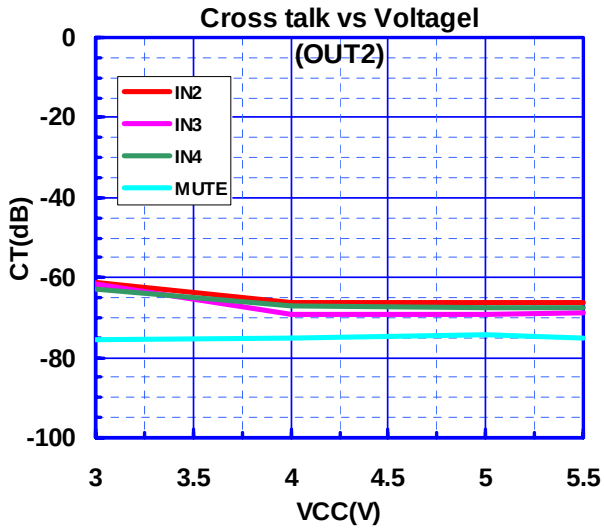

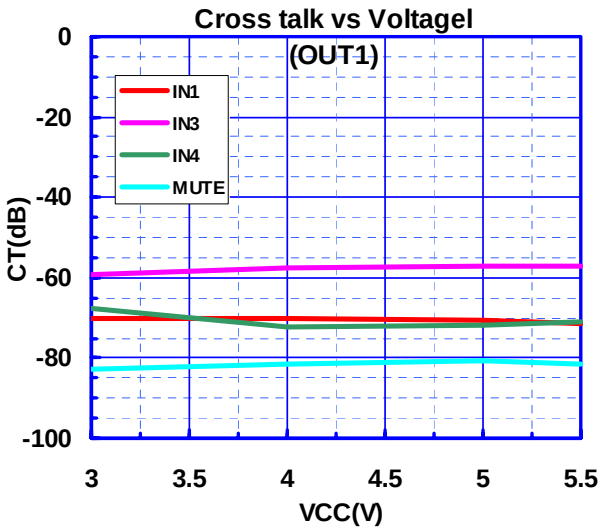

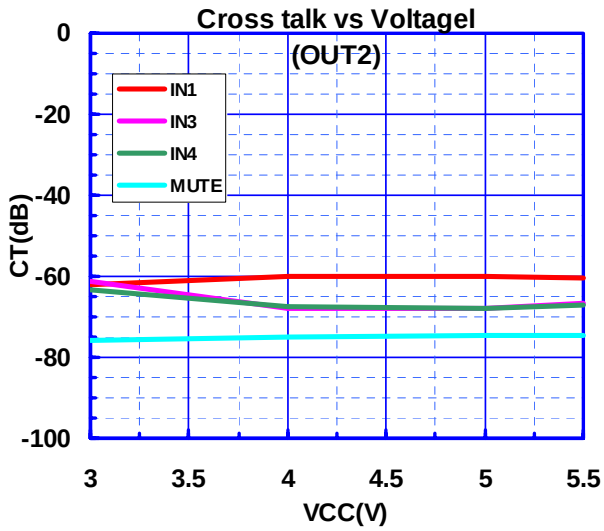

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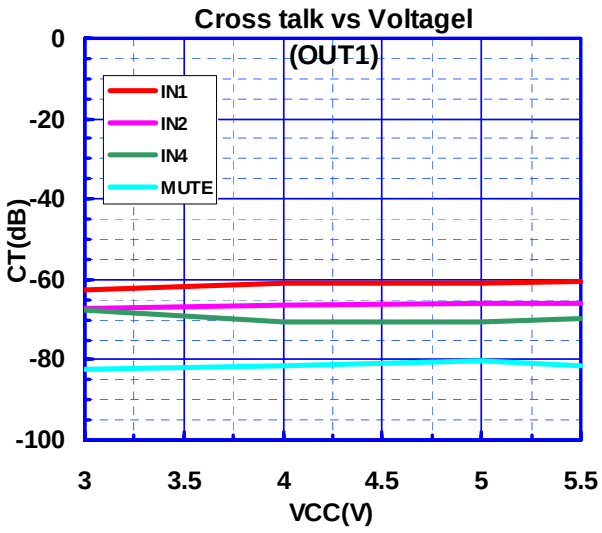

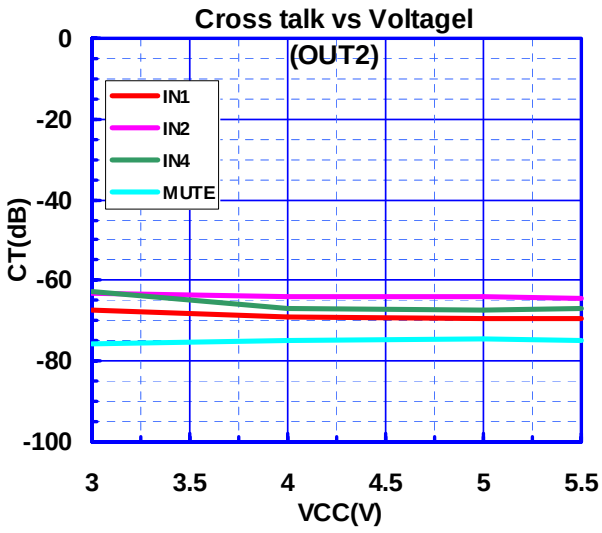

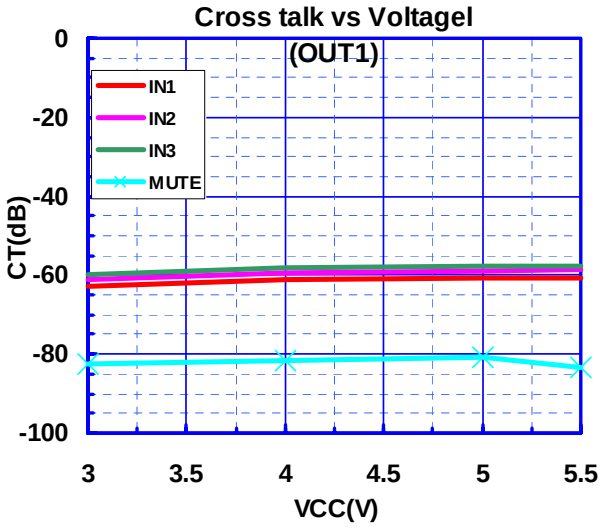

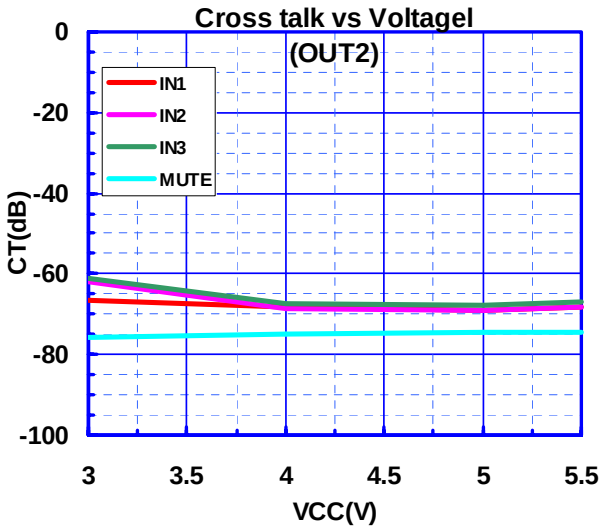

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