

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

■GENERAL DESCRIPTION

NJW1342 is 47 μ F AC-Coupling Capacitor 4in-2out Video Driver with Isolation Amplifier. It can remove common mode noise because internal Isolation amplifier. It can reduce (47 μ F) 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

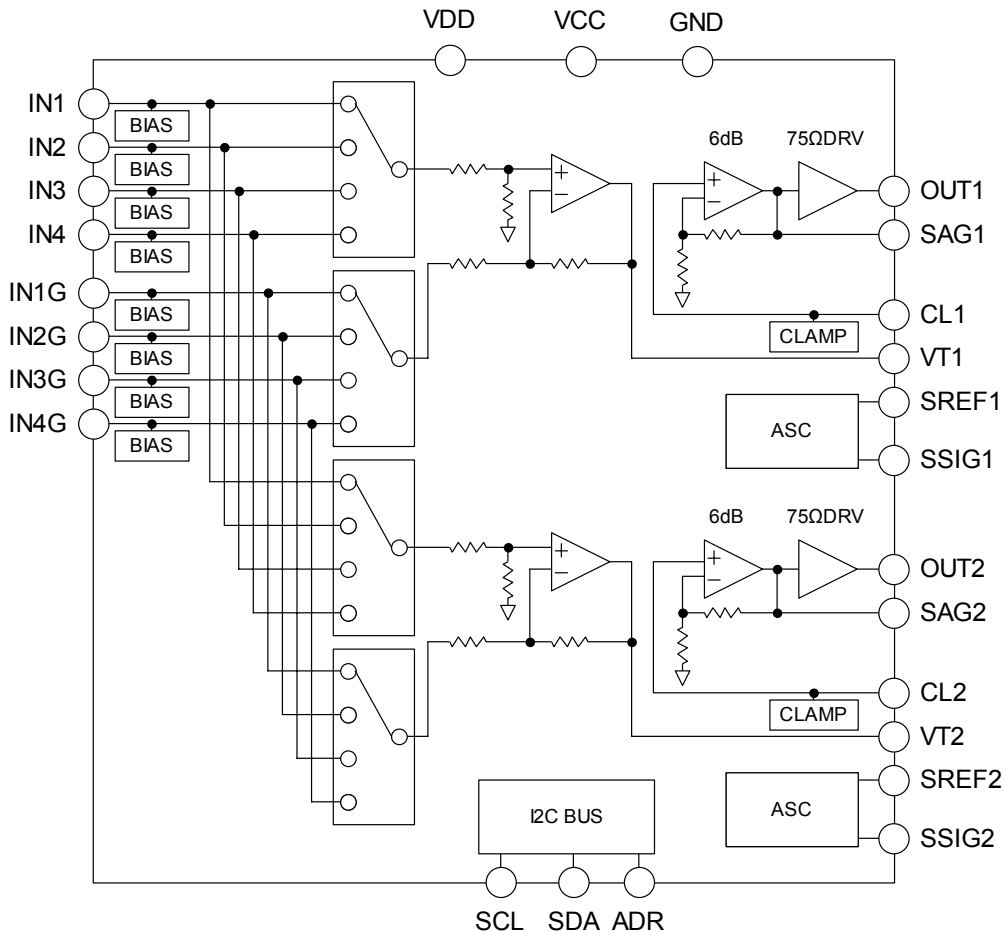


NJW1342V

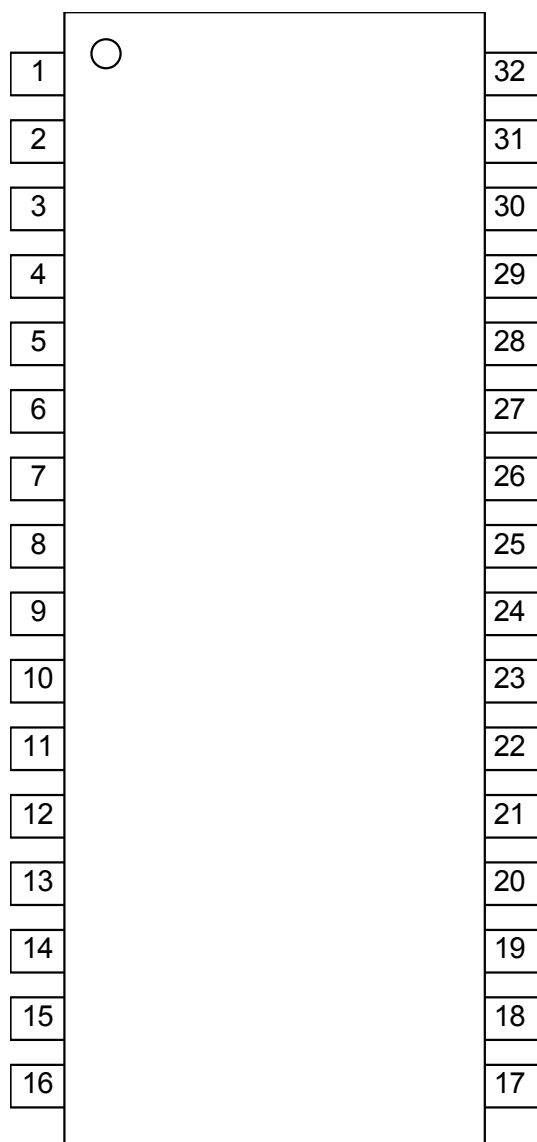
■FEATURES

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

■BLOCK DIAGRAM



■PIN CONFIGURATION



- | | |
|----------|-----------|
| 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

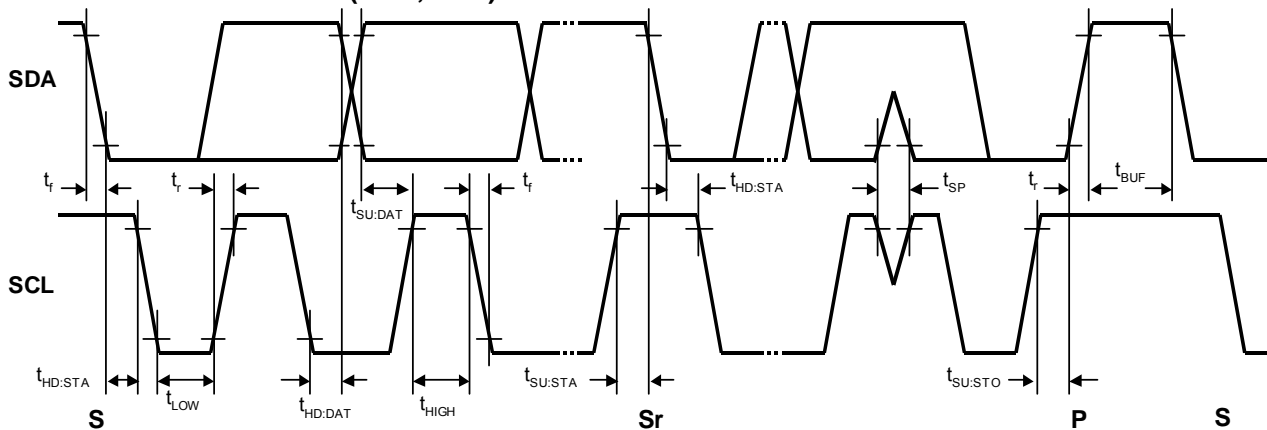
■ELECTRICAL CHARACTERISTICS (VCC,VDD=5V, RL=150ohm, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	Icc1	No signal	-	60	100	mA
Supply Current	Icc2	OUT1:active, 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 Ω (Connected to +3.3V), Load capacitance 200pF (Connected to GND)

FAST MODE : Pull up resistance 4k Ω (Connected to +3.3V), Load capacitance 50pF (Connected to GND)

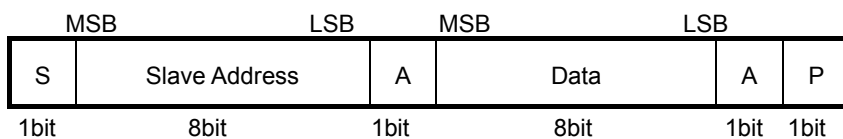
PARAMETER	SYM BOL	Standard mode			Fast mode			UNI T
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Low Level Input Voltage	V _{IL}	0.0	-	1.2	0.0	-	1.2	V
High Level Input Voltage	V _{IH}	2.4	-	5.0	2.4	-	5.0	V
Hysteresis of Schmitt Trigger Inputs	V _{hys}	-	-	-	0.25	-	-	V
Low level Output Voltage (3mA at SDA pin)	V _{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	μ A
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	-	-	μ s
Low Level Clock Pulse Width	t _{LOW}	4.7	-	-	1.3	-	-	μ s
High Level Clock Pulse Width	t _{HIGH}	4.0	-	-	0.6	-	-	μ s
Minimum Start Preparation Waiting Time	t _{SU:STA}	4.7	-	-	0.6	-	-	μ s
Minimum Data Hold Time ^(NOTE)	t _{HD:DAT}	0.0	-	-	0.0	-	-	μ s
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	-	-	μ s
Data Change Minimum Waiting Time	t _{BUF}	4.7	-	-	1.3	-	-	μ s
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



S: Starting Term

A: Acknowledge Bit

P: Ending Term

◆ SLAVE ADDRESS



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	OUT1
D7	
0	MUTE OFF
1	MUTE ON

MUTE	OUT2
D3	
0	MUTE OFF
1	MUTE ON

MUTE OFF: Active mode

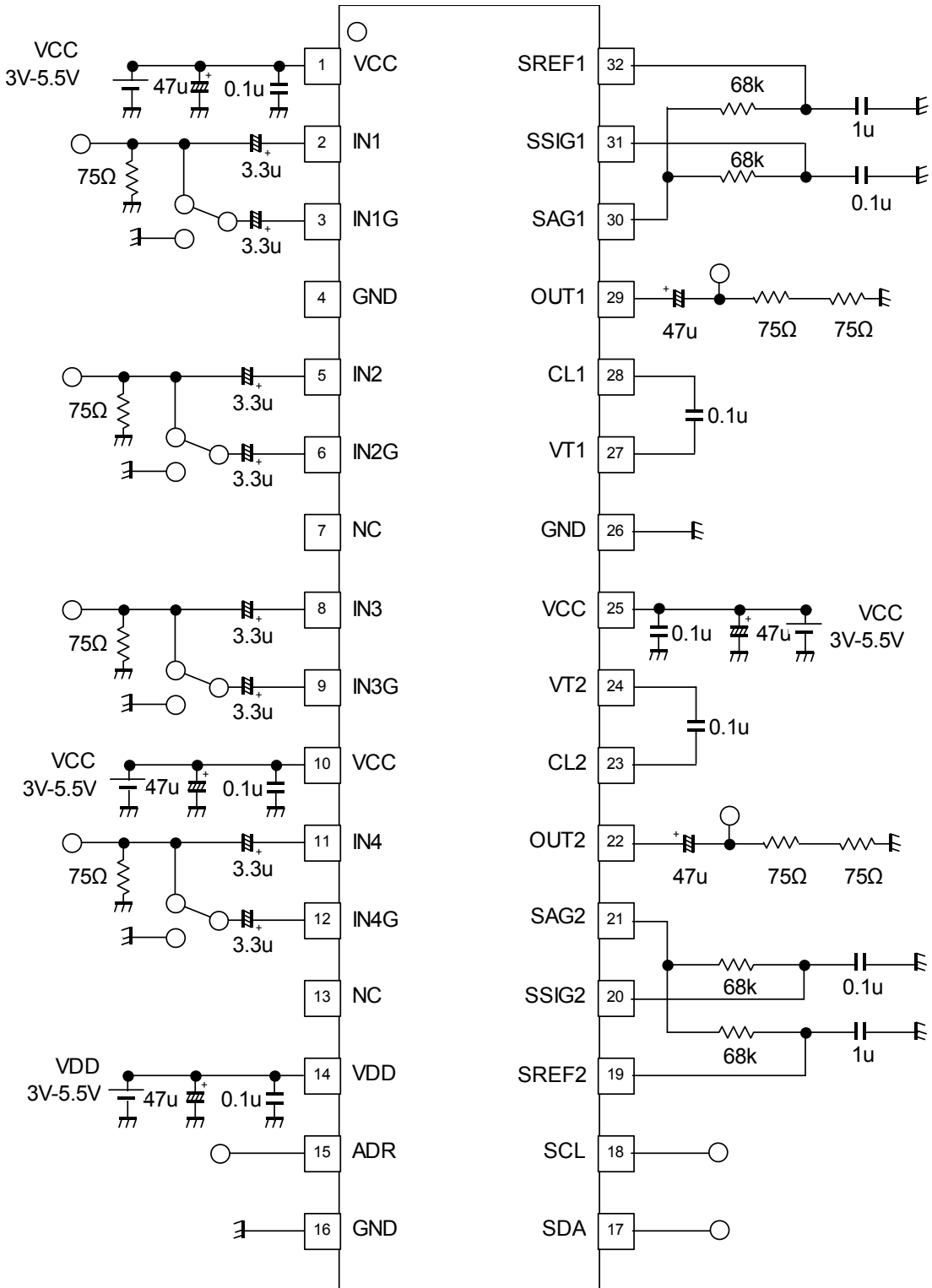
MUTE ON: Power save mode

◆VOUT SELECT TABLE

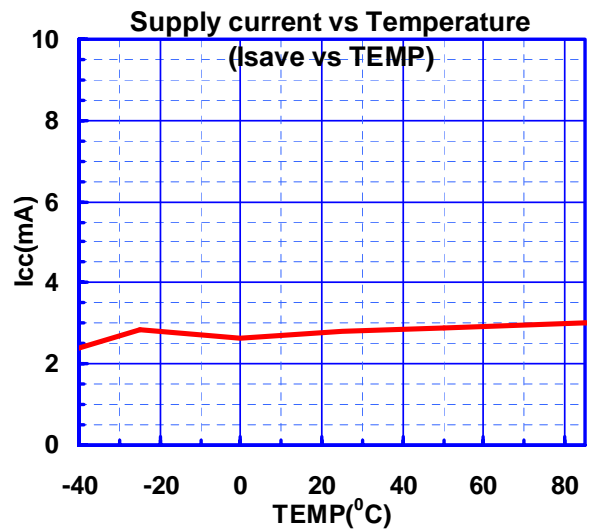
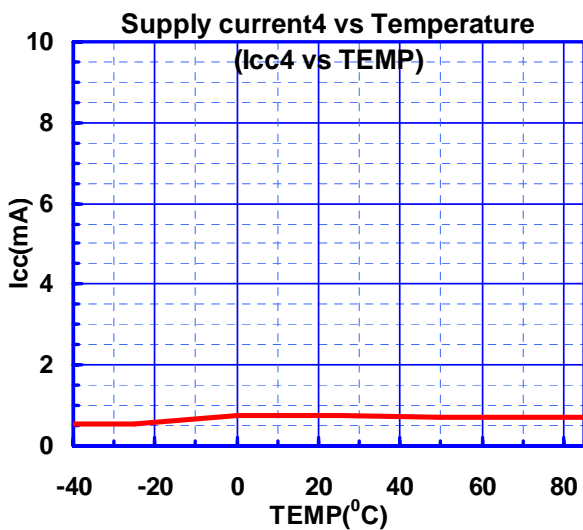
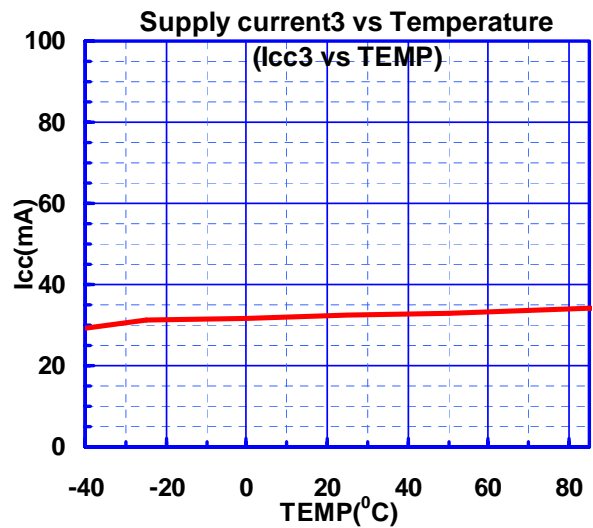
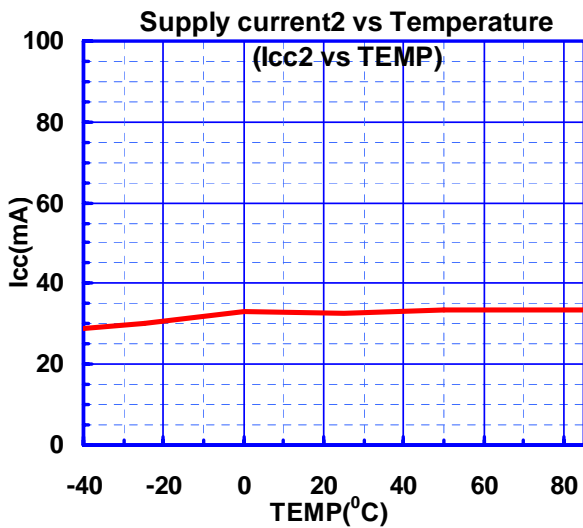
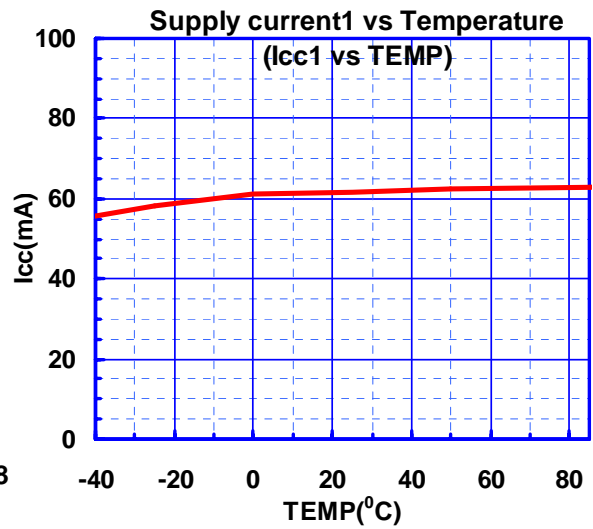
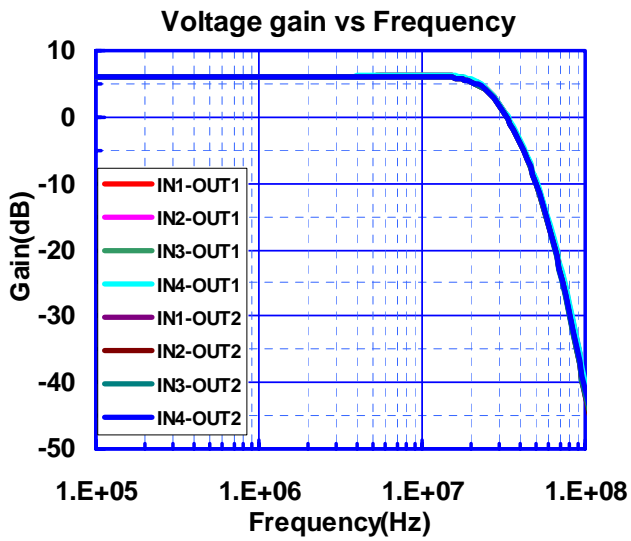
OUT1 Select			OUT1
D6	D5	D4	
0	0	0	VIN1
0	1	0	VIN2
1	0	0	VIN3
1	1	0	VIN4

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

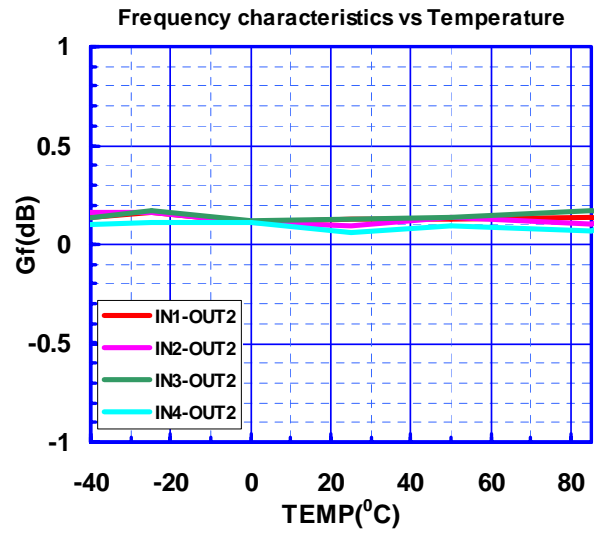
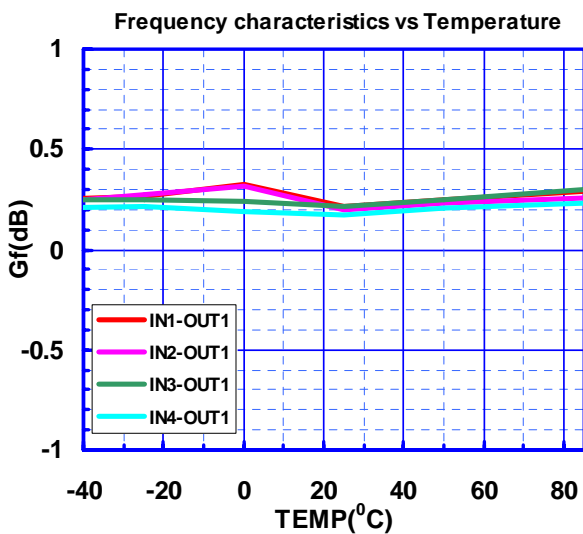
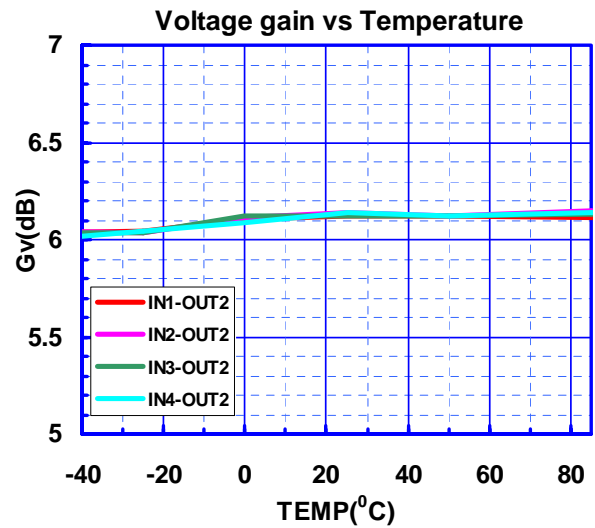
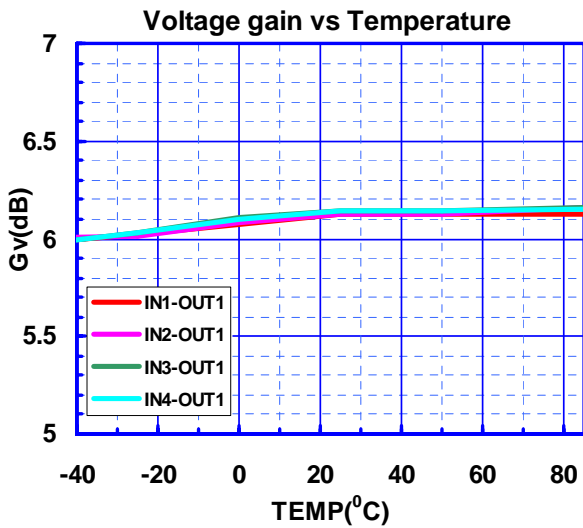
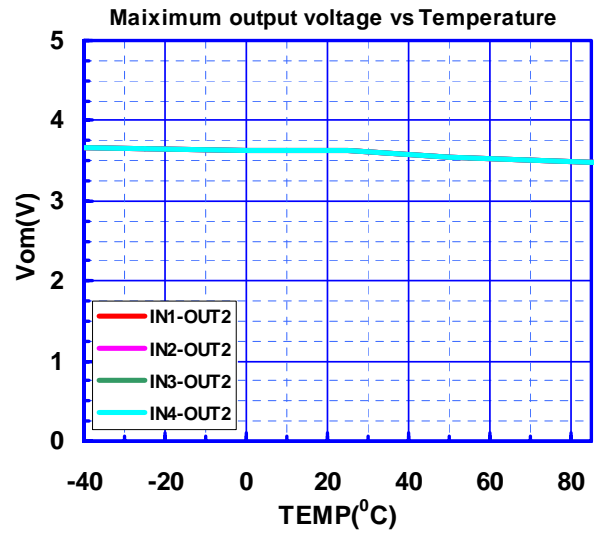
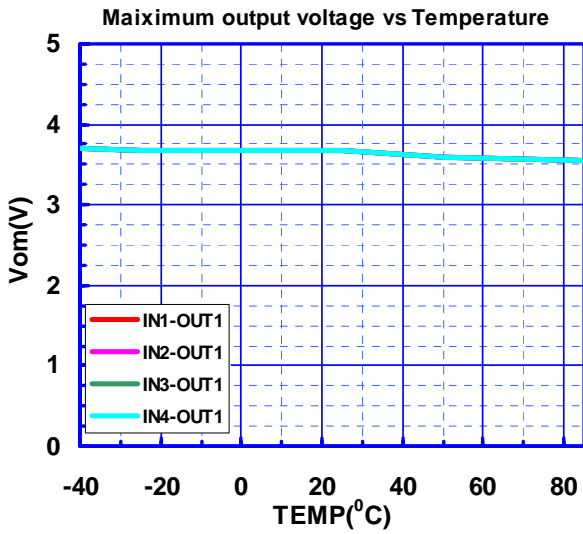
TEST CIRCUIT



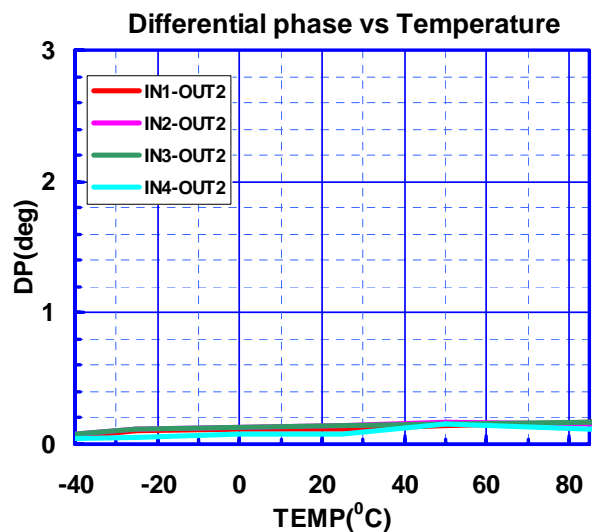
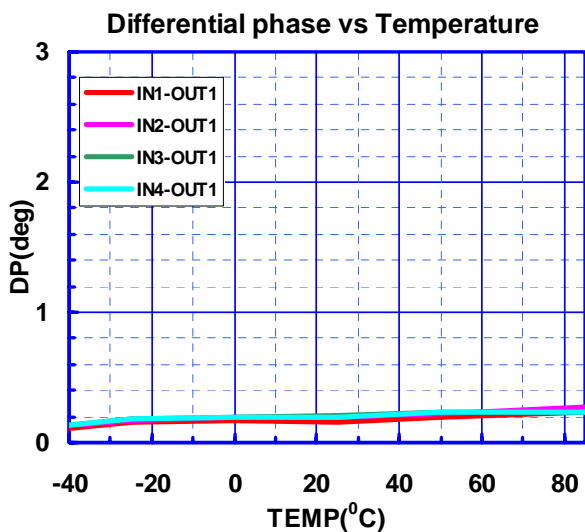
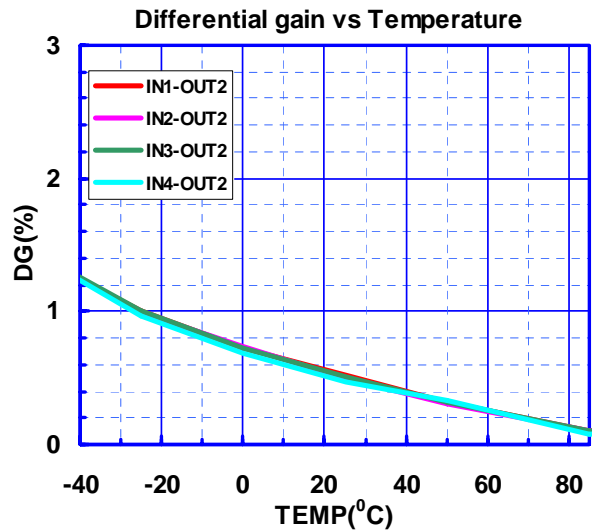
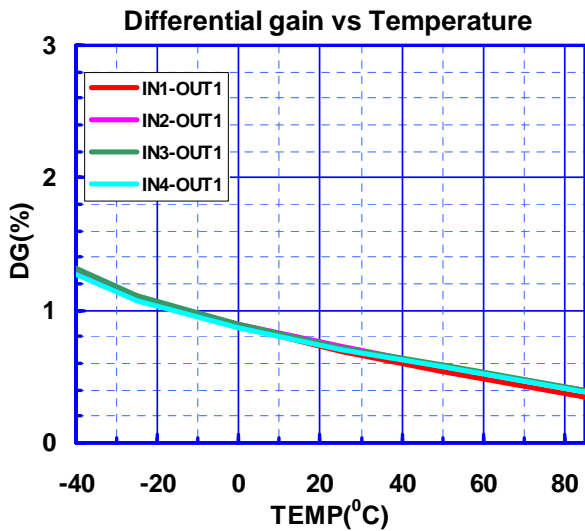
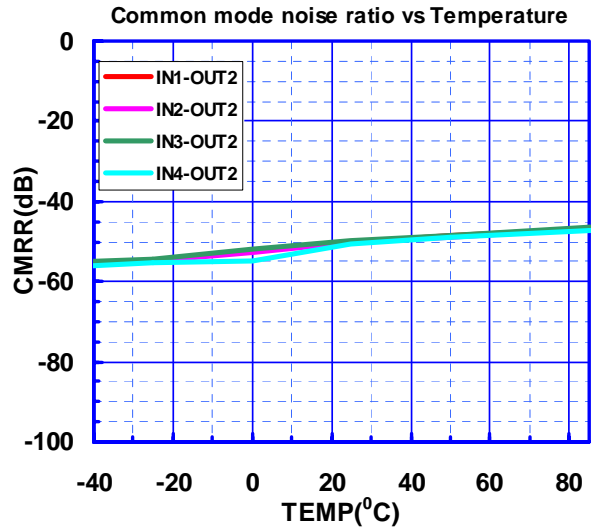
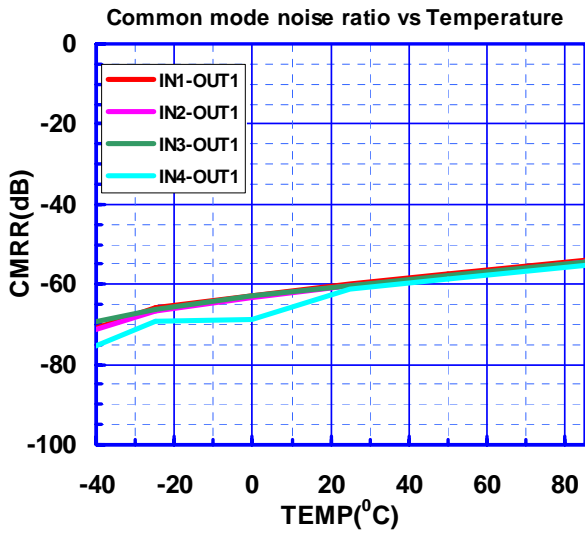
TYPICAL CHARACTERISTICS



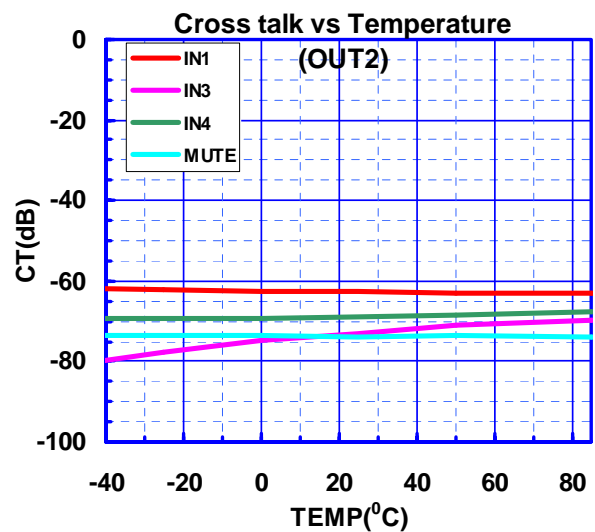
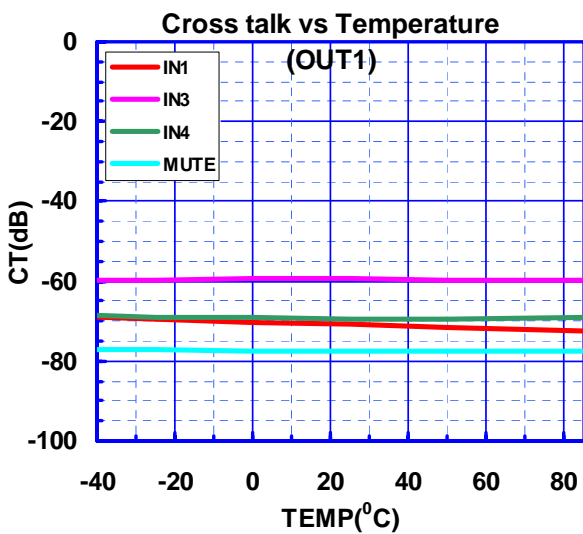
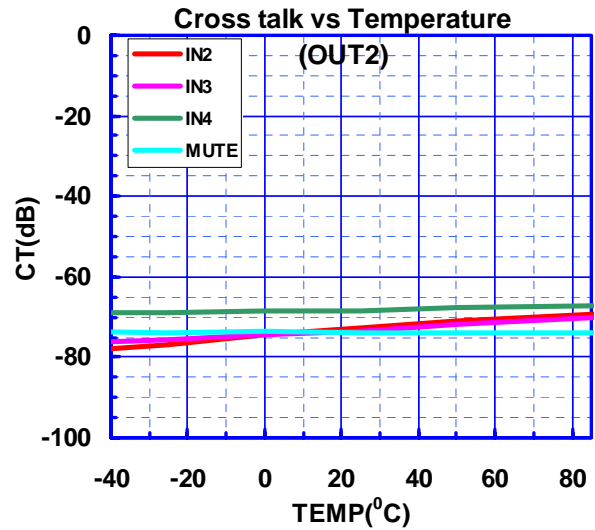
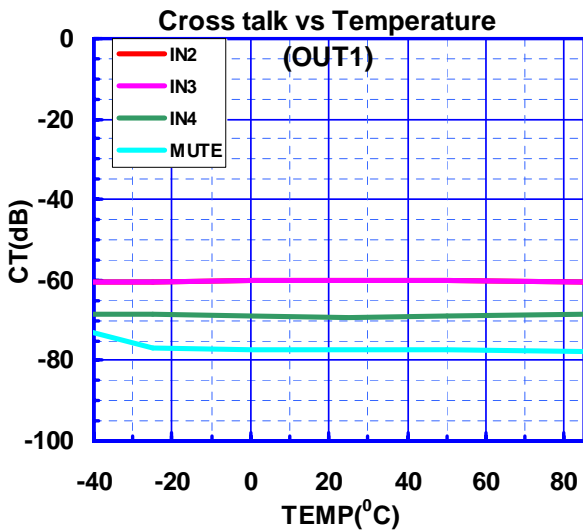
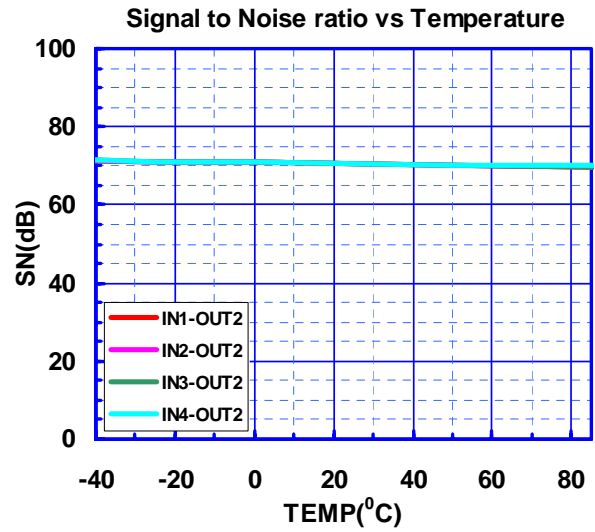
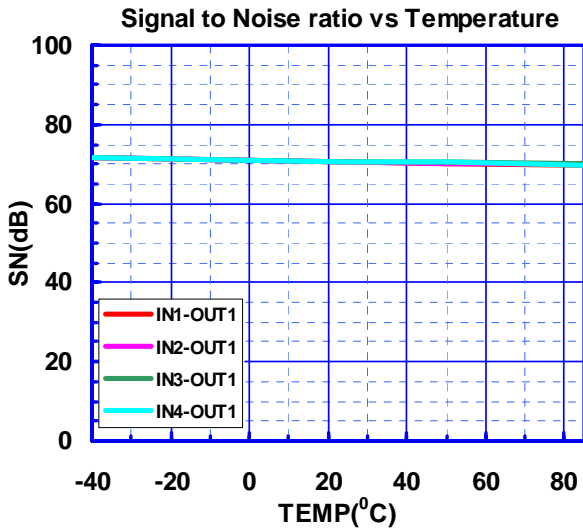
■ TYPICAL CHARACTERISTICS



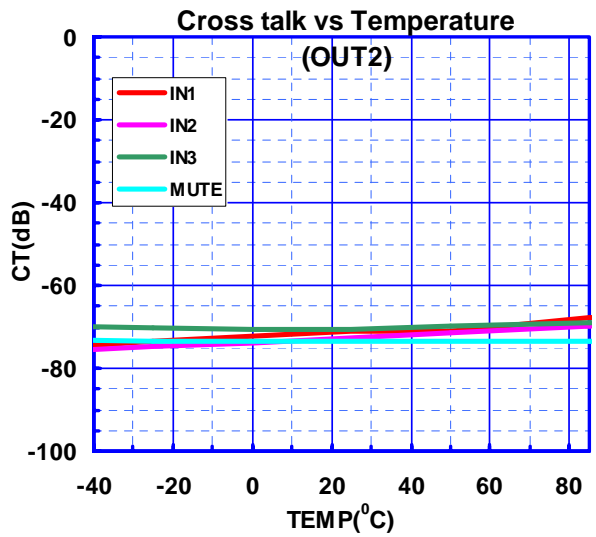
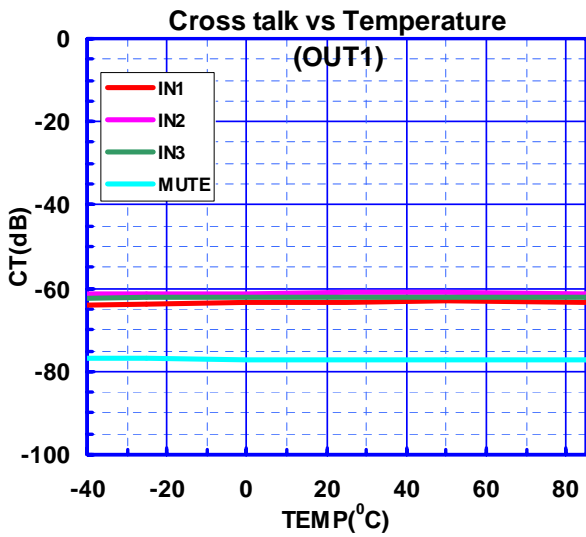
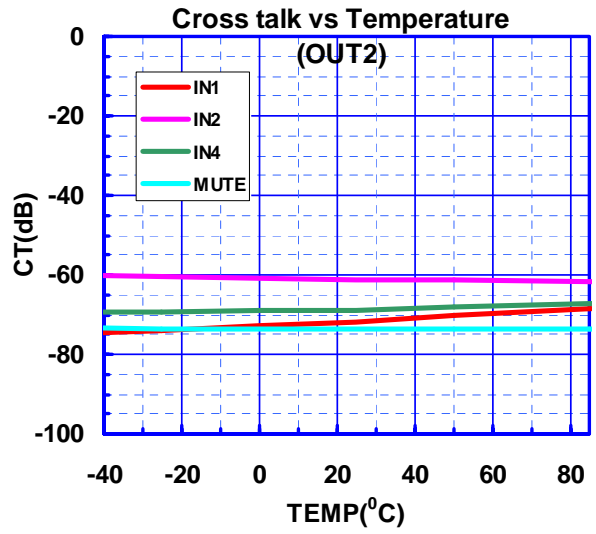
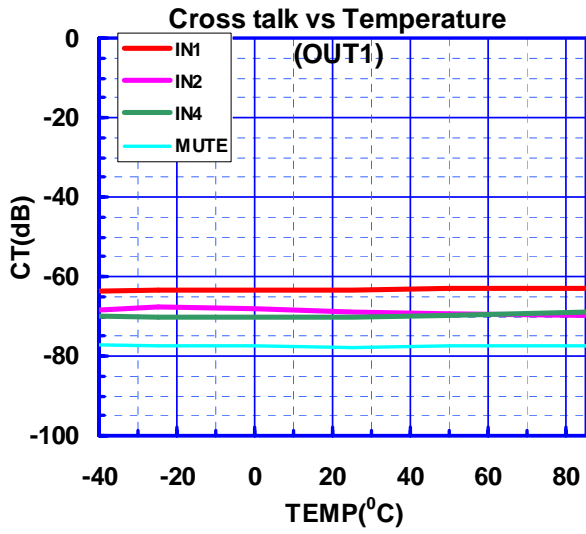
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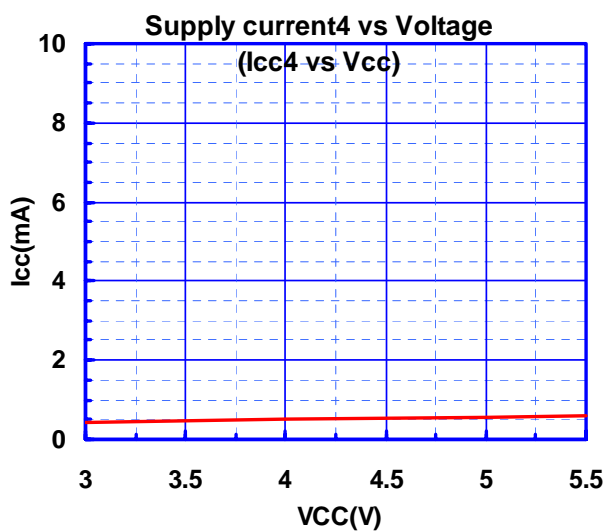
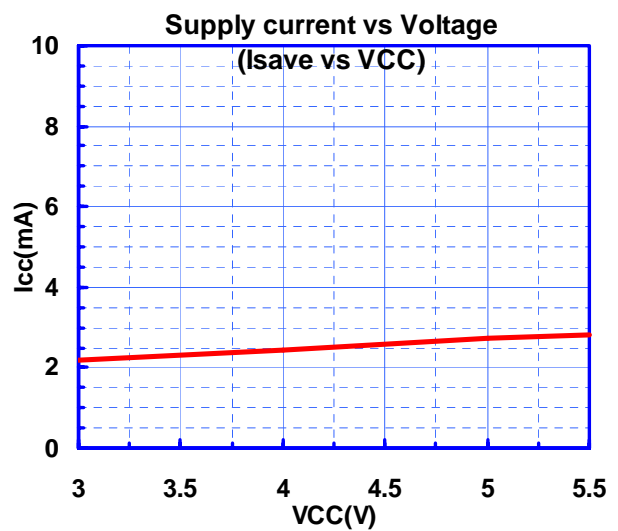
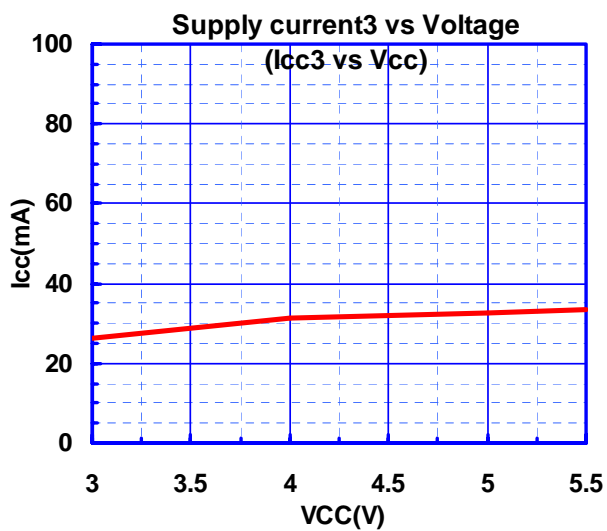
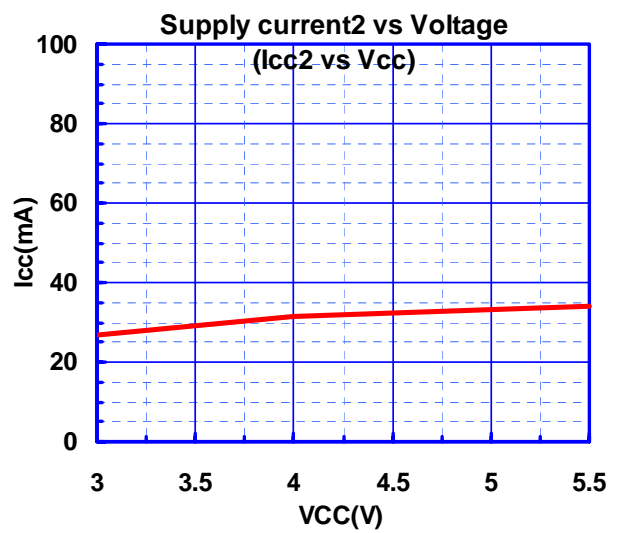
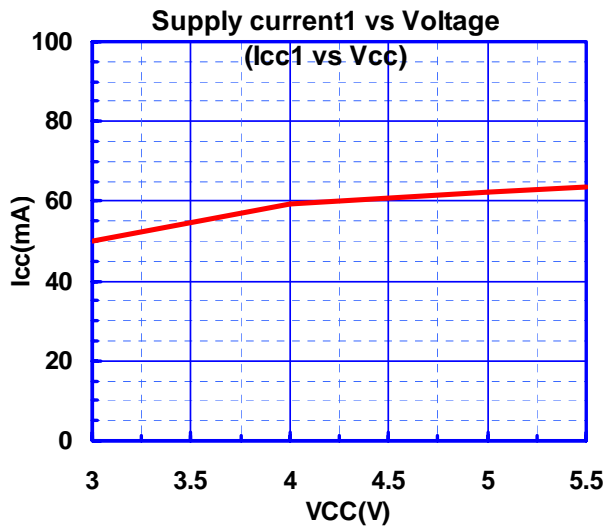
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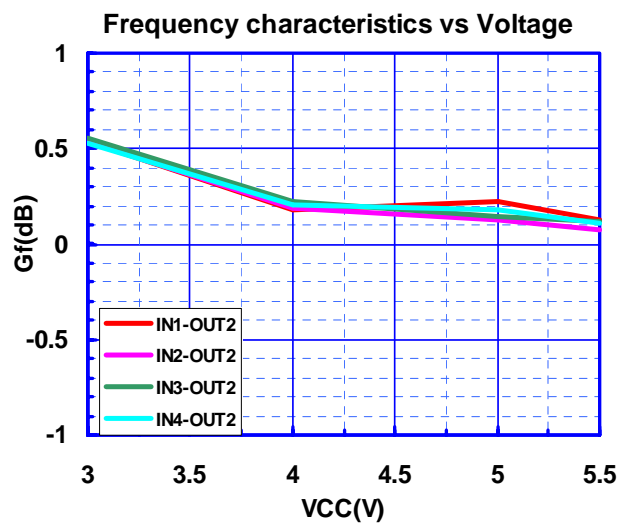
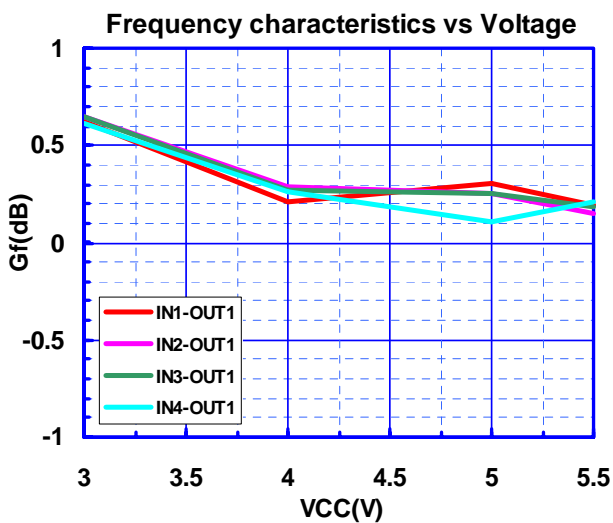
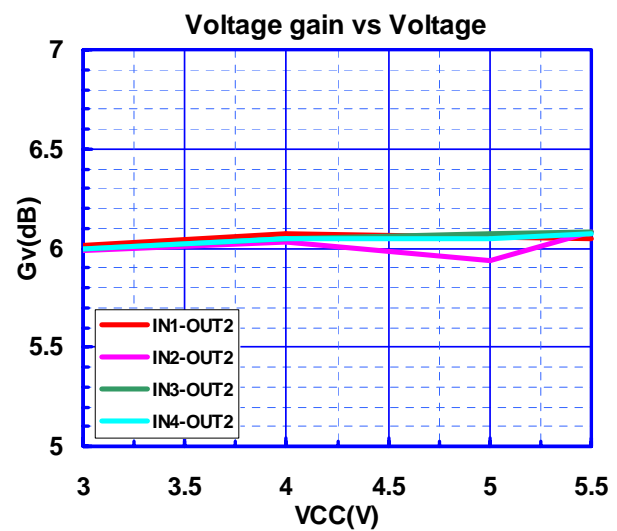
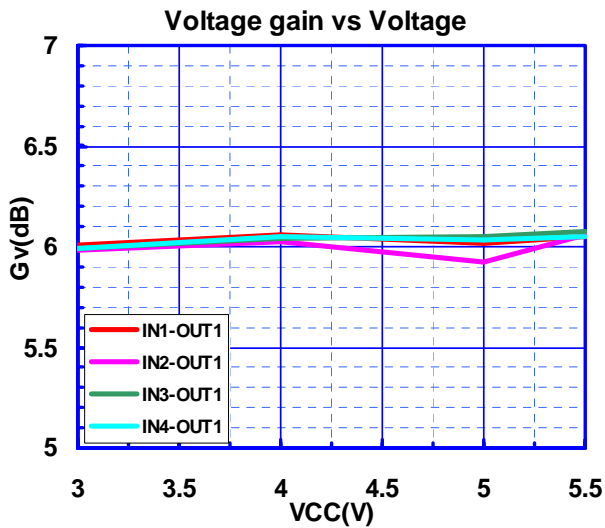
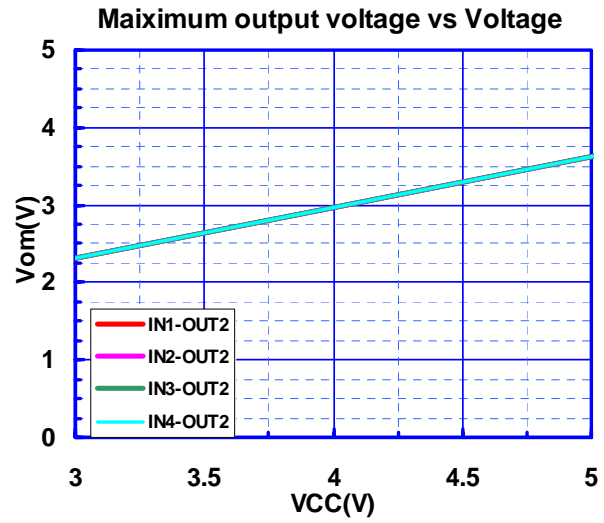
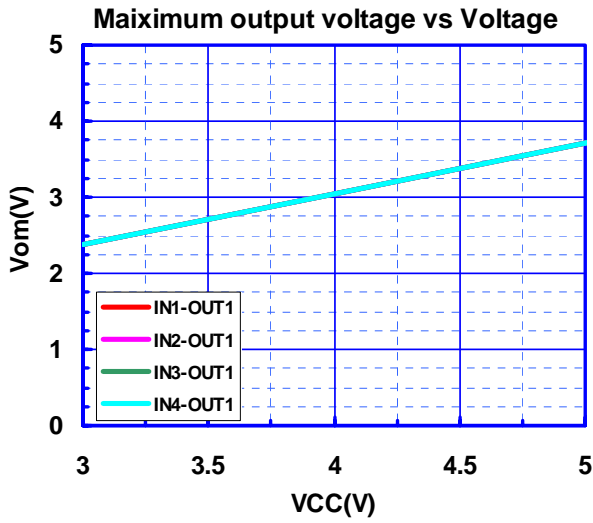
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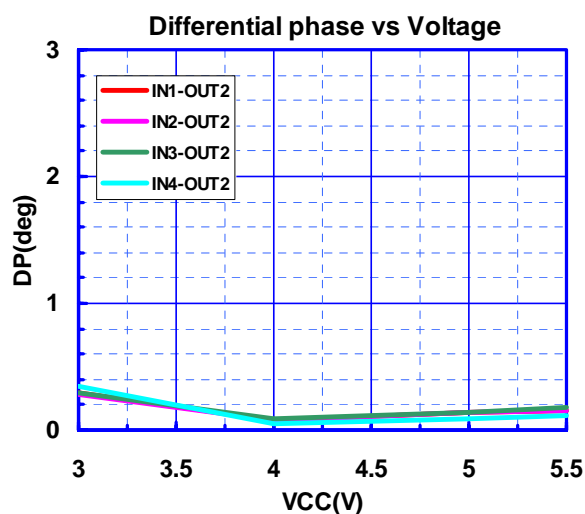
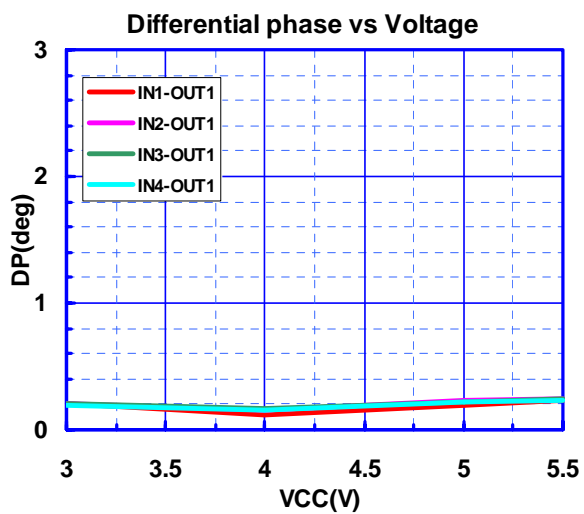
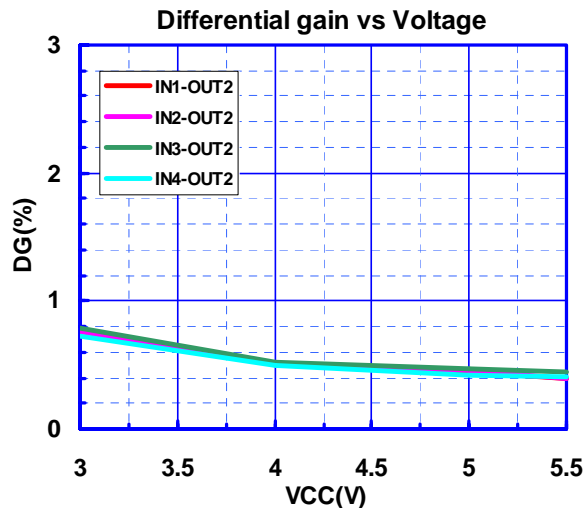
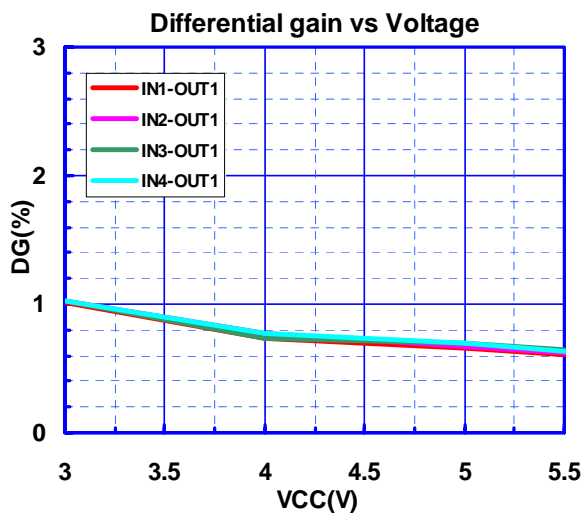
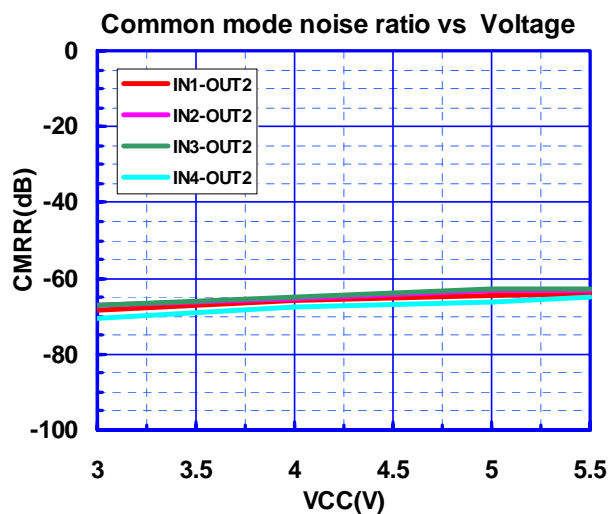
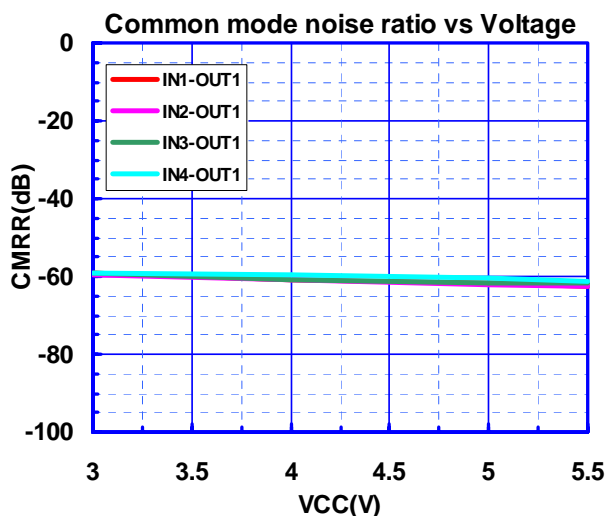
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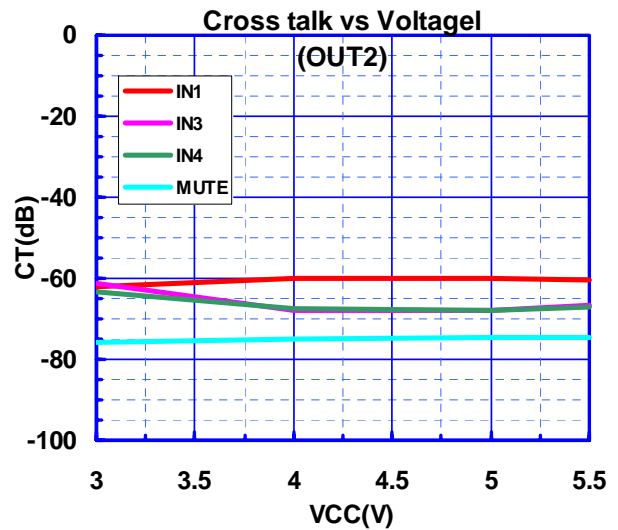
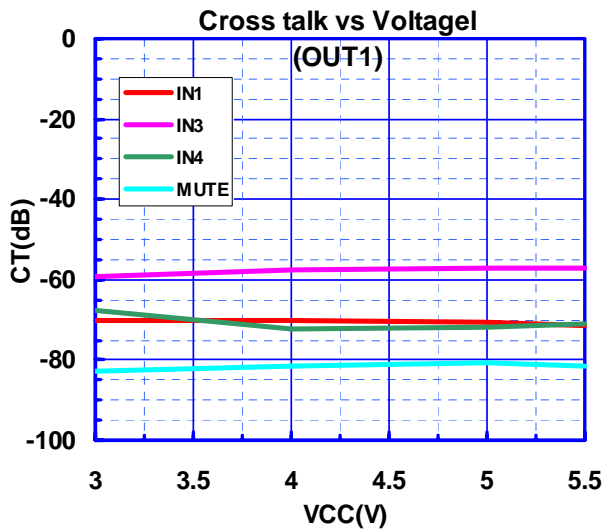
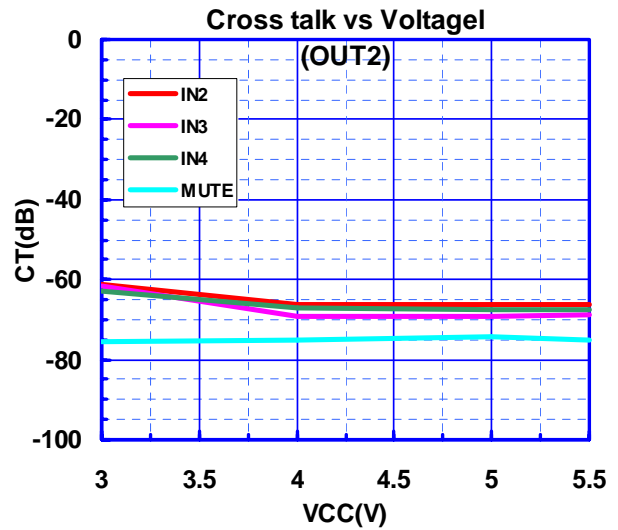
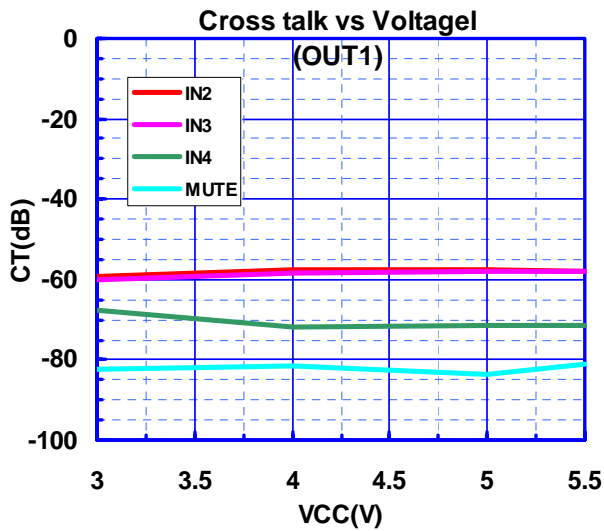
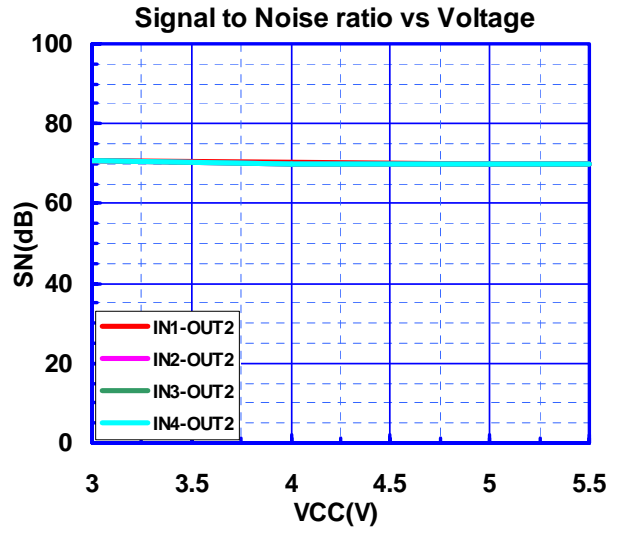
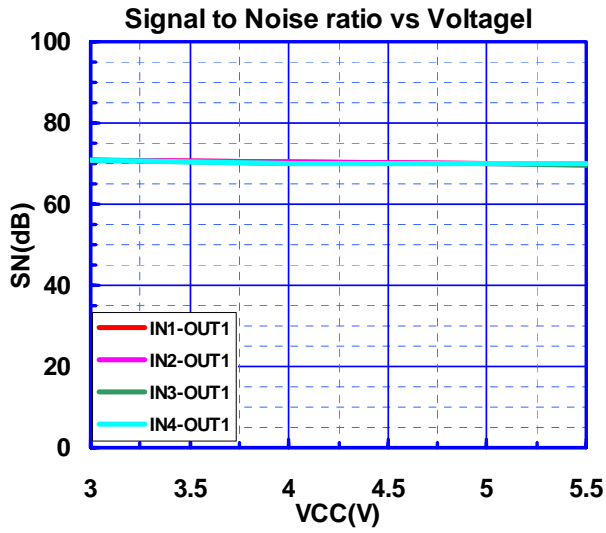
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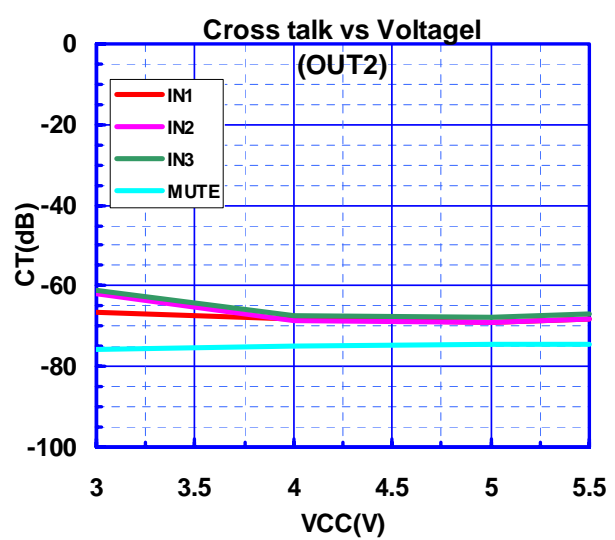
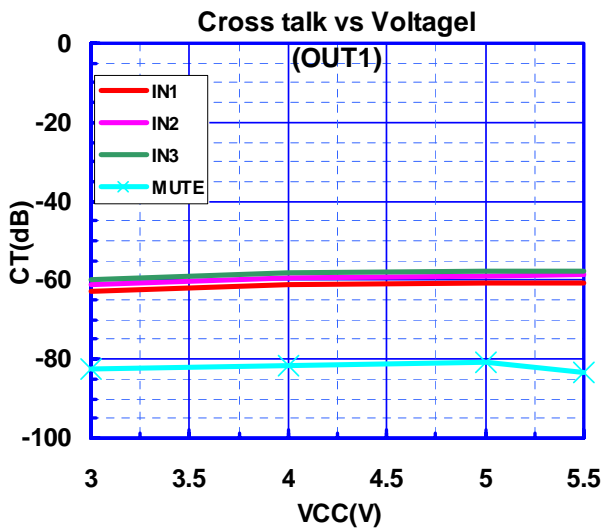
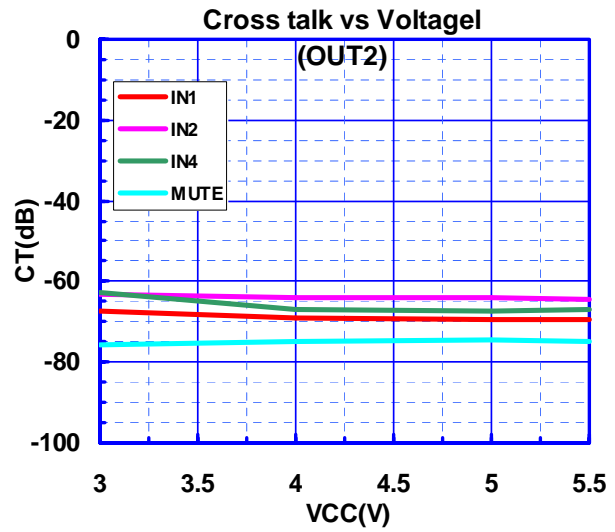
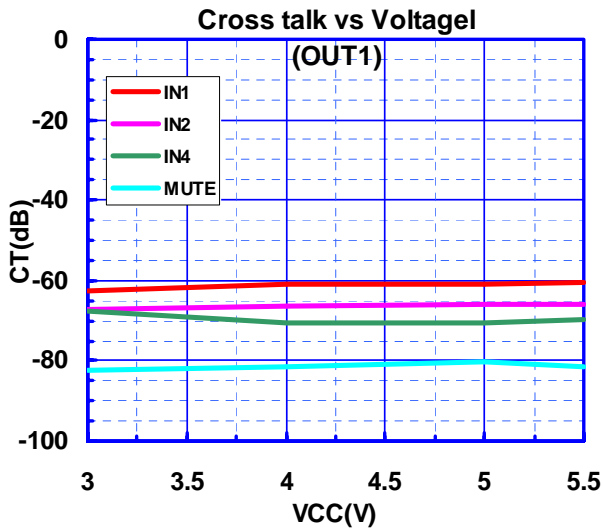
TYPICAL CHARACTERISTICS



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TYPICAL CHARACTERISTICS



[CAUTION]
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