

## Single-Supply High Output Current Single Operational Amplifier

### ■ GENERAL DESCRIPTION

The NJM2743 is a high gain, high output current single operational amplifier capable of driving 70mA.

It is suitable for audio section of portable sets, PCs, DVCs, DSCs and any General-purpose use.

### ■ PACKAGE OUTLINE

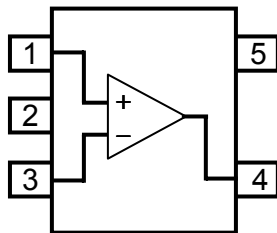


NJM2743F

### ■ FEATURES

- Operating Voltage : 3V to 15V
- High Output Current :  $V_{OH} \geq 3.2V$  Typ. (at  $V^+ = 5V$ ,  $I_{SOURCE} = 70mA$ )  
:  $V_{OL} \leq 1V$  Typ. (at  $V^+ = 5V$ ,  $I_{SINK} = 70mA$ )
- Offset Voltage : 2mV Typ
- Slew Rate :  $0.8V/\mu s$  Typ. (at  $V^+ = 5V$ ,  $R_L = 2k\Omega$ )
- Low THD : 0.0015% Typ. (at  $V^+ = 5V$ ,  $R_L = 2k\Omega$ ,  $f = 1kHz$ )
- Bipolar Technology
- Package Outline : MTP5

### ■ PIN CONFIGURATION



**NJM2743F**  
(Top View)

#### PIN FUNCTION

1. +INPUT
2. GND
3. -INPUT
4. OUTPUT
5.  $V^+$

## ■ ABSOLUTE MAXIMUM RATINGS

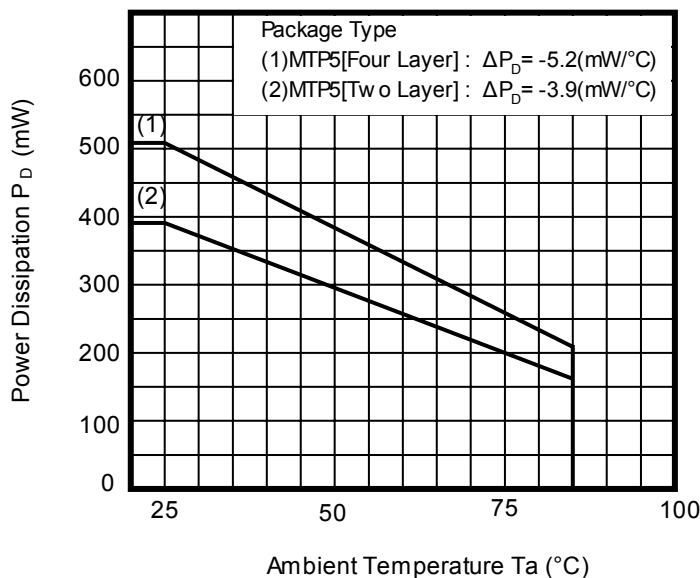
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+$	18(or $\pm 9$ )	V
Common Mode Input Voltage Range	$V_{ICM}$	-0.3 to +18 (Note 1)	V
Differential Input Voltage Range	$V_{ID}$	$\pm 18$	V
Power Dissipation	$P_D$	200 [MTP5] 390 [MTP5] (Note 2) 390 [MTP5] (Note 3)	mW
Output Current	$I_O$	$\pm 75$ [MTP5]	mA
Operating Temperature Range	$T_{opr}$	-40 to +85	$^{\circ}C$
Storage Temperature Range	$T_{stg}$	-40 to +125	$^{\circ}C$

(Note 1) For supply voltage less than 18V, the absolute maximum input voltage is equal to the supply voltage.

(Note 2) On the PCB " EIA/JEDEC (76.2x11.43x1.6mm, two layers, FR-4) "

(Note 3) On the PCB " EIA/JEDEC (76.2x11.43x1.6mm, four layers, FR-4) "

Power Dissipation vs. Ambient Temperature



(Note 4)

Please do not exceed "Power Dissipation ( $P_D$ )" the power dissipation in IC is absolutely indicated to be in the maximum rating.

See the figure "Power Dissipation vs. Ambient Temperature" for information on temperature derating of this device.

## ■ OPERATING VOLTAGE ( $T_a=25^{\circ}C$ )

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+$	3 to 15	V

## ■ ELECTRICAL CHARACTERISTICS

### ●DC CHARACTERISTICS

(V<sup>+</sup>=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I <sub>CC</sub>	R <sub>L</sub> =∞, V <sub>IN</sub> =2.5V, No Signal Apply	-	2	2.8	mA
Input Offset Voltage	V <sub>IO</sub>	R <sub>S</sub> =0Ω	-	2	5	mV
Input Bias Current	I <sub>B</sub>		-	100	500	nA
Input Offset Current	I <sub>IO</sub>		-	5	100	nA
Large Signal Voltage Gain	A <sub>V</sub>	R <sub>L</sub> ≥2kΩ to 2.5V V <sub>O</sub> =1.5V to 3.5V	88	100	-	dB
Common Mode Rejection Ratio	CMR	0V ≤ V <sub>cm</sub> ≤ 3V	80	90	-	dB
Supply Voltage Rejection Ratio	SVR	V <sup>+</sup> =3V to 15V	80	90	-	dB
Output Voltage1	V <sub>OH1</sub>	R <sub>L</sub> ≥2kΩ to 2.5V	3.5	4.3	-	V
	V <sub>OL1</sub>	R <sub>L</sub> ≥2kΩ to 2.5V	-	0.65	0.9	V
Output Voltage2	V <sub>OH2</sub>	I <sub>SOURCE</sub> =70mA	3.2	4.2	-	V
	V <sub>OL2</sub>	I <sub>SINK</sub> =70mA	-	0.85	1	V
Input Common Mode Voltage Range	V <sub>ICM</sub>	CMR ≥ 80dB	0	-	3	V

### ●AC CHARACTERISTICS

(V<sup>+</sup>=5V, Ta=25°C)

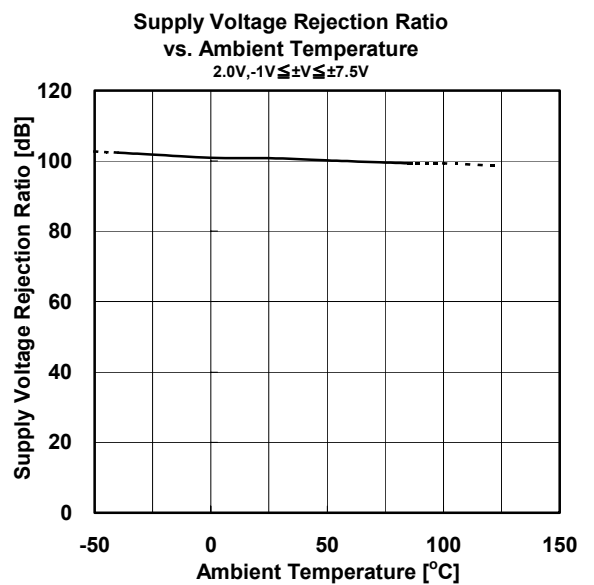
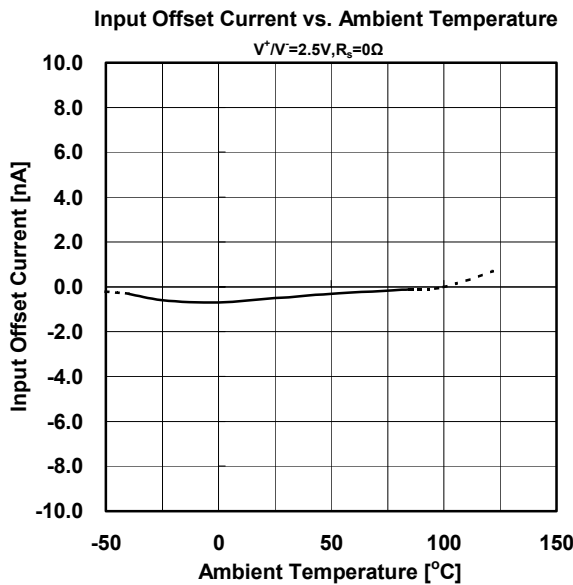
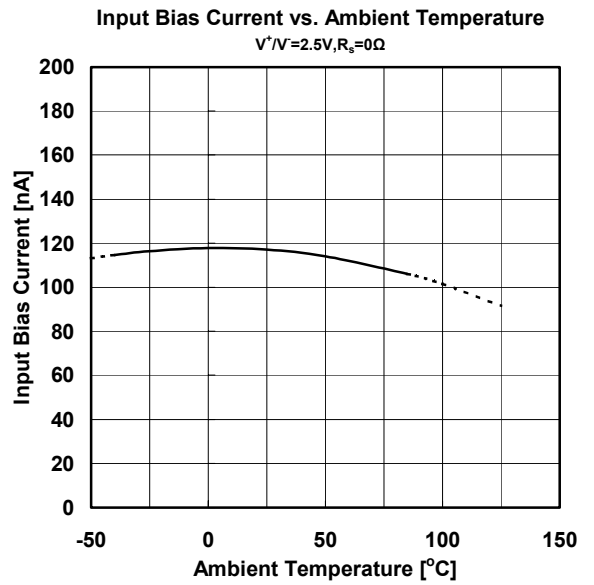
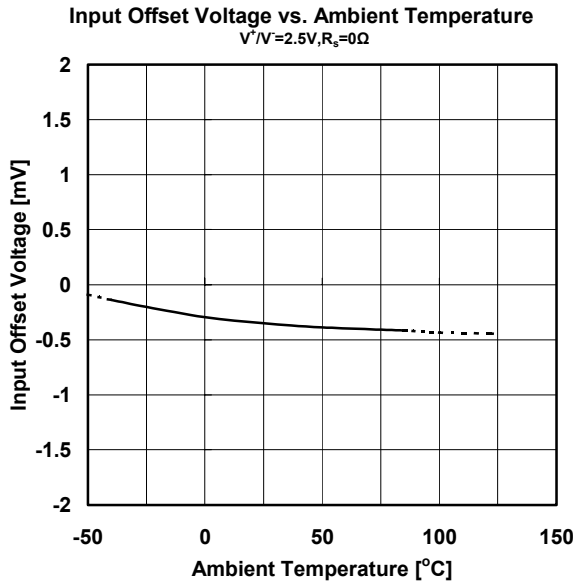
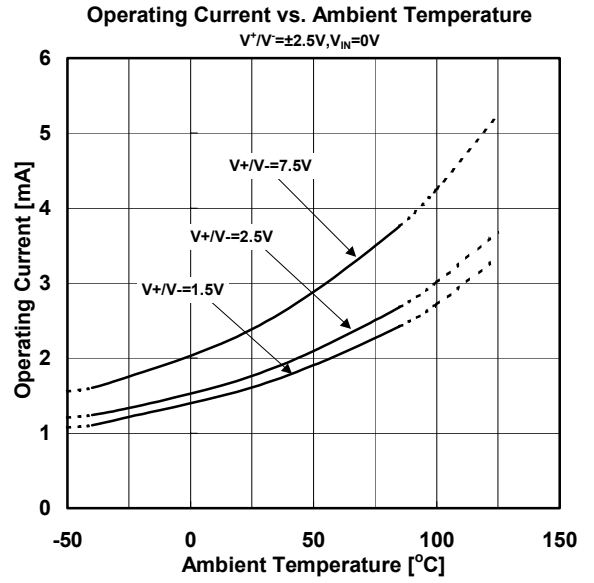
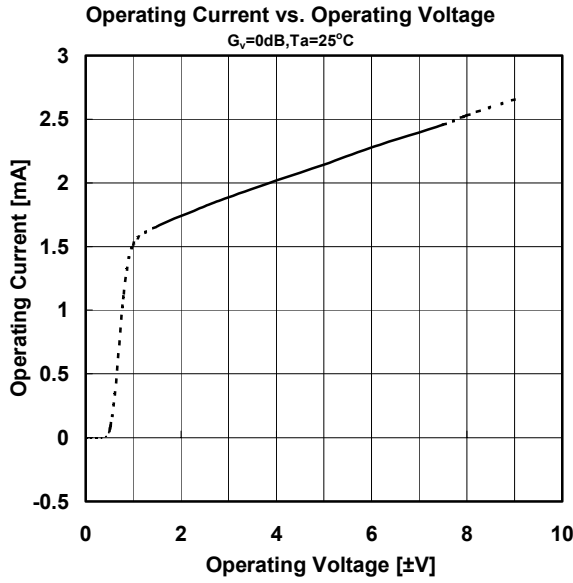
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Unity Gain Bandwidth	GB	R <sub>L</sub> =2kΩ to 2.5V	-	0.8	-	MHz
Phase Margin	Φ <sub>M</sub>	R <sub>L</sub> =2kΩ to 2.5V, C <sub>L</sub> =10pF	-	60	-	Deg
Equivalent Input Noise Voltage	V <sub>NI</sub>	f=1kHz, V <sub>CM</sub> =2.5V	-	22	-	nV/√Hz
Total Harmonic Distortion	THD	f=1kHz, A <sub>V</sub> =+1 R <sub>L</sub> =2kΩ to 2.5V, V <sub>O</sub> =0.35Vrms	-	0.0015	-	%

### ●AC CHARACTERISTICS

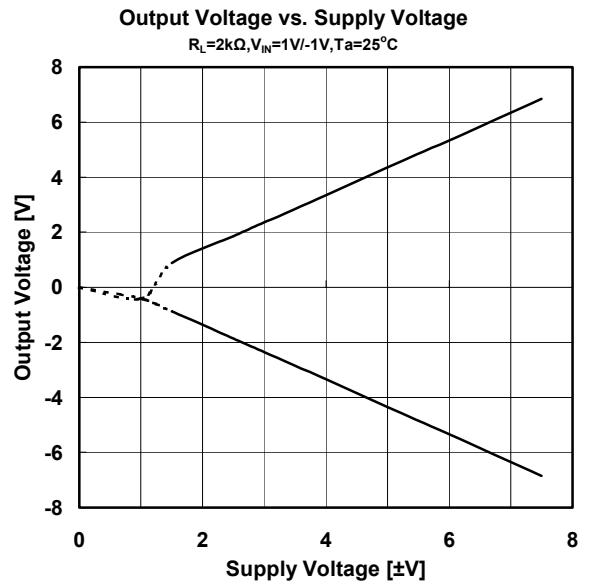
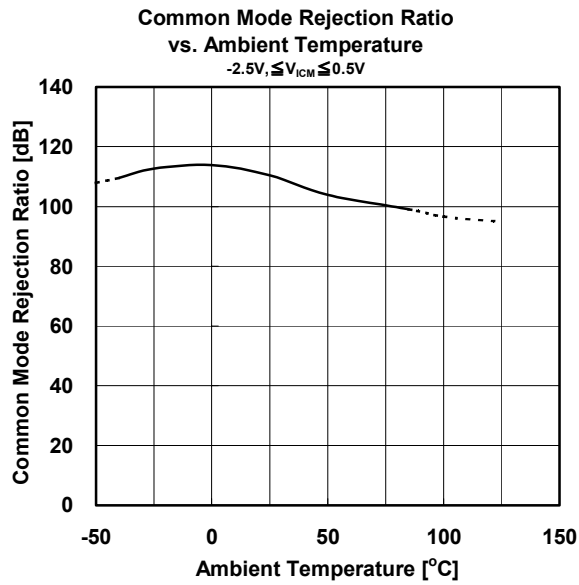
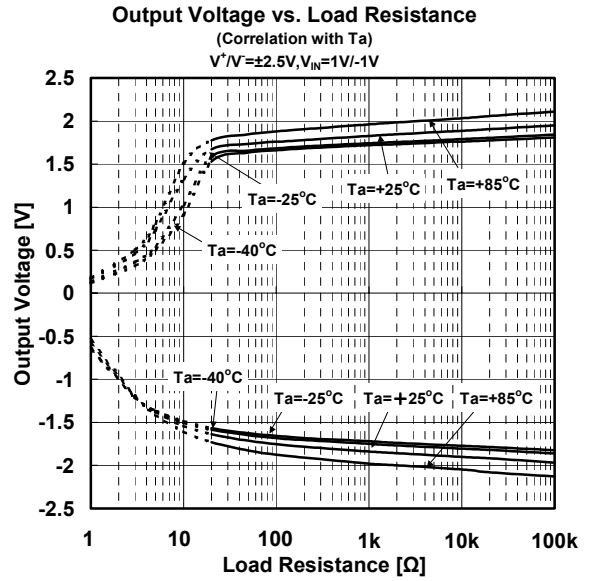
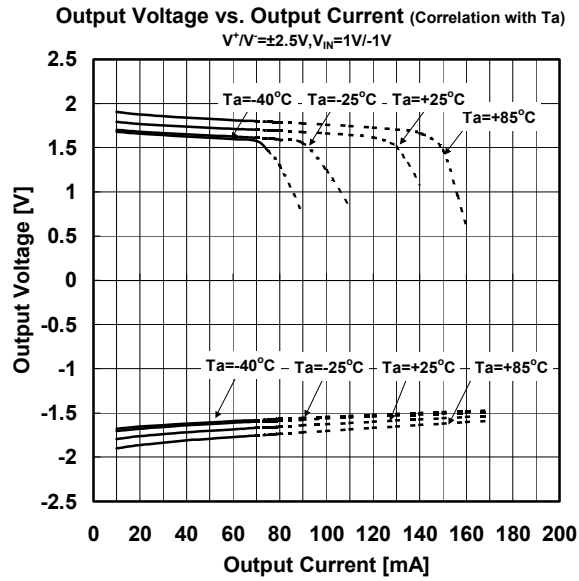
(V<sup>+</sup>=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Slew Rate	SR	A <sub>V</sub> =1, V <sub>IN</sub> =1Vpp R <sub>L</sub> =2kΩ to 2.5V C <sub>L</sub> =10pF	-	0.85	-	V/μs

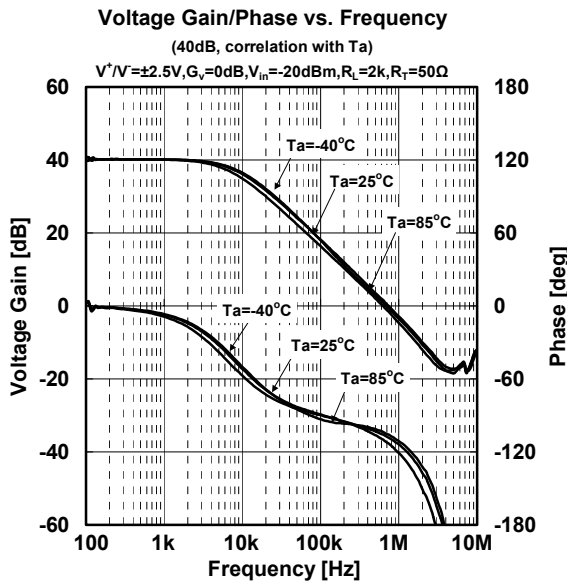
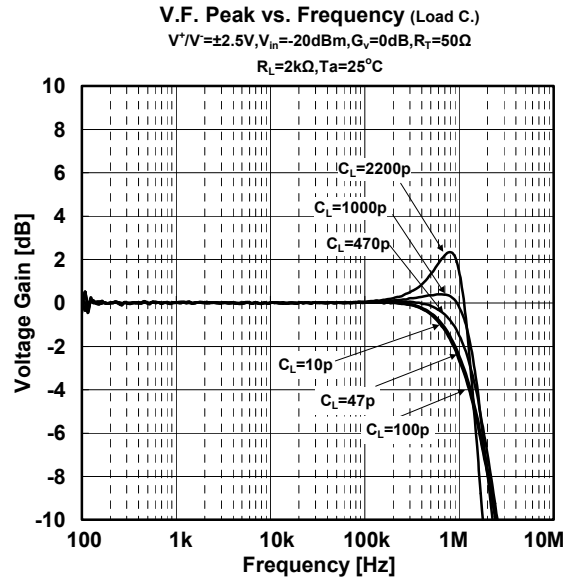
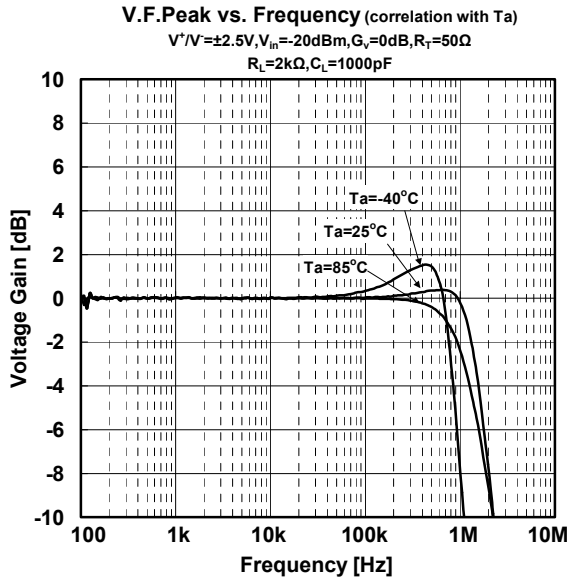
## ■ Typical Characteristics



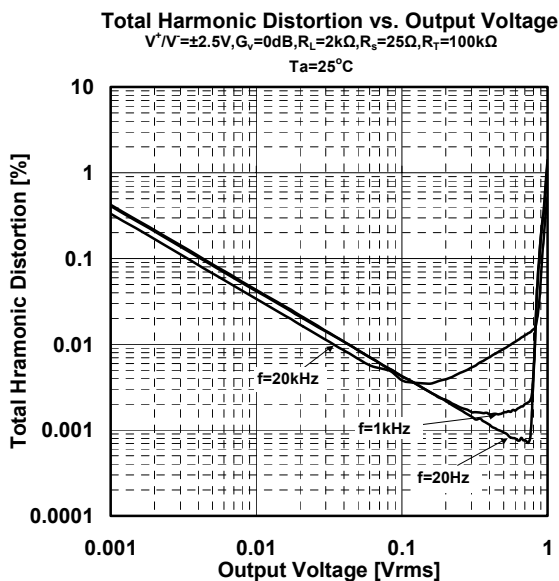
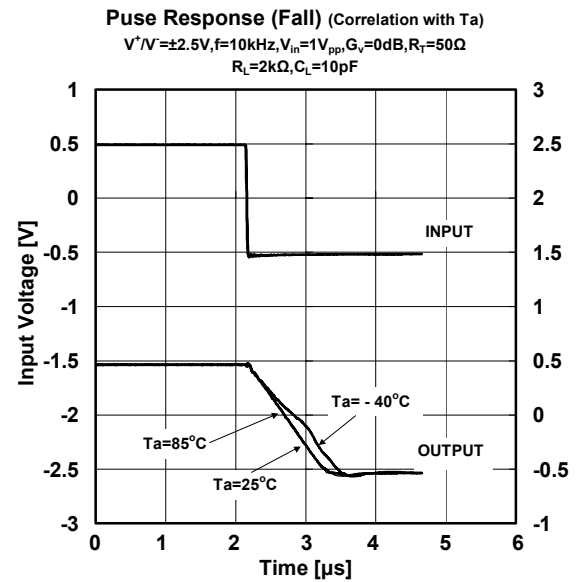
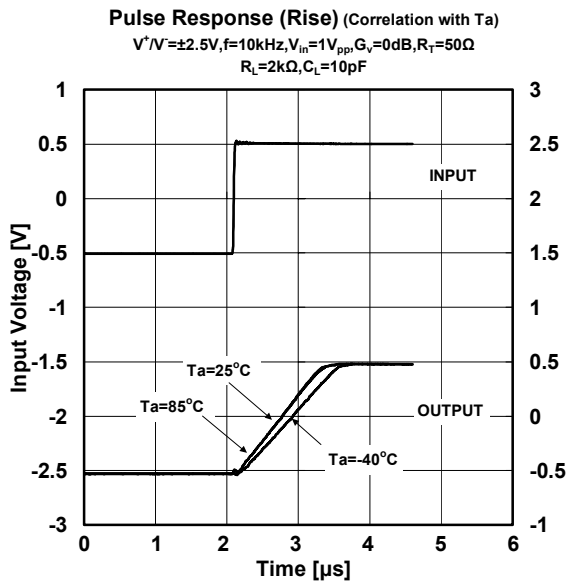
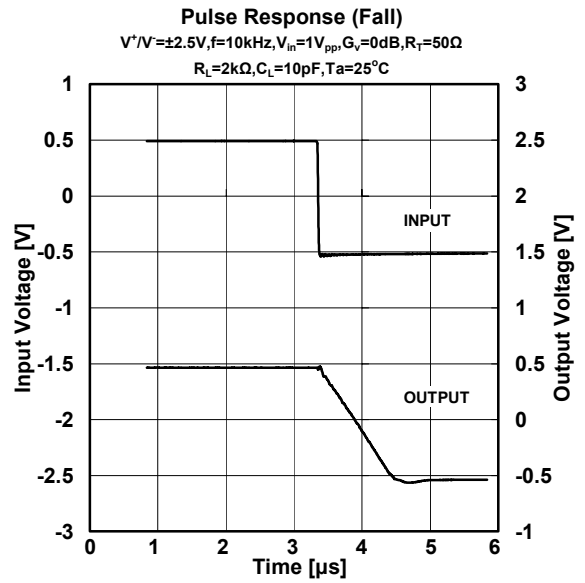
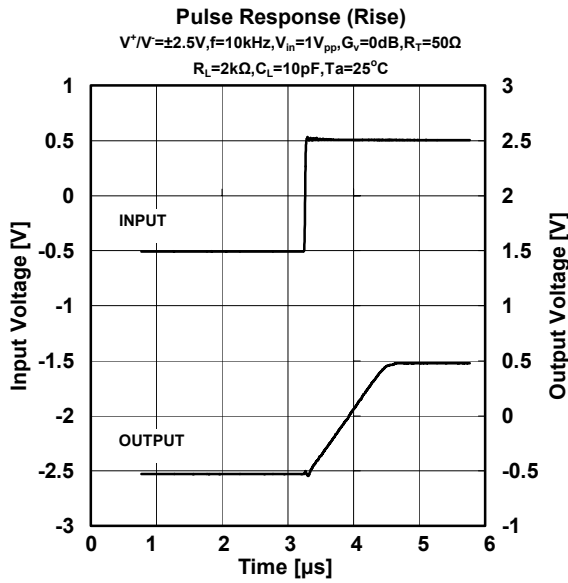
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