

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

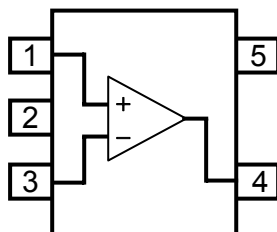


NJM2743F

■ 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 : SOT-23-5

■ PIN CONFIGURATION



NJM2743F
(Top View)

PIN FUNCTION

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

NJM2743

■ ABSOLUTE MAXIMUM RATINGS

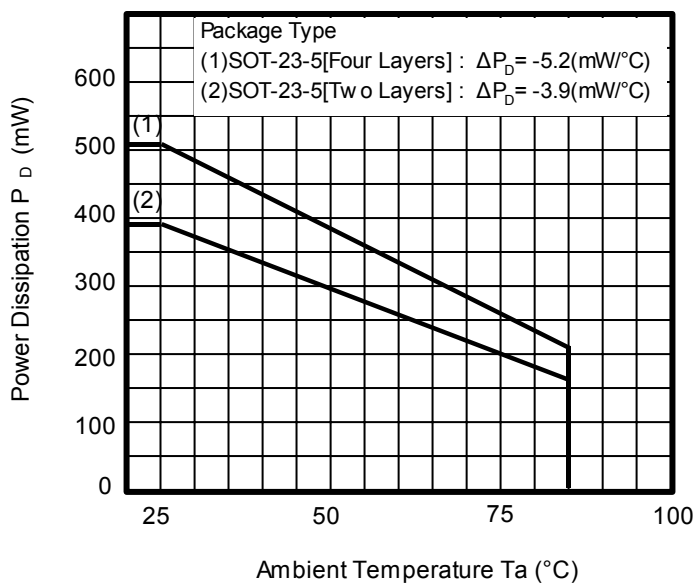
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	18(or ± 9)	V
Common Mode Input Voltage Range	V_{ICM}	-0.3 to +18 (Note 1)	V
Differential Input Voltage Range	V_{ID}	± 18	V
Power Dissipation	P_D	200 [SOT-23-5] 390 [SOT-23-5] (Note 2) 520 [SOT-23-5] (Note 3)	mW
Output Current	I_O	± 75 [SOT-23-5]	mA
Operating 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 (76.2x 114.3x 1.6mm, two layers, FR-4) "

(Note 3) On the PCB " EIA/JEDEC (76.2x 114.3x 1.6mm, four layers, FR-4) "

Power Dissipation vs. Ambient Temperature



(Note 4)

Please do not exceed "Power Dissipation (PD)" 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⁺=5V, Ta=25°C)

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

●AC CHARACTERISTICS

(V⁺=5V, Ta=25°C)

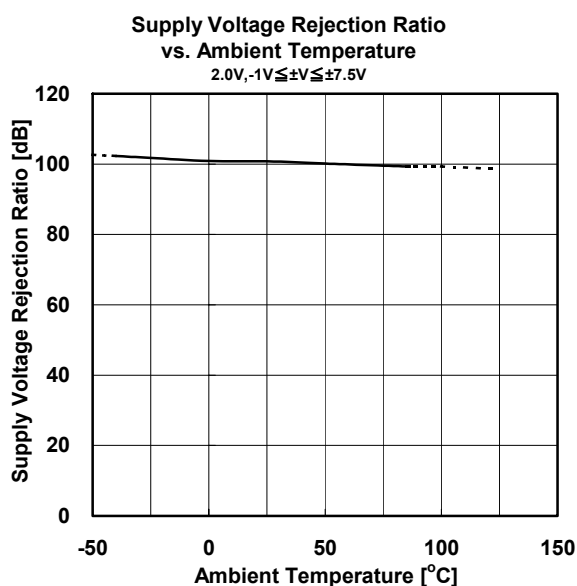
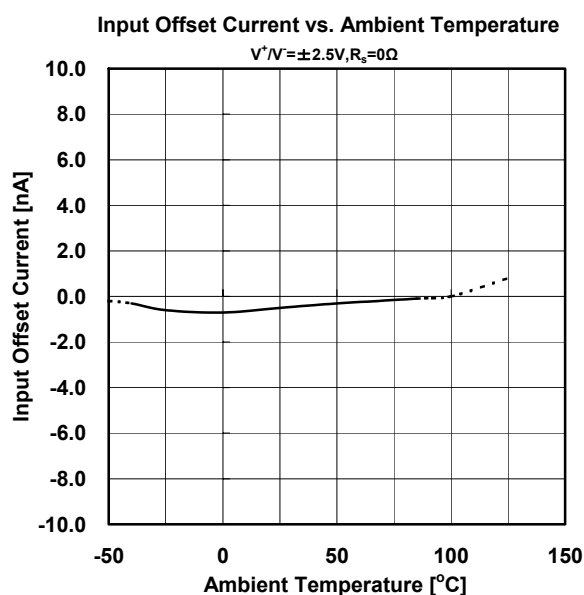
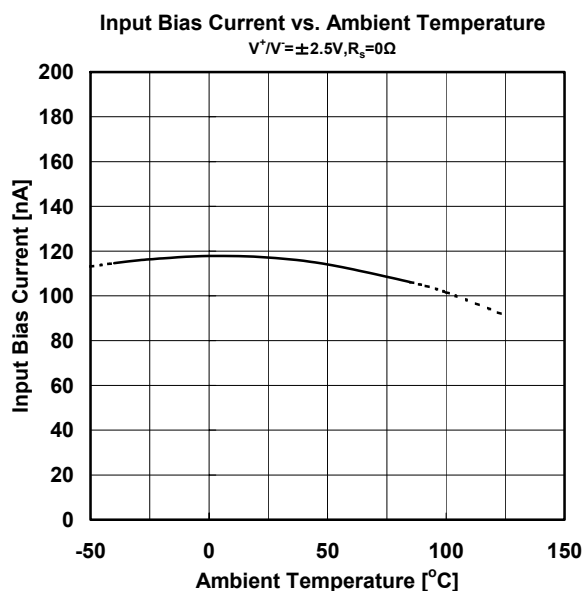
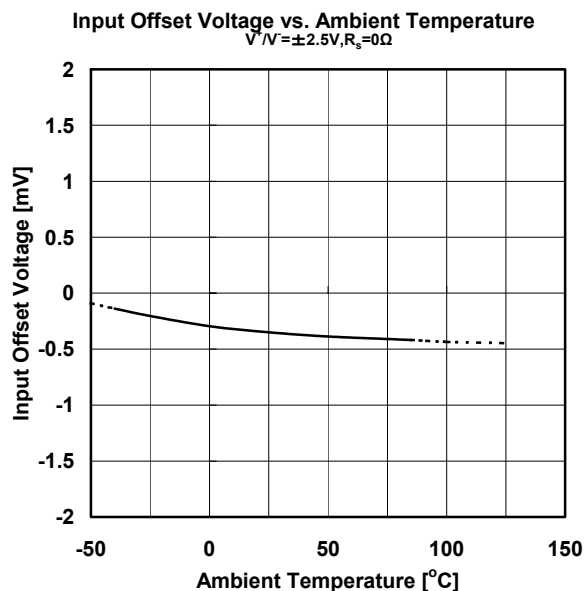
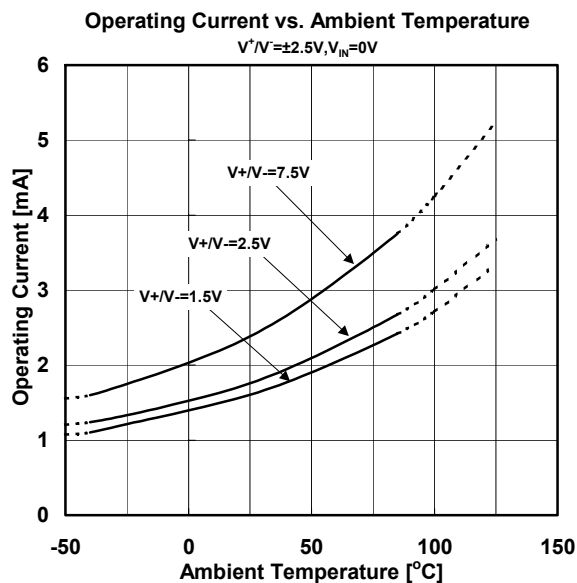
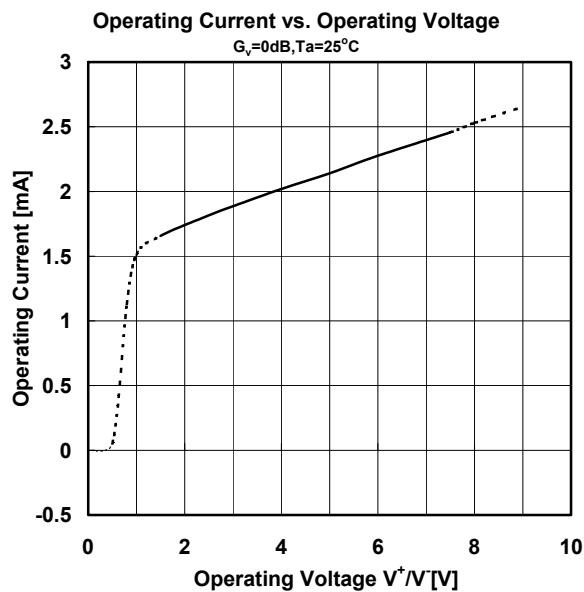
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Unity Gain Bandwidth	GB	R _L =2kΩ to 2.5V	-	0.8	-	MHz
Phase Margin	Φ _M	R _L =2kΩ to 2.5V, C _L =10pF	-	60	-	Deg
Equivalent Input Noise Voltage	V _{NI}	f=1kHz, V _{CM} =2.5V	-	22	-	nV/√Hz
Total Harmonic Distortion	THD	f=1kHz, A _V =+1 R _L =2kΩ to 2.5V,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

●AC CHARACTERISTICS

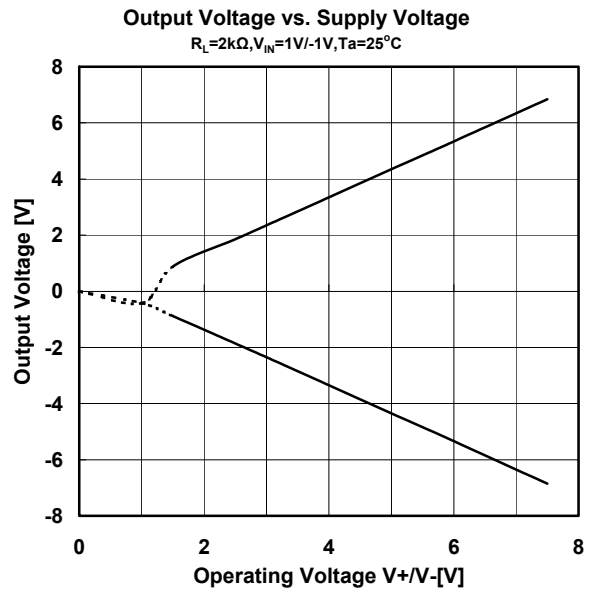
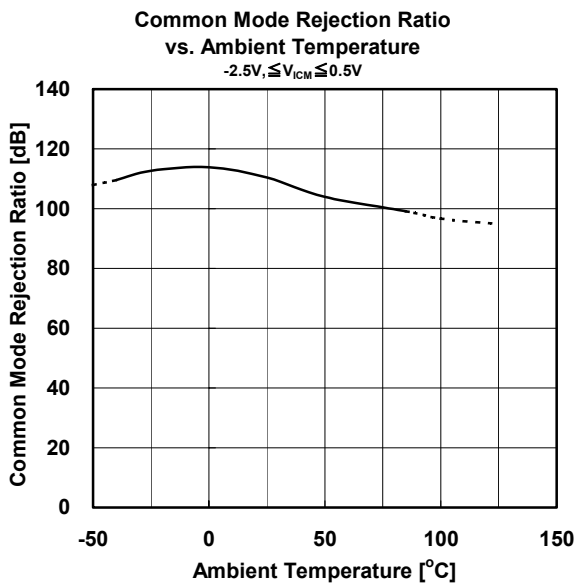
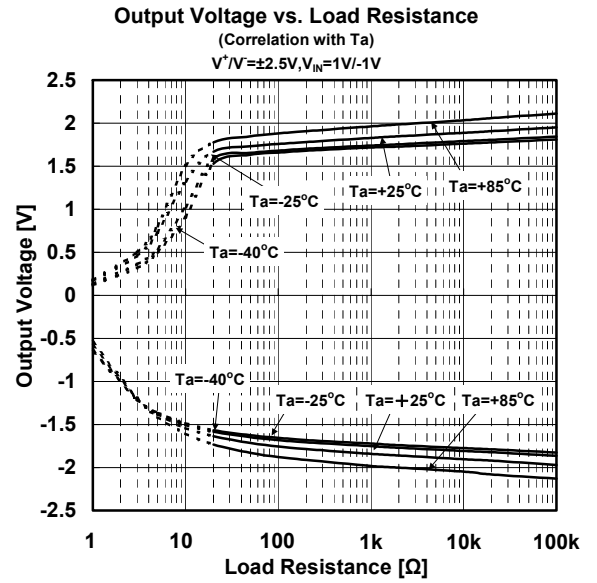
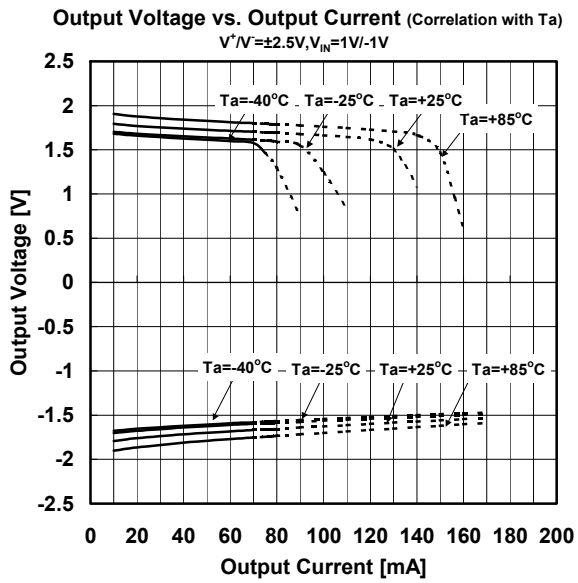
(V⁺=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Slew Rate	SR	A _V =1, V _{IN} =1Vpp R _L =2kΩ to 2.5V C _L =10pF	-	0.85	-	V/μs

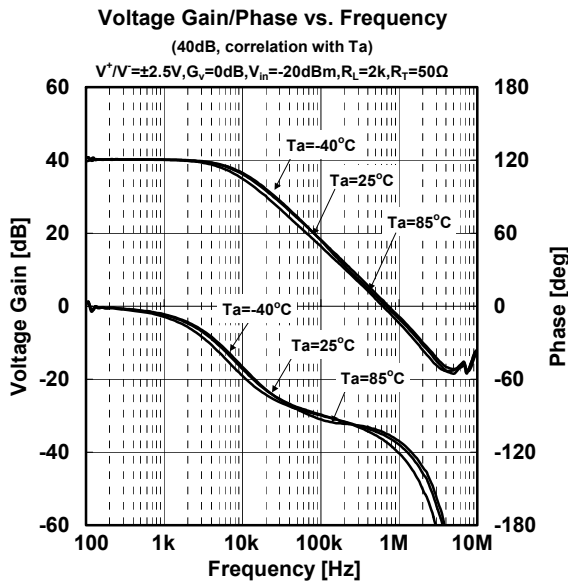
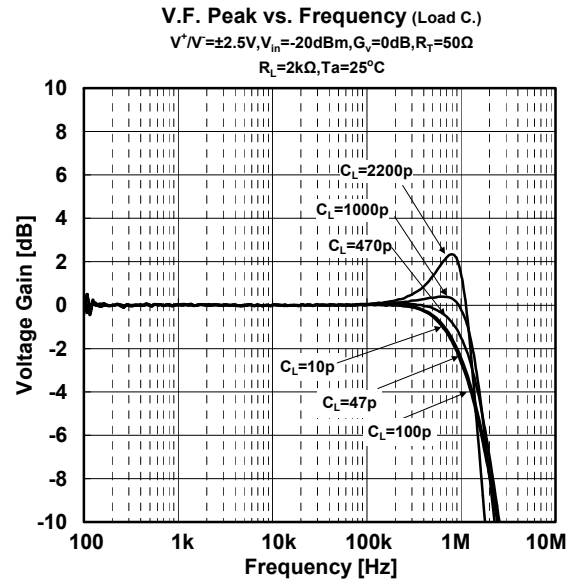
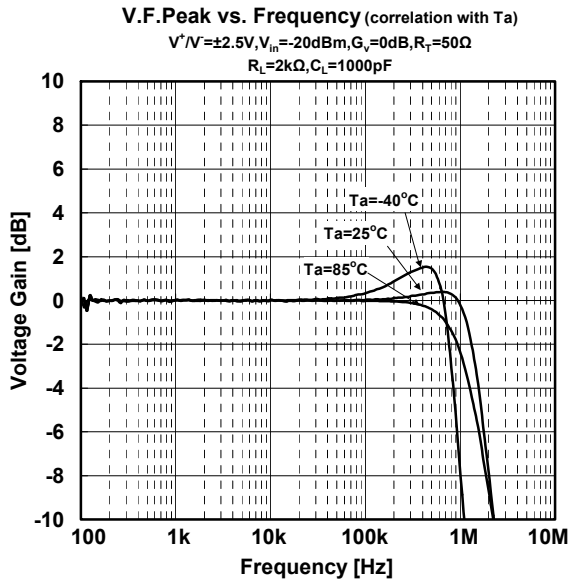
Typical Characteristics



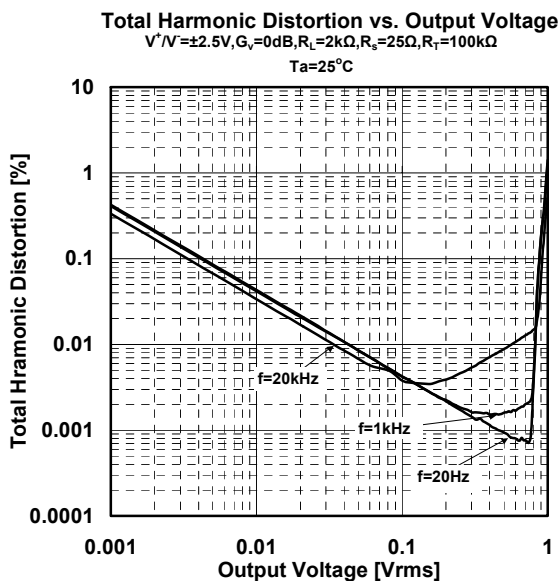
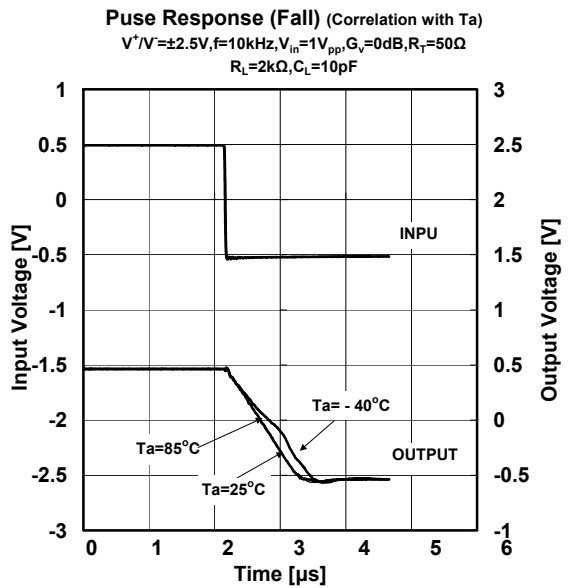
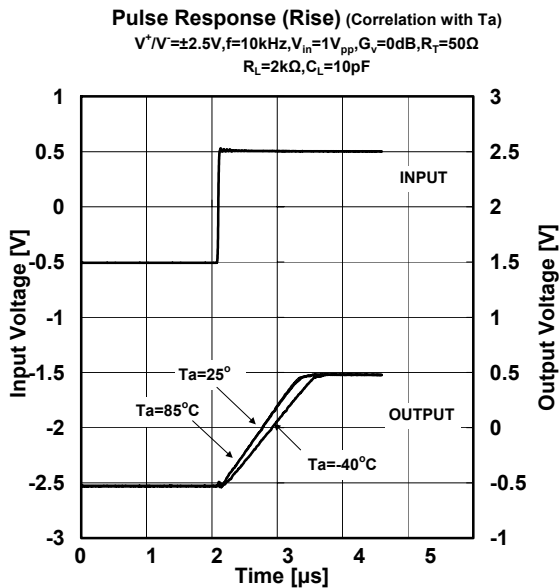
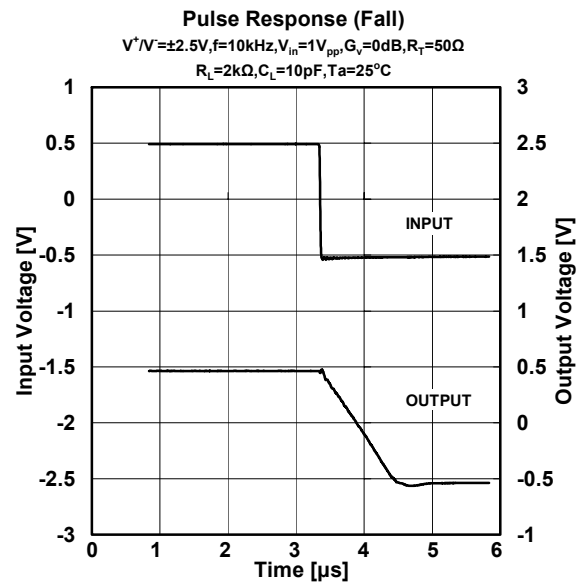
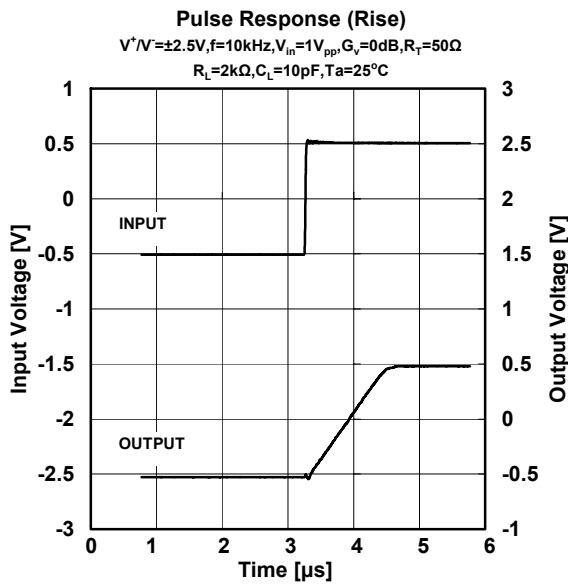
■ Typical Characteristics



■ Typical Characteristics



■ Typical Characteristics



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