

NJM2701

■ABSOLUTE MAXIMUM RATING (Ta=25°C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|------------------|----------------------------|------|
| Supply Voltage | V ⁺ | 14 | V |
| Power Dissipation | P _D | (DIP14) 500 (DMP14) 350 | mW |
| Operating Temperature Range | T _{opr} | -40 to +85 | °C |
| Storage Temperature Range | T _{stg} | -40 to +125 | °C |

■ OPERATING VOLTAGE

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|-------------------|----------------|----------------|------|------|------|------|
| Operating Voltage | V ⁺ | - | 4.7 | 12.0 | 13.0 | V |

■ELECTRICAL CHARACTERISTICS (V⁺=12V, Ta=25°C unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITION | | | | | MIN. | TYP. | MAX. | UNIT | |
|-------------------|-----------------|----------------|---|--------|------|--------|------|------|------|------|----|
| | | INPUT | | OUTPUT | MODE | VR | | | | | |
| | | L | R | | | | | | | | |
| Operating Current | I _{cc} | No Signal | 0 | 0 | - | BYPASS | - | 2.9 | 5.7 | 8.6 | mA |
| | | | 0 | 0 | - | Stereo | MAX | 2.9 | 5.8 | 8.7 | |
| | | | 0 | 0 | - | Mono | - | 3.0 | 5.9 | 8.9 | |

●AC CHARACTERISTICS

(V⁺=12V, Ta=25°C, V_{IN}=-10dBV(316mVrms), f=1kHz, RL=4.7kΩ, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITION | | | | | MIN. | TYP. | MAX. | UNIT | |
|-----------------------|-----------------|----------------------------------|------------------------------------|----------------------|--------|--------|------|---------------|---------------|---------------|----------------|
| | | INPUT | | OUTPUT | MODE | VR | | | | | |
| | | L | R | | | | | | | | |
| Maximum Input Voltage | V _{IM} | f=1kHz T.H.D.=3% | V _{IN} 0 | 0 V _{IN} | L R | BYPASS | - | 9.9 (3.1) | 11.9 (3.9) | - | dBV (Vrms) |
| | | f=100Hz T.H.D.=3% | V _{IN} 0 | 0 V _{IN} | L R | Stereo | MAX | -3.8 (0.6) | -1.8 (0.8) | - | |
| | | f=1kHz T.H.D.=3% | V _{IN} V _{IN} | 0 0 | L R | Mono | - | 6.9 (2.2) | 8.9 (2.8) | - | |
| Output Noise | V _{NO} | R _g =0Ω A-Weighted | 0 | 0 | L R | BYPASS | - | - | -112 (2.5) | -106 (5.0) | dBV (μVrms) |
| | | R _g =0Ω A-Weighted | 0 | 0 | L R | Stereo | MAX | - | -100 (10) | -94 (20) | |
| | | R _g =0Ω A-Weighted | 0 | 0 | L R | Mono | - | - | -103 (7.1) | -97 (14.1) | |

● AC CHARACTERISTICS

($V_+ = 12V, T_a = 25^\circ C, V_{IN} = -10dBV(316mV_{rms}), f = 1kHz, R_L = 4.7k\Omega$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITION | | | | | | MIN. | TYP. | MAX. | UNIT |
|---------------------------|------------|------------------------------|----------------------|---------------|--------|--------|-----|------|-------|------|------|
| | | INPUT | | OUTPUT | MODE | VR | | | | | |
| | | L | R | | | | | | | | |
| Total Harmonic Distortion | T.H.D | f=1kHz | V_{IN} 0 | 0 V_{IN} | L R | BYPASS | - | - | 0.005 | 0.01 | % |
| | | f=1kHz $V_{in} = -20dBV$ | V_{IN} 0 | 0 V_{IN} | L R | Stereo | MAX | - | 0.1 | 0.5 | |
| | | f=1kHz | V_{IN} V_{IN} | 0 0 | L R | Mono | - | - | 0.1 | 0.5 | |
| Bypass Gain | G_{VBYP} | f=1kHz | V_{IN} 0 | 0 V_{IN} | L R | BYPASS | - | -1.0 | 0.0 | 1.0 | dB |
| Surround Gain | G_{VSUR} | f=100Hz $V_{in} = -20dBV$ | V_{IN} 0 | 0 V_{IN} | L R | Stereo | MAX | 10.7 | 12.7 | 14.7 | dB |
| | | f=100Hz $V_{in} = -20dBV$ | 0 V_{IN} | V_{IN} 0 | L R | Stereo | MAX | 8.4 | 10.4 | 12.4 | |
| | | f=100Hz $V_{in} = -20dBV$ | V_{IN} 0 | 0 V_{IN} | L R | Stereo | MIN | 3.6 | 5.6 | 7.6 | |
| | | f=1kHz | V_{IN} V_{IN} | 0 0 | L R | Mono | - | 1.0 | 3.0 | 5.0 | |

● CONTROL CHARACTERISTICS ($V_+ = 12V, T_a = 25^\circ C$ unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITION | | | | | | MIN. | TYP. | MAX. | UNIT |
|-----------------------------|------------|--------------------------|---|--------|------|----|---|------|------|-------|------|
| | | INPUT | | OUTPUT | MODE | VR | | | | | |
| | | L | R | | | | | | | | |
| Mode Select Control Voltage | V_{MODE} | $V_{IN} =$ High Level | - | - | - | - | - | 2.0 | - | V_+ | V |
| | | $V_{IN} =$ Low Level | - | - | - | - | - | 0.0 | - | 0.7 | |

■ MODE SWITCH

| MODE | SW1 | SW2 | NOTES |
|--------|-----|-----|------------------------------|
| BYPASS | L | - | Input Through |
| Stereo | H | L | Surround Mode (Stereo Input) |
| Mono | H | H | Surround Mode (Mono Input) |

NJM2701

■ TERMINAL DESCRIPTION

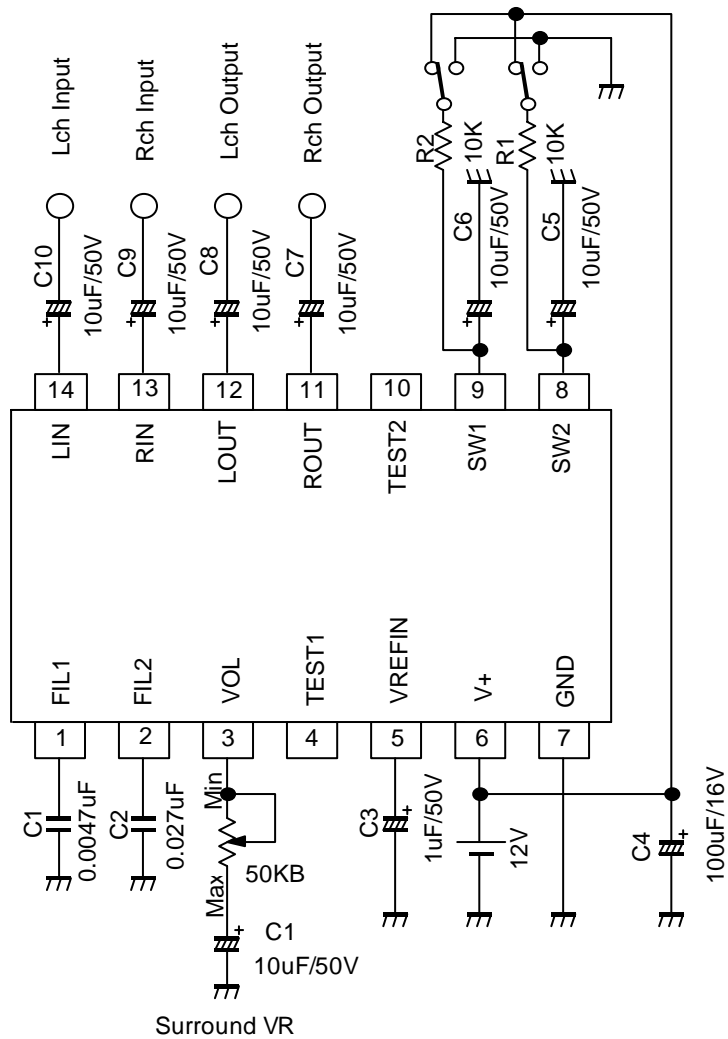
| PIN NO. | SYMBOL | FUNCTION | EQUIVALENT CIRCUIT | VOLTAGE |
|---------|----------------|--------------|--------------------|---------|
| 1 | FIL1 | Filter Input | | $V+/2$ |
| 2 | FIL2 | Filter Input | | $V+/2$ |
| 3 | VOL | Surround VR | | $V+/2$ |
| 4 10 | TEST1 TEST2 | Test pin | | $V+/2$ |

| PIN NO. | SYMBOL | FUNCTION | EQUIVALENT CIRCUIT | VOLTAGE |
|---------|------------|-------------------------|--------------------|---------|
| 5 | VREFIN | Reference Voltage Input | | $V+/2$ |
| 6 | V+ | Power Supply | | $V+$ |
| 7 | GND | GND | | 0V |
| 8 9 | SW2 SW1 | Mode Control Switch | | 0V |

NJM2701

| PIN NO. | SYMBOL | FUNCTION | EQUIVALENT CIRCUIT | VOLTAGE |
|----------|--------------|--------------------------|--------------------|---------|
| 11 12 | ROUT LOUT | Rch Output Lch Output | | V+/2 |
| 13 14 | RIN LIN | Rch Input Lch Input | | V+/2 |

APPLICATION CIRCUIT



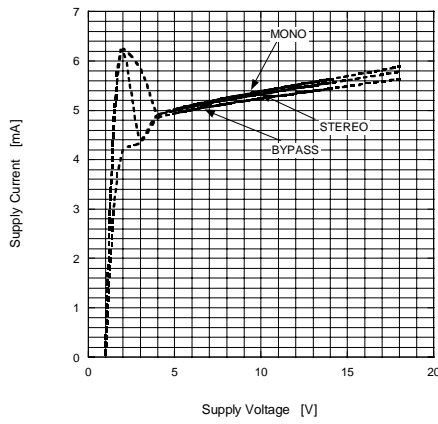
Note) In case of monaural mode (mono to stereo synthesis), input monaural signal into left channel input terminal (LIN).

| Parts No. | Value | Tolerance | Parts No. | Value | Tolerance |
|-----------|----------|-----------|------------------------|-------|-----------|
| R1,R2 | 10kΩ | 5% | C3 | 1µF | 20% |
| C1 | 0.0047µF | 5% | C4 | 100µF | 20% |
| C2 | 0.027µF | 5% | C5,C6,C7,C8,C9,C10,C11 | 10µF | 20% |

TYPICAL CHARACTERISTICS

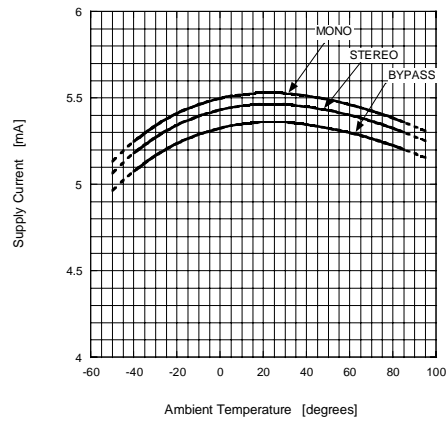
Supply Current vs Supply Voltage

V+=1 to 18V Ta=25degrees



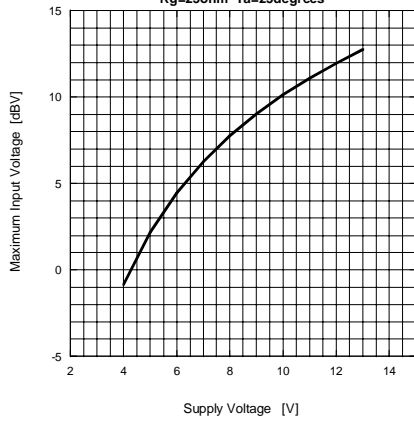
Supply Current vs Ambient Temperature

V+=12V



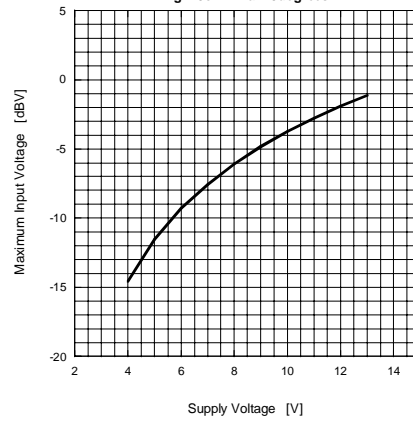
Maximum Input Voltage vs Supply Voltage (BYPASS)

Vin=Lch Vout=Lch f=1KHz RL=47Kohm
Rg=25ohm Ta=25degrees



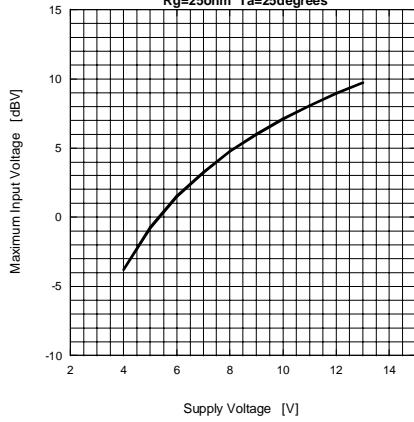
Maximum Input Voltage vs Supply Voltage (STEREO)

Vin=Lch Vout=Lch f=1KHz RL=47Kohm
Rg=25ohm Ta=25degrees

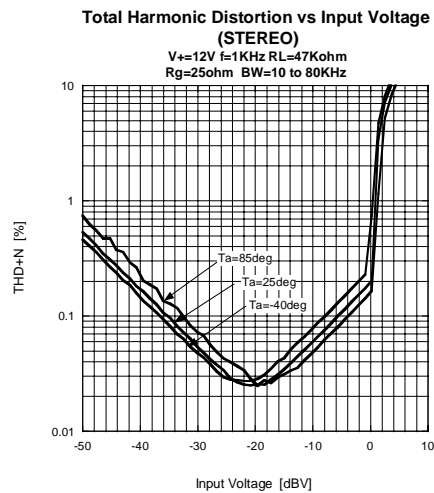
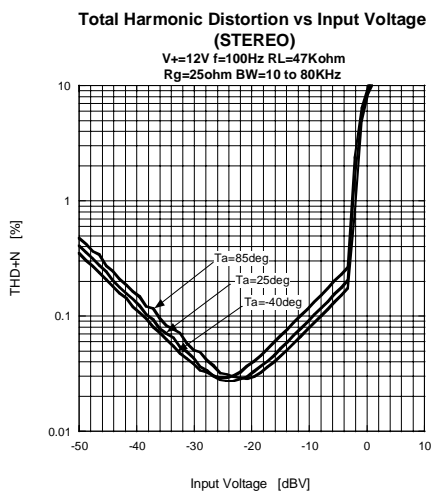
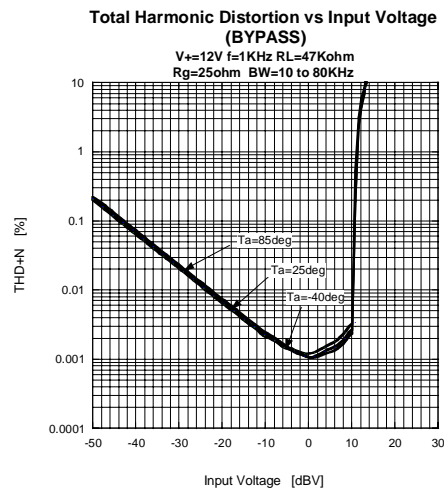
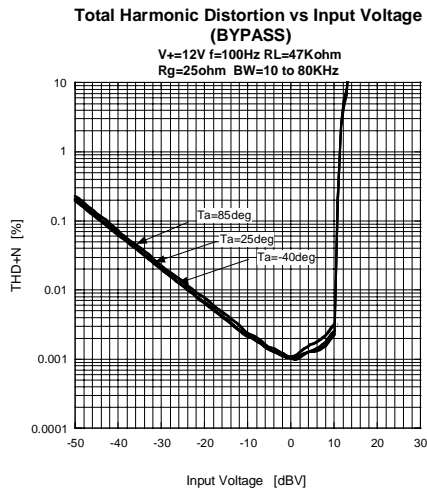
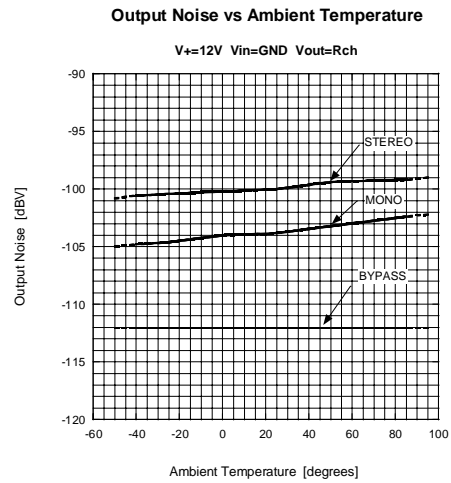
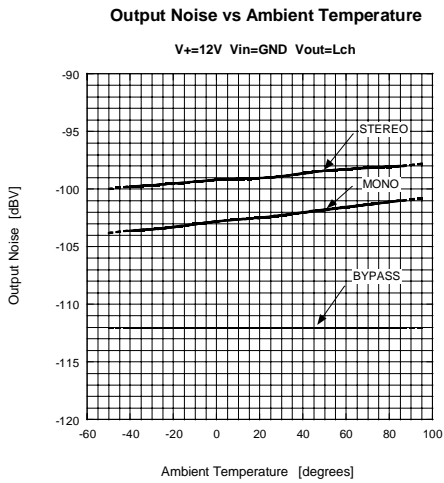


Maximum Input Voltage vs Supply Voltage (MONO)

Vin=Lch Vout=Lch f=1KHz RL=47Kohm
Rg=25ohm Ta=25degrees

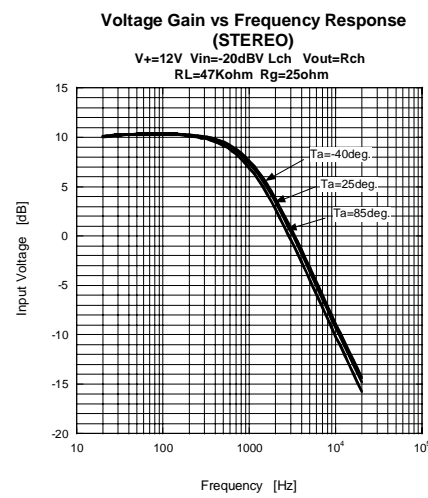
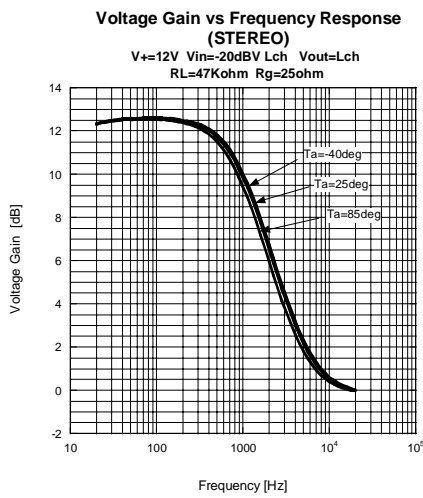
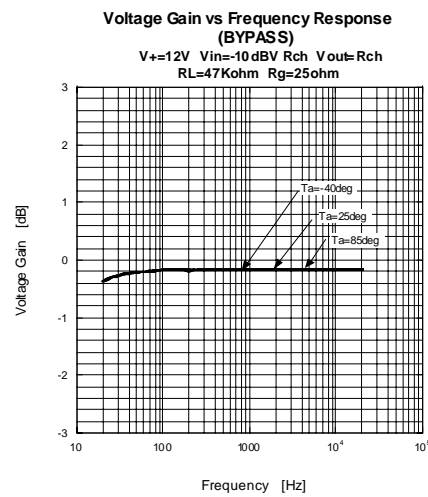
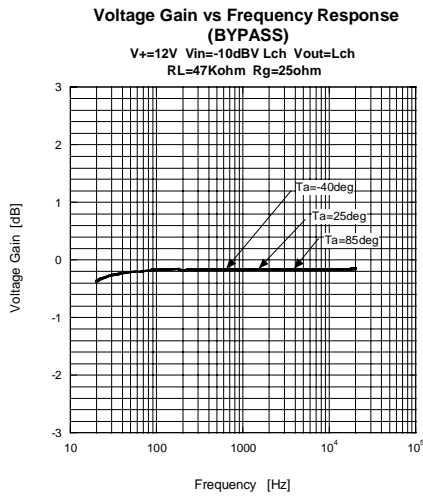
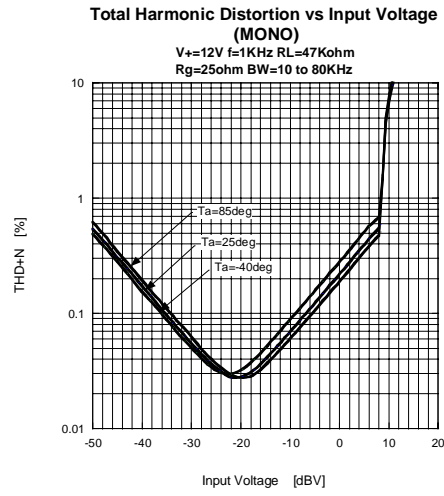
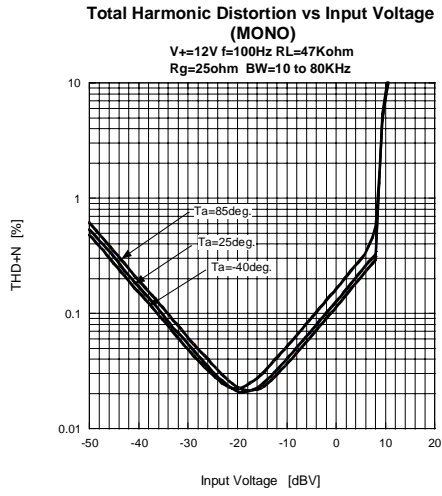


TYPICAL CHARACTERISTICS

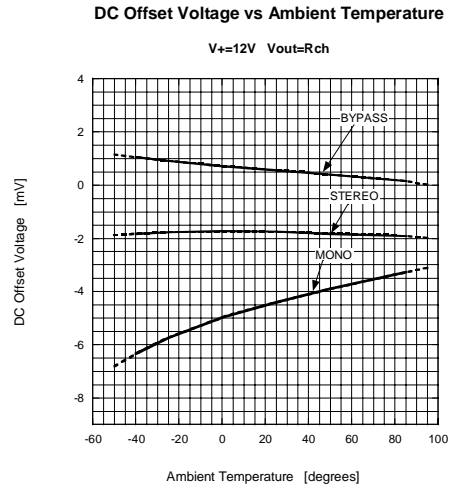
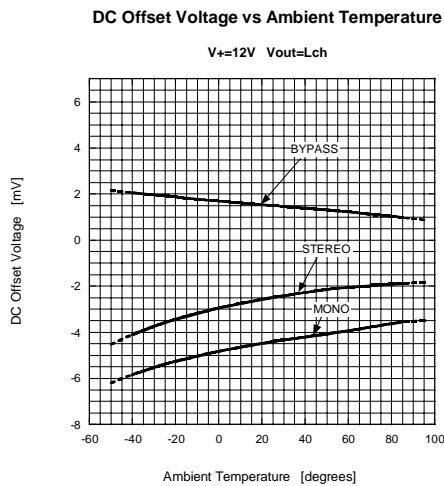
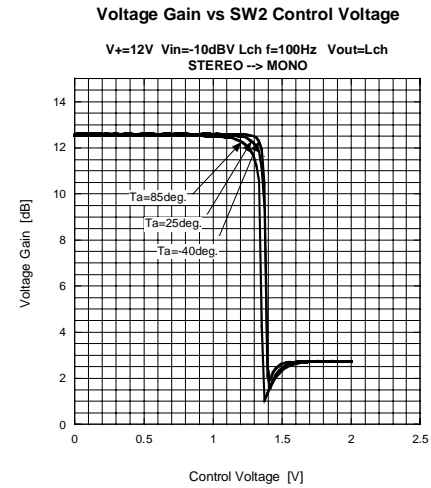
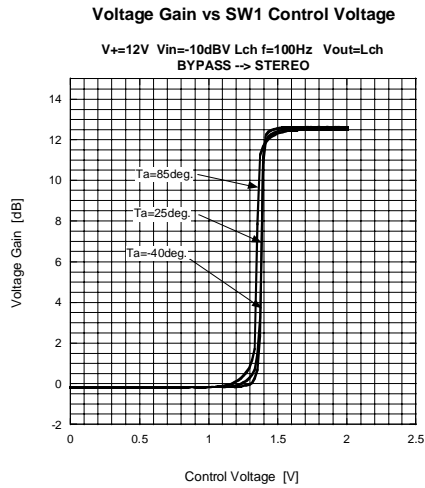
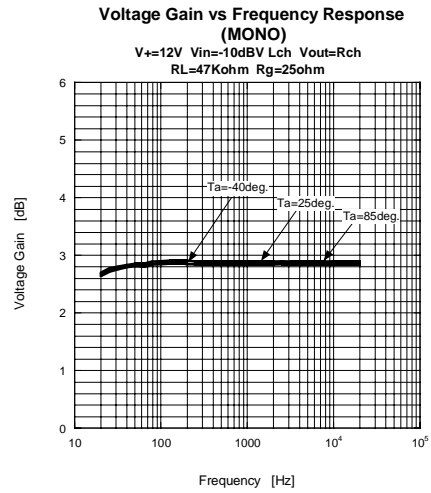
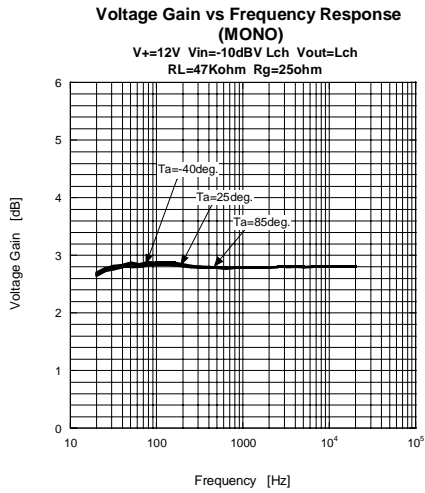


NJM2701

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