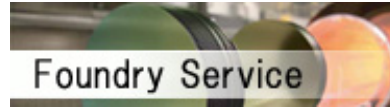


New JRC
Wide Input Range Products
<http://semicon.njr.co.jp/eng/wideinputrange/>
▶ For details



Product Line Up

Operational Amplifier

- Precision
- RF Immunity
- Rail to Rail Input / Output
- Rail to Rail Output
- High Speed / Wide Band
- High Output Current
- Low Noise
- Special Function for Audio
- Low Operating Current
- Low Operating Voltage
- JFET Input
- High Voltage
- General

Comparator

Power Supply IC

- Series Regulator, LDO
- 3 terminal Regulator
- Voltage Detector
- Switching Driver
- System Reset
- Reset IC (Other)
- Switching Regulator
- Shunt Regulator
- Charger Pump IC
- Battery Charger IC
- Battery Back-up IC

Audio

- MUSES Op Amp
- MUSES Electronic Volume Control IC
- Electronic Volume Control IC
- Audio Switch
- Audio Processor
- 3D Surround & Sound Enhancement
- Audio Amplifier
- Class D Amplifier
- Digital Signal Processor
- Special Function

Video

- Video Driver for SD
- Video Driver for HD
- Video Selector for SD
- Video Selector for HD
- Synchronous Signal Separator & detector
- Signal Processor for TFT Display
- Other

Communication IC

- FM IF Demodulator
- RF Amplifier
- Modulation / demodulation

3G/ 4G / LTE Wireless (GaAs MMIC)

- Amplifier IC
- Switch IC

LCD Driver

- Bit Map Type
- Character Type
- Segment Type

VFD Driver

- Segment Type
- Character Type

LED Driver

- White LED Driver
- RGB LED Driver

Motor IC

- Stepper Motor
- Actuator
- DC Brush Motor
- DC Brushless Motor (FAN Motor)
- DC Brushless Motor (General Motor)

Optoelectronic Device

- Photo Diode
- Photo Reflector (Transistor Output)
- Ambient Light Sensor

Quartz Crystal Oscillator IC

- Fundamental
- 3rd. Over Tone
- Tri-state Buffer
- VCXO

Microprocessor Peripheral IC

- IO Port Extension
- RTC
- RS-232C

Other

- ASSP (Other)
- A/D Converter
- Analog Switch IC

SAW Device

- SAW Filter
- SAW VCXO
- SAW Resonator

Operational Amplifier

| TYPE No. | CH | Vopr [V] | ICC/ch typ. [mA] | VIO max. [mV] | IB typ. [nA] | ft typ. [MHz] | GB typ. [MHz] | SR typ. [V/μsec] | Noise typ. [nV/√Hz] | Package Outline | Notes |
|------------------|----|------------|------------------|---------------|--------------|---------------|---------------|------------------|---------------------|------------------|--|
| Precision | | | | | | | | | | | |
| NJM2729 | 1 | ±3.0 ~ ±18 | 1.6 | 0.06 | 1.2 | 1 | | 0.3 | 8 | EMP8 | ΔVIO/ΔT= 0.9μV/°C max. |
| NJM2739 | 2 | ±3.0 ~ ±18 | 1.3 | 0.06 | 1.2 | 1 | | 0.3 | 8 | EMP8 | ΔVIO/ΔT= 0.9μV/°C max. |
| NJM2748A | 1 | ±6.0 ~ ±16 | 2 | 2 | 0.05 | 2 | | 13 | 25 | DIP8, DMP8 | ΔVIO/ΔT= 20μV/°C max. |
| NJM2749A | 2 | ±6.0 ~ ±16 | 1.9 | 2.5 | 0.05 | 2 | | 13 | 25 | DIP8, DMP8, EMP8 | ΔVIO/ΔT= 20μV/°C max. |
| NJU7098 | 1 | +3.0 ~ +10 | 0.55 | 0.015 | 0.015 | | 2 | 3 | 120 | SOT-23-6 | ΔVIO/ΔT= 0.05μV/°C max., Auto-Zero, ShutDown |
| NJU7099 | 2 | +3.0 ~ +10 | 0.55 | 0.015 | 0.015 | | 2 | 3 | 120 | VSP8 | ΔVIO/ΔT= 0.05μV/°C max., Auto-Zero |

| | | | | | | | | | | | |
|--------------------|---|-------------|-------|---|-------|----|------|------|----|--------------------------------|--|
| RF Immunity | | | | | | | | | | | |
| NJM8202 | 2 | +2.5 ~ +14 | 2 | 6 | 100 | 10 | 10 | 3.5 | 10 | DMP8, EMP8, SSOP8, TVSP8, VSP8 | |
| NJU7026 | 1 | +1.8 ~ +5.5 | 0.013 | 4 | 0.001 | | 0.25 | 0.08 | 60 | SC88A, SOT-23 | |
| NJU7027 | 2 | +1.8 ~ +5.5 | 0.013 | 4 | 0.001 | | 0.25 | 0.08 | 60 | TVSP8 | |
| NJU7028 | 4 | +1.8 ~ +5.5 | 0.013 | 4 | 0.001 | | 0.25 | 0.08 | 60 | SSOP14 | |

| | | | | | | | | | | | |
|----------------------------------|---|-------------|------|----|-------|--|-----|-----|----|--|---|
| Rail to Rail Input/Output | | | | | | | | | | | |
| NJM2732 | 2 | +1.8 ~ +6.0 | 0.29 | 5 | 50 | | 1 | 0.4 | 10 | DIP8, DMP8, EMP8, SSOP8, TVSP8, PCSP20 | Single: NJM2730, Quad: NJM2734 |
| NJM2737 | 2 | +1.8 ~ +6.0 | 0.6 | 5 | 200 | | 3.1 | 0.7 | 5 | DIP8, DMP8, SSOP8, TVSP8 | |
| NJM8532 | 2 | +1.8 ~ +14 | 0.29 | 5 | 50 | | 1 | 0.4 | 10 | DMP8, SSOP8, TVSP8 | |
| NJU7043 | 2 | +1.8 ~ +5.0 | 0.3 | 10 | 0.001 | | 0.8 | 0.7 | 40 | DIP8, DMP8, EMP8, SSOP8, TVSP8, PCSP20 | Iout=40mA, Single: NJU7040, Quad: NJU7044 |

| | | | | | | | | | | | |
|---------------------------|---|--------------|-----|----|------|-----|-----|------|-----|------------|----------------------------------|
| Hi-Speed/Wide Band | | | | | | | | | | | |
| NJM2719 | 2 | ±2.25 ~ ±5.0 | 7 | 9 | 0.2 | 100 | | 60 | 2.5 | | |
| NJM2723 | 1 | ±3.5 ~ ±17.5 | 2.9 | 20 | 2000 | | 75* | 2000 | 6 | DIP8, EMP8 | Current Feedback Type, *GB(-3dB) |

| | | | | | | | | | | | |
|----------------------------|---|-------------|-----|----|-------|-----|-----|-----|----|-------------------------|------------|
| High Output Current | | | | | | | | | | | |
| NJM3414A | 2 | +3.0 ~ +15 | 2 | 5 | 100 | | 1.3 | 1 | | DIP8, DMP8, SIP8, SSOP8 | Iout=70mA |
| NJM4556A | 2 | ±2.0 ~ ±18 | 4.5 | 6 | 50 | | 8 | 3 | 10 | DIP8, DMP8, SIP8, SSOP8 | Iout=70mA |
| NJU7036 | 2 | +2.7 ~ +5.5 | 3.5 | 10 | 0.001 | 0.6 | | 0.7 | 30 | EMP14, PCSP20-E3 | Iout=250mA |

| | | | | | | | | | | | |
|------------------|---|-------------|-------|---|-------|---|----|-----|-----|-------------------------------------|--------------------------------|
| Low Noise | | | | | | | | | | | |
| NJM2068 | 2 | ±4.0 ~ ±18 | 2.5 | 3 | 150 | | 27 | 6 | 3.5 | DIP8, DMP8, SIP8, SSOP8, EMP8 | THD=0.001 typ., Ios=65mA typ. |
| NJM2114 | 2 | ±3.0 ~ ±22 | 4.5 | 3 | 500 | | 13 | 15 | 3.3 | DIP8, DMP8, SIP8 | THD=0.0005 typ., Ios=65mA typ. |
| NJM2122 | 2 | ±2.0 ~ ±10 | 3.5 | 6 | 3600 | | 12 | 2.4 | 1.5 | DIP8, DMP8 | |
| NJM4580 | 2 | ±2.0 ~ ±18 | 3 | 3 | 100 | | 15 | 5 | 5 | DIP8, DMP8, EMP8, SIP8, SSOP8, VSP8 | THD=0.0005 typ., Ios=75mA typ. |
| NJM5532 | 2 | ±3.0 ~ ±22 | 4.5 | 4 | 200 | | 10 | 8 | 5 | DIP8, DMP8, SIP8 | Ios=90mA typ. Single: NJM5534 |
| NJU7029 | 2 | +2.2 ~ +5.5 | 0.425 | 5 | 0.001 | 3 | | 1 | 13 | SSOP8, TVSP8, ESON8 | Single: NJU7009 |

| | | | | | | | | | | | |
|-----------------------------------|---|------------|-----|---|-----|-----|--|----|--|------------------|---------------------------|
| Special Function for Audio | | | | | | | | | | | |
| NJM13600 | 2 | - | 1.3 | 5 | 400 | | | 50 | | DIP16, DMP16 | |
| NJM2121 | 1 | ±2.5 ~ ±18 | 2.3 | 6 | 200 | 1.4 | | 4 | | DIP8, DMP8, SIP8 | Switching OpAmp(2In-1out) |

| | | | | | | | | | | | |
|--|---|-------------|-------|---|-------|-----|--|-----|--|--------------------------------|------------------|
| Low Operating Current / Low Operating Voltage | | | | | | | | | | | |
| NJU7094 | 2 | +1.0 ~ +5.5 | 0.015 | 4 | 0.001 | 0.2 | | 0.1 | | DIP8, DMP8, SSOP8, TVSP8, VSP8 | Single: NJU7091A |
| NJU7095 | 2 | +1.0 ~ +5.5 | 0.08 | 4 | 0.001 | 1 | | 1 | | DIP8, DMP8, SSOP8, TVSP8, VSP8 | Single: NJU7092A |
| NJU7096 | 2 | +1.0 ~ +5.5 | 0.2 | 4 | 0.001 | 1 | | 2.4 | | DIP8, DMP8, SSOP8, TVSP8, VSP8 | Single: NJU7093A |

| | | | | | | | | | | | |
|--------------------|---|------------|-----|----|-------|---|--|-----|--|-------------------------------|--------------|
| J-FET Input | | | | | | | | | | | |
| NJM062 | 2 | ±2.0 ~ ±18 | 0.2 | 15 | 0.002 | 1 | | 3.5 | | DIP8, DMP8, SIP8, SSOP8 | Quad: NJM064 |
| NJM072B | 2 | ±4.0 ~ ±18 | 1.5 | 10 | 0.03 | 3 | | 13 | | DIP8, DMP8, EMP8, SIP8, SSOP8 | Quad: NJM074 |
| NJM082B | 2 | ±4.0 ~ ±18 | 1.5 | 15 | 0.03 | 3 | | 13 | | DIP8, DMP8, SIP8, SSOP8 | Quad: NJM084 |

| | | | | | | | | | | | |
|---------------------|---|------------|--------|----|------|-----|-----|-----|----|--------------------------|--------------------------|
| High Voltage | | | | | | | | | | | |
| NJM2147 | 2 | ±8.0 ~ ±28 | 0.0875 | 5 | 15 | 0.8 | 0.5 | 0.5 | 50 | DIP8, DMP8 | |
| NJM2718 | 2 | +3.0 ~ +36 | 1.85 | 4 | 1200 | | 1.8 | 9 | 24 | EMP8, SSOP8 | CL=1000pF |
| NJM2727 | 1 | ±4.5 ~ ±18 | 10 | 4 | 10 | 40 | | 300 | 14 | DIP14, EMP14 | |
| NJM2742 | 2 | +3.0 ~ +32 | 1.65 | 12 | | | 2 | 7 | | DIP8, DMP8, SSOP8, TVSP8 | CL=1000pF, Quad: NJM2744 |

| | | | | | | | | | | | |
|----------------|---|------------|------|---|----|-----|-----|-----|----|---|----------------|
| General | | | | | | | | | | | |
| NJM2060 | 4 | ±4.0 ~ ±18 | 2.25 | 6 | 40 | | 10 | 4 | | DIP14, DMP14, SSOP14 | |
| NJM2904 | 2 | +3.0 ~ +32 | 0.35 | 7 | 25 | | 0.6 | 0.5 | | DIP8, DMP8, EMP8, SIP8, SSOP8, TVSP8, VSP | Quad: NJM2902 |
| NJM3404A | 2 | +4.0 ~ +36 | 1 | 5 | 70 | 1.2 | | 1.2 | | DIP8, DMP8, SIP8, SSOP8 | Quad: NJM3403A |
| NJM4558 | 2 | ±4.0 ~ ±18 | 1.75 | 6 | 25 | | 3 | 1 | 14 | DIP8, DMP8, SIP8, SSOP8 | |

Comparator

| TYPE No. | CH | Vopr [V] | ICC / ch typ. [μA] | VIO max. [mV] | IB typ. [nA] | tR typ. [μS] | AV typ. [dB] | Package Outline | Notes |
|----------------|----|-------------|--------------------|---------------|--------------|--------------|--------------|--------------------------------------|-------|
| Bipolar | | | | | | | | | |
| NJM2903 | 2 | 2.0 ~ 36 | 400 | 7 | 250 | 1.5 | 106 | DIP8, DMP8, EMP8, SIP8, SSOP8, TVSP8 | |
| NJM311 | 1 | 5.0 ~ 36 | | 7.5 | 250 | 0.2 | 106 | DIP8, DMP8 | |
| NJM360 | 1 | ±4.5 ~ ±6.5 | | 5 | 20000 | 0.014 | | DIP8, DMP8, EMP8 | |

| TYPE No. | CH | Vopr [V] | ICC / ch typ. [μA] | VIO max. [mV] | IB typ. [pA] | tRF typ. [μS] | tRR typ. [μS] | Package Outline | Notes |
|-------------|----|-----------|--------------------|---------------|--------------|---------------|---------------|-----------------|------------|
| CMOS | | | | | | | | | |
| NJU7109 | 1 | 1.0 ~ 5.5 | 100 | 7 | 0.1 | 0.07 | 0.11 | SC88A, SOT23 | Push Pull |
| NJU7116 | 1 | 1.8 ~ 3.6 | 1 | 2.5 | 0.1 | 1.2 | 3.3 | SOT-23 | Push Pull |
| NJU7119 | 1 | 1.8 ~ 5.5 | 100 | 7 | 0.1 | 0.07 | | SC88A | Open Drain |
| NJU7141 | 1 | 1.0 ~ 5.5 | 5 | 10 | 0.1 | 0.35 | | SOT-23 | Open Drain |

Power Supply IC

Series Regulator, LDO

| TYPE No. | Vopr [V] | Vout range [V] | I _o max. [mA] | ON OFF Control | NB PIN | V _o Accuracy [%] | V _{drop} typ. [V] | RR typ. [dB] | Noise typ. [μVrms] | I _q typ. [μA] | Output Capacitor [μF] | Package Outline | Notes |
|----------|----------|----------------|--------------------------|----------------|--------|-----------------------------|----------------------------|--------------|--------------------|--------------------------|-----------------------|----------------------|--|
| NJM2817 | 8 | 1.8~5.0* | 3000 | Yes | No | ±1.0 | 0.12 | 65 | 42 | 700 | 4.7(CC) | TO252-5 | *0.1Vstep |
| NJM2819A | 10 | 1.8~7.0* | 2000 | Yes | No | ±1.0 | 0.1 | 65 | 42 | 500 | 4.7(CC) | TO252-5 | *0.1Vstep |
| NJM2828 | -14 | -1.5 ~ -10.0* | 100 | Yes | No | ±1.5 | 0.13 | 65 | 100 | 130 | 1.0(CC) | SC88A, SC82AB | *0.1V step |
| NJM2830 | 20 | 2.1 ~ 15.5* | 300 | Yes | No | ±1.0 | 0.1 | 75 | 50 | 130 | 1.0(CC) | SOT89-5 | *0.1V step |
| NJM2846 | 14 | 1.5~5.0* | 800 | Yes | No | ±1.0 | 0.18 | 75 | 45 | 400 | 2.2(CC) | TO252-5 | *0.1V step |
| NJM2847 | 10 | 0.8~1.4* | 150 | Yes | Yes | ±1.0 | 0.1 | 85 | 20 | 140 | 2.2(CC) | SC88A | *0.1V step |
| NJM2856 | 10 | 1.5 ~ 5.0* | 1000 | Yes | No | ±1.0 | 0.18 | 75 | 45 | 400 | 2.2(CC) | TO252-5 | *0.1V step |
| NJM2857 | 10 | 1.5 ~ 5.0* | 1500 | Yes | No | ±1.0 | 0.2 | 80 | 55 | 500 | 4.7(CC) | TO252-5 | *0.1V step |
| NJM2872B | 14 | 1.5 ~ 5.0* | 150 | Yes | Yes | ±1.0 | 0.1 | 75 | 30 | 120 | 1.0(CC) | SOT23-5 | Variation of Pin Configuration (NJM2871B),*0.1V step |
| NJM2884A | 10 | 2.1 ~ 5.0* | 500 | Yes | No | ±1.0 | 0.18 | 75 | 45 | 200 | 2.2(CC) | ESON6, TO252-5 | *0.1V step |
| NJM2888 | 10 | 1.5 ~ 5.0 | 300 | Yes | No | ±1.0 | 0.1 | 75 | 45 | 140 | 1.0(CC) | ESON-4, SOT23-5 | |
| NJU7741 | 10 | 1.5 ~ 6.0 | 100 | Yes | No | ±1.0 | 0.17 | | | 1.5 | 0.1(CC) | SOT23-5 | NJU7741: With Output Shunt Switch |
| NJU7757 | 10 | 1.5 ~ 5.0 | 100 | Yes | No | ±1.0 | 0.15 | 65 | 75 | 20 | 1.0(CC) | SC82AB | NJU7758: With Output Shunt Switch |
| NJU7771 | 10 | 1.5 ~ 5.0 | 150 | Yes | No | ±1.0 | 0.15 | 65 | 40 | 18 | 1.0(CC) | SOT-23-5 | NJU7774: With Output Shunt Switch |
| NJU7780 | 10 | 1.5 ~ 5.0 | 300 | Yes | No | ±1.0 | 0.15 | 65 | 80 | 20 | 1.0(CC) | SOT89-5 | NJU7781: With Output Shunt Switch |
| NJU7790 | 9 | 1.5~5.0* | 500 | Yes | No | ±1.0 | 0.12 | 65 | 75 | 30 | 2.2(CC) | SOT89-5 | *0.1V step |
| NJW4180 | 40 | 2.5 ~ 5.0 | 20 | No | No | ±1.5 | | | | 9 | 10(CC) | SOT-23-5, ESON6 | |
| NJW4181 | 40 | 2.5 ~ 15 | 100 | No | No | ±1.0 | | | | 9 | 2.2(CC) | SOT89-3, ESON6 | |
| NJW4183 | 40 | 2.5 ~ 3.3 | 100 | Y/N | No | ±1.0 | 0.16 | | | 20 | 10(CC) | SOT89-3/5, TO252-3/5 | A ver:ON/OFF, B ver: 3 terminal |
| NJW4184 | 40 | 2.5 ~ 15 | 300 | Y/N | No | ±1.0 | 0.1 | | | 15 | 2.2(CC) | SOT89-3/5, TO252-3/5 | A ver:ON/OFF, B ver: 3 terminal, C ver: w/o ON/OFF |

CC: Ceramic Capacitor

Switching Regulator IC

| TYPE No. | Application | | | | Vopr [V] | I _q typ. [mA] | Features | | | Protection Current | | | Package Outline | Notes |
|----------|-------------|---------|-----------|----------|-----------|--------------------------|-------------------|------------------|---------------|--------------------|----------------|-------------|-------------------------|-------------------|
| | Step-Down | Step-Up | Inverting | Fly-Back | | | SW. Drive | Max. Freq. [kHz] | Ref. tol. [%] | Peak Current | Output Current | Timer Latch | | |
| NJM2344 | Yes | Yes | Yes | | 3.0 ~ 4.0 | 2.8 | Internal 1.5A | 150 | ±1.0 | Yes | | | DIP8, DMP8 | Stand-by Function |
| NJM2360A | Yes | Yes | Yes | | 2.5 ~ 4.0 | 2.4 | Internal 1.5A | 100 | ±2.0 | Yes | | | DIP8, DMP8 | |
| NJM2374A | Yes | Yes | Yes | | 2.5 ~ 4.0 | 2.8 | Internal 1.5A | 100 | ±2.0 | Yes | | | DIP8, DMP8, EMP8, SSOP8 | |
| NJM2377 | | Yes | | Yes | 2.7 ~ 1.8 | 5 | External Tr/FET | 500 | ±2.0 | | | Yes | DIP8, DMP8, SSOP8, VSP8 | |
| NJM2392 | Yes | Yes | Yes | | 3.0 ~ 4.0 | 2.8 | Internal Tr. 1.5A | 150 | ±2.0 | Yes | | | DIP8, DMP8 | |
| NJM2393 | Yes | | | | 3.0 ~ 4.0 | 2.8 | Internal Tr. 1.5A | 150 | ±1.0 | Yes | | | DIP8, DMP8 | |
| NJM2399 | Yes | | | | 7.5 ~ 4.0 | 4.0 | Internal 6.5A | 72 | ±2.0 | Yes | | | TO220-5(Forming) | |
| NJU7600 | | Yes | | Yes | 2.2 ~ 8.0 | 0.8 | External FET | 1000 | ±1.5 | | | Yes | DMP8, TVSP8/10 | |
| NJU7677 | | Yes | | | 1.8 ~ 7.0 | 0.6 | External FET | 1000 | ±1.0 | | | Yes | TVSP8 | |
| NJU7680 | Yes | Yes | | Yes | 2.3 ~ 7.0 | 1 | External FET | 1000 | ±1.5 | | | Yes | PCSP24-ED, SSOP16 | 2ch |
| NJU7690 | Yes | | | | 2.2 ~ 8.0 | 0.8 | External FET | 1000 | ±1.0 | | | Yes | TVSP10 | Synchronous |
| NJU7691 | Yes | | | | 2.2 ~ 7.0 | 1.3 | Internal 300mA | 1000 | ±1.0 | Yes | | | TVSP8 | Synchronous |
| NJW4130 | | Yes | | | 2.3 ~ 5.5 | | Internal 450mA | 700 fixed | ±1.0 | Yes | | | TVSP8 | Stand-by Function |
| NJW4131 | | Yes | | | 6.0 ~ 35 | | Internal 1A | 1000 | ±1.0 | Yes | | | TVSP8 | Stand-by Function |
| NJW4150 | Yes | | | | 6.0 ~ 34 | 2.3 | Internal 450mA | 1000 | ±1.0 | Yes | | | TVSP8 | |
| NJW4152A | Yes | | | | 4.6 ~ 4.0 | | Internal 1A | 1000 | ±1.0 | Yes | | | HSOP8 | |
| NJW4152B | Yes | | | | 4.6 ~ 4.0 | | Internal 600mA | 1000 | ±1.0 | Yes | | | VSP8 | |
| NJW4160 | Yes | | | | 3.0 ~ 35 | | External FET | 1000 | ±1.0 | Yes | | | DMP8, VSP8 | |

3-Terminal Voltage Regulator

| TYPE No. | Vopr (max.) [V] | V _o [V] | V _o Accuracy [%] | I _o (max.) [mA] | I _q (typ.) [mA] | RR (typ.) [dB] | Package Outline | Notes |
|----------|-----------------|--------------------|-----------------------------|----------------------------|----------------------------|----------------|-----------------|-------------------------------------|
| NJM317 | 40 | +1.25 ~ +37 | 4 | 1500 | 3.5 (min) | 65 | TO220F-3 | V _{ref} =1.25V, Adjustable |
| NJM7800 | 35/40(*) | +5.0 ~ +24 | 4 | 1500 | 4.2(*) | 78(*) | TO220F-3, TO252 | *Depends on the output voltage |
| NJM7905 | -35/-40(*) | -5.0 ~ -24 | 4 | 1500 | 2.2(*) | 60(*) | TO220F-3 | *Depends on the output voltage |

Voltage Detector

| TYPE No. | Delay Function typ. [ms] | Manual Reset | Voltage Detection | | Type of Detection | | Hysteresis Voltage [V] | Output Type | Vopr [V] | I _q / ch (typ.) [μA] | Package Outline |
|----------|--------------------------|--------------|-------------------|--------------|-------------------|--------------|------------------------|-----------------|----------|---------------------------------|-----------------|
| | | | Range [V] | Accuracy [%] | Drop Voltage | Over Voltage | | | | | |
| NJU7700 | - | No | 1.3~6.0(0.1step) | ±1.0 | Yes | No | VDET x 0.05 | Nch. Open Drain | 0.8~10 | 0.8 | SC82AB, SOT23-5 |
| NJU7701 | - | No | 1.3~6.0(0.1step) | ±1.0 | Yes | No | VDET x 0.05 | C-MOS Output | 0.8~10 | 0.8 | SC82AB, SOT23-5 |

Shunt Regulator

| TYPE No. | V _{ref} [V] | Ref. tol. [%] | Cathode Voltage (max.) [V] | Cathode Current (max.) [mA] | Min. Cathode Current (typ.) [μA] | Package Outline |
|----------|----------------------|---------------|----------------------------|-----------------------------|----------------------------------|---------------------------|
| NJM1431A | 2.465 | ±1 | 36 | 100 | 400 | ESON-4, SOT-23-5, SOT89-3 |
| NJM2825 | 1.2 | ±0.5 | 13 | 12 | 0.7 | SOT-23-5 |
| NJM431 | 2.495 | ±2.0 | 36 | 100 | 400 | DIP8, DMP8, SOT89-3 |

Switching Driver IC

| TYPE No. | Function | Notes | Vopr [V] | I _q typ. [mA] | Package Outline |
|----------|---------------------------|--|----------|--------------------------|-----------------|
| NJW4800 | 30V/4A Half Bridge Driver | Thermal Shut Down, Over Current Protection, Fault Indicator Output | 7.5 ~ 30 | | HSOP-8 |

Charger Pump IC

| TYPE No. | Output Function | Input Voltage [V] | Output Resistance (max.) [ohm] | Frequency [kHz] | I _q (max.) [mA] | Package Outline | Notes |
|----------|-----------------|-------------------|--------------------------------|-----------------|----------------------------|-----------------|--|
| NJW4190 | Duble | 5.0 ~ 17 | | | | DMP8, VSP8 | I _o =55mA, Standby, V _o programmable |
| NJW4191 | Inverting | 4.7 ~ 17 | | | | DMP8, VSP8 | I _o =55mA, Standby, V _o programmable |

Audio

MUSES OpAmp

| TYPE No. | Vopr [V] | Ch | ICC/ch [mA] | En [nV/√Hz] | THD [%] | VIO [mV] | SR [V/μsec] | GBW [MHz] | Io [mA] | Input type | Package Outline | Notes |
|-----------|------------|----|-------------|-------------|---------|----------|-------------|-----------|---------|------------|-----------------|----------------|
| MUSES01 | ±9.0 ~ ±16 | 2 | 4.25 | 9.5 | 0.002 | 5 | 12 | 3.3 | 100 | JFET | DIP8 | Premium Audio |
| MUSES02 | ±3.5 ~ ±16 | 2 | 4 | 4.5 | 0.001 | 3 | 5 | 11 | 100 | BIP | DIP8 | Premium Audio |
| MUSES8920 | ±3.5 ~ ±16 | 2 | 4 | 7 | - | 5 | 20 | - | - | JFET | DIP8, EMP8 | High-end Audio |
| MUSES8820 | ±3.5 ~ ±16 | 2 | 4 | 4.5 | 0.001 | 3 | 5 | 11 | 50 | BIP | DIP8, EMP8 | High-end Audio |
| NJM8901 | ±2.0 ~ ±18 | 2 | 2 | 13 | - | 10 | 20 | 5 | - | JFET | EMP8 | |
| NJM8801 | ±2.0 ~ ±18 | 2 | 3 | 5 | 0.0005 | 3 | 5 | 15 | 100 | BIP | EMP8 | |

MUSES Electronic Volume Control IC

| TYPE No. | Vopr [V] | Ch. | Volume Range | Input Selector | Noise [dBV] | THD [%] | Interface | Package Outline | Notes |
|------------|------------|-----|--|----------------|-------------|---------|-----------|-----------------|---|
| MUSES72320 | ±8.5 ~ ±18 | 2 | 0 ~ -111.5dB/0.25dBstep,MUTE +31.5 ~ 0dB/0.5dB step | - | -120 | 0.0003 | SPI | SSOP32 | Selectable Ex OpAmp, Zero Cross Detection |

Electronic Volume Control IC

Single Supply

| | | | | | | | | | |
|----------|-------------------------|-----|-------------------------------|---|------|--------|-------------|-----------|---|
| NJU72341 | 4.5 ~ 14.5 | 2 | 0 ~ -95dB/1dBstep,MUTE | - | -114 | 0.003 | I2C BUS | SSOP14 | Zero Cross Detection, 4ch: NJU72342 |
| NJU7391A | 4.7 ~ 9.7 | 2 | 0 ~ -95.0dB/1dBstep,MUTE | Stereo:5-in/1-Out | -110 | 0.002 | SPI | SSOP32 | eala surround,Tone |
| NJU7392 | 2.7 ~ 5.5 | 2 | 0 ~ -68dB/MUTE | 2-in(1-Diff,+ 1-SE)/1-Out | -100 | 0.05 | Push Button | SSOP32 | Stereo Expander, Bass Boost, Power save mode |
| NJU7394 | 2.7 ~ 5.5 | 2 | +6 ~ -62dB/MUTE | - | -100 | 0.05 | Push Button | SSOP20 | Power save mode, NJU8790: w/ 2.7W D-Amp, Limiter |
| NJW1200 | 2.7 ~ 5.5 | 2 | 0 ~ -78dB/2dB step,MUTE | Differential:2-in/1-Out | -100 | 0.07 | I2C BUS | SSOP32 | Surround,Dynamic Bass Boost, Power Saving |
| NJW1201A | 7.5 ~ 10 | 2 | 0 ~ -90dB/MUTE | 6-in(1-Diff,+ 5-SE)/1-Out | -100 | 0.01 | I2C BUS | LQFP52-H2 | Surround,Tone,Base Boost |
| NJW1195A | ±3.5 ~ ±7.5 7.0 ~ 15 | * | +31.5 ~ -95dB/0.5dB step,MUTE | Stereo: 4-in/2-Out (Differential : 2-in/1-Out) | -118 | 0.0003 | SPI | SSOP32 | *4ch. Single/2ch. Differential selectable Zero Cross Detection |
| NJW1221 | 7.5 ~ 10 | 4.1 | +16 ~ -79dB/1dB step,MUTE | 7-in(2-Diff,+ 5-SE)/1-Out | -103 | 0.01 | I2C BUS | LQFP64-H2 | 5Band EQ (SCF),HPF, LPF,Loudness, 7 bands spectrum analyzer |

Dual Supply

| | | | | | | | | | |
|----------|-------------|---|-------------------------------|--|------|--------|-----|------------------------|----------------------------------|
| NJW1194 | ±4.5 ~ ±7.5 | 2 | +31.5 ~ -95dB/0.5dB step,MUTE | Stereo:4-in/1-Out | -117 | 0.0015 | SPI | SSOP32 | Tone |
| NJW1299 | ±4.5 ~ ±7.5 | 8 | +31.5 ~ -95dB/0.5dB step,MUTE | Stereo:14-in/4-out 8ch.: 2-in/1-out | -118 | 0.001 | SPI | QFP100-C2 QFP100-U1 | REC output Source Direct mode |
| NJU72340 | ±4.5 ~ ±7.5 | 8 | +31.5 ~ -95dB/0.5dB step,MUTE | 9-in/2-out (Stereo: 8, Mono: 1) | -117 | 0.001 | SPI | LQFP52-H2 | REC output |

Audio Switch

| TYPE No. | Ch. | No.of Switch | Noise typ. [dBV] | THD typ. [%] | Vopr [V] | Package Outline | Notes |
|----------|--------|--------------------|------------------|--------------|-------------|-----------------|---|
| NJM2752 | Stereo | 2-Input / 1-Output | -114 | 0.0009 | 4.7 ~ 10 | SSOP14, TVSP10 | NJM2753: 3-in / 1out, NJM2755: 4in / 1out |
| NJW1110 | Stereo | 9-input/3-Output | -116 | 0.0007 | 7.5 ~ 15 | SSOP32 | I2C Bus, Adjustable Gain Buffer:0/+3 ~ +8dB/0.5dB step, Mute |
| NJW1111 | Stereo | 9-input/3-Output | -116 | 0.0007 | ±4.5 ~ ±7.5 | SSOP32 | 3-wired Serial, Adjustable Gain Buffer:0/+3 ~ +8dB/0.5dB step, Mute |
| NJW1112 | Stereo | 8-input/4-Output | -119 | 0.0007 | ±4.5 ~ ±7.5 | SSOP32 | 3-Wired Serial Control, Output switch |

Audio Amplifier

| TYPE No. | Channel | Vopr [V] | Output Power | STBY | Mute | Key Features | Package Outline | | |
|-----------------------------------|-------------------|-----------|-----------------------------|----------------------------|------|---|-------------------------------------|----------------------------|--------------------------|
| Speaker Amp | | | | | | | | | |
| NJM2070 | 1ch. | 1.8 ~ 15 | 500mW typ.@V+=6V,RL=4ohm | No | No | Low Voltage Operation | DIP8, DMP8 | | |
| NJM2073 | 2ch. | 1.8 ~ 15 | 650mW typ.@V+=6V,RL=4ohm | No | No | Low Voltage Operation, | DIP8, DMP8 | | |
| NJM2113 | BTL:1ch. | 2.0 ~ 16 | 400mW min.@V+=12V,RL=100ohm | Yes | Yes | Low Voltage Operation | DIP8, DMP8, EMP8, SIP8, SSOP8, VSP8 | | |
| NJU7084 | BTL:1ch. | 2.8 ~ 5.5 | 1W typ.@V+=5V,RL=8ohm | Yes | Yes | Thermal Shutdown Function | DMP24, VSP8 | | |
| NJU7085 | BTL:2ch. | 2.8 ~ 5.5 | 400mW typ.@V+=3V,RL=4ohm | Yes | Yes | surround sound technology | PCSP32-F7, SSOP32 | | |
| NJU7086 | BTL:2ch. | 2.8 ~ 5.5 | 1W/ch typ. @V+=5V,RL=8ohm | Yes | Yes | Three input selector,Electronic volume | LQFP48-R3 | | |
| NJU7089 | BTL:1ch. | 1.8 ~ 5.5 | 1.2W typ. @V+=5V,RL=8ohm | Yes | Yes | Low Voltage Operation, Differential Input | VSP8, ESON8, SSOP20 | | |
| Headphone Amp | | | | | | | | | |
| NJU72040 | 2ch. | 2.7 ~ 3.6 | 50mW typ.@V+=3.3V,RL=32ohm | No | Yes | Gain=6/12dB, LPF, Output-Cap-less, Pop Noise Suppression | SSOP14 | | |
| Microphone Amp | | | | | | | | | |
| NJM2781 | 1ch. | 2.7 ~ 4.5 | - | Yes | No | Low Voltage Operation | SSOP8, TVSP8 | | |
| NJM2783 | 1ch. | 2.7 ~ 13 | - | No | No | Auto level control (ALC) function | SSOP14 | | |
| NJM2795 | 2ch. | 4.3 ~ 20 | - | No | No | Adjustable Differential Gain (+6 ~ 52dB), CMRR=70dB@Gv.:+ | SSOP14 | | |
| Line Amp | | | | | | | | | |
| NJM2160B | 2ch. | 6 ~ 12 | - | No | No | Boost output Function, Vo=14Vpp (5Vrms) @V+=9V | DMP16, SSOP16 | | |
| NJU72010 | 2ch. | 2.7 ~ 4.5 | - | No | Yes | 2Vrms@3.3V, Gain=6dB(NJU72011: 9dB), LPF Output-Cap-less, Pop Noise Suppression Circuit | SSOP14, TVSP10 | | |
| NJW1230 | A: 2ch. V: 1ch | 2.8 ~ 3.6 | - | No | Yes | Audio: Gain=6dB, LPF, Output-Cap-less Video: Gain=6dB, LPF, 75 ohms Driver, AC/DC Coupling Out | SSOP16 | | |
| NJW1240 | 6ch. | 6.0 ~ 10 | - | No | Yes | 5Vrms@8V, Output-Cap-less, Pop Noise Suppression Circuit | SSOP32 | | |
| Ground Noise Isolation Amp | | | | | | | | | |
| NJM2794 | 2ch. | 4.3 ~ 13 | - | No | No | CMRR=60dB | SSOP14, TVSP10 | | |
| Class D Amplifier | | | | | | | | | |
| TYPE No. | Input Signal | Ch. | Vopr [V] | Output Power | STBY | Mute | ATT | Package Outline | Notes |
| NJU8752B | analog | 1 | 3.1 ~ 3.6, 6.0 ~ 16 | 10Vrms @VDDO=12V(CL=0.8uF) | Yes | Yes | - | QFN20-M1, QFN28-P4, SSOP14 | For Piezo Speaker |
| NJU8758 | analog | 1 | 1.8 ~ 5.5 | 1.5W @VDD=5V(RL=8ohm) | Yes | Yes | - | SSOP14 | Filterless |
| NJU8789 | PWMP/PDM | 1 | 1.8 ~ 4.5 | 500mW@3.3V,(RL=8ohm) | Yes | - | - | SSOP10 | |
| NJU72501 | PWMP/PDM | 2 | 2.3 ~ 3.4 | - | Yes | - | - | QFN12 | For Piezo-sounder Driver |

Digital Signal Processor

| TYPE No. | Sound Function | Package Outline |
|-----------------|--|-----------------|
| NJU26060 Series | Sound customizing is easy by One-Time Programmable Memory. | SSOP44 |
| NJU26902 | Delay (128ms at fs=32KHz, 85ms at fs=48KHz) | SSOP20 |

Special Function

| TYPE No. | Application | Vopr [V] | Package Outline | Notes |
|----------|---|-------------|-----------------|--|
| NJM2761 | Audio Limiter (Speaker Protection) | 2.7 ~ 13 | SSOP14, TVSP10 | |
| NJU7181 | Power Saving for battery operated devices, Muting Application Memory saving for recording devices, Half- duplex transmission application | 0.9 ~ 5.5 | ESON8, TVSP8 | |
| NJU3610 | AV Amplifiers, speaker systems such as sound-bar portable audio devices etc. | * | LQFP48-R3 | *Analog(3.0 ~ 3.6V), Digital(1.65 ~ 2.0V) 1bit Delta-Sigma stereo ADC |
| NJW1119A | 3-Band Tone Control IC (AV amplifier/receiver/Car Audio/Mini/Micro components) | ±4.5 ~ ±7.5 | SSOP32 | 3-Wired Serial Control |
| NJW1124 | Voice Switched Speakerphone circuit (Video Door Phone, Conference System, Wireless Application, Security System) | 2.9 ~ 4.5 | SSOP32 | |

Video

Video Driver for SD

| TYPE No. | Vopr [V] | Ch. | Gain [dB] | Input | LPF | Package Outline | Notes |
|----------|------------|-----|-----------|--------------------|-----|-----------------|--|
| NJM2561 | 2.8 ~ 5.5 | 1 | 6 | CVBS | 6th | ESON6, SOT-23-6 | Sag Correction, NJM2561 Series(Different Gain Ver.) |
| NJM2512 | 3.0 ~ 6.0 | 1 | 6 | CVBS | 6th | TVSP8 | 47µF AC-Coupling Capacitor, NJM2512A(12dB) |
| NJM2559 | 4.5 ~ 5.5 | 1 | 12 | CVBS | 6th | TVSP8 | output coupling capacitor-less(0.5V DC out) Power Supply Short-circuit Protection |
| NJW1351 | 2.5 ~ 3.45 | 1 | 6 | CVBS | 6th | SON10, TVSP8 | output coupling capacitor-less(0V DC out), NJW135x Series (Gain Ver.) |
| NJM2589 | 4.5 ~ 5.5 | 6 | 6 | CVBS, Y/C, Y/Cb/Cr | 4th | SSOP32 | LPF for 480p, Sag Correction |
| NJW1358 | 2.5 ~ 3.45 | 4 | 6 | CVBS, Y/C, Y/Cb/Cr | 4th | SSOP20-C3 | LPF for 480p, Output C-less |

Video Driver (Other)

| | | | | | | | |
|----------|-----------|--------------|-------------|----------------|------------|---------|--|
| NJM2504 | 4.5 ~ 9.0 | 1 | 6 | CVBS | - | TVSP8 | Input: Single-end signal/Output: Differential signal |
| NJM2507 | 4.5 ~ 9.0 | 1 | 6 (Reverse) | CVBS | - | TVSP8 | Input: Differential signal./Output: Single-end signal |
| NJM41030 | 4.5 ~ 5.5 | 1 | 3 | CVBS | - | SOT23-6 | 560ohms load |
| NJW1230 | 2.8 ~ 3.6 | V: 1 A: 2 | 6 6 | CVBS Stereo | 6th 1st | SSOP16 | Video: AC or DC coupling Output Audio: Ground Referenced Output |

Isolation Amp

| TYPE No. | Vopr [V] | Ch. | Gain [dB] | Input / Output | LPF | Package Outline | Notes |
|----------|-----------|-----|-----------|-----------------------|-----|-----------------|--------------------------------|
| NJM2505A | 4.5 ~ 9.0 | 1 | 0 | Differential / Single | - | SOT-23-5 | Isolation Amplifier |
| NJM41033 | 2.6 ~ 5.5 | 3 | 0 | Differential / Single | - | SSOP14 | 0dB at 13.5MHz, Component 480p |
| NJM41035 | 2.7 ~ 9.5 | 1 | ±3 | Differential / Single | Yes | TVSP8 | Low Voltage, LPF |

Video Selector for SD

| TYPE No. | Vopr [V] | Input | Output | Clamp | Bias | 6dB Amp | 75 ohms driver | LPF | Package Outline | Notes |
|----------|-----------|----------------|---------|------------|----------|----------|----------------|-----|-----------------|---|
| NJM41010 | 4.5 ~ 9.5 | 2 | 1 | Yes | - | Yes | Yes | - | SOT-23-6 | |
| NJM41050 | 4.5 ~ 9.5 | 3 | 1 | Yes | - | Yes | Yes | Yes | SSOP14 | Mute, 47µF AC coupling Capacitor |
| NJW1340 | 4.5 ~ 5.5 | 5(V) 3(Y/C) | 1 -1 | Yes Yes | - Yes | - Yes | - Yes | Yes | SSOP32 | Internal synchronous signal detection circuit, I2C BUS |
| NJW1341 | 4.5 ~ 9.5 | 8 | 2 | - | 8 | 1 | 1 | - | SSOP20-C3 | 47µF AC coupling Capacitor, Isolation Amplifiers, I2C BUS |
| NJW1342 | 3.0 ~ 5.5 | 4 | 2 | - | 4 | Yes | Yes | - | SSOP32 | 47µF AC coupling Capacitor, Isolation Amplifiers, I2C BUS |

Video Driver for HD

| TYPE No. | Vopr [V] | Input* | | | Output* | | | Gain [dB] | 0dB Frequency | LPF | Sag Correction | Package Outline | Notes |
|----------|-----------------------------|--------|---|---|---------|---|---|-----------|-----------------------|--------------------|----------------|-------------------|-----------------------------------|
| | | V | S | C | V | S | C | | | | | | |
| NJM2516 | 4.5 ~ 9.5 | - | - | 1 | - | - | 1 | 6 | 13.5/30MHz | 4th | Yes | SSOP20-C3 | 47µF AC-Coupling Capacitor |
| NJM41045 | 4.5 ~ 9.5 or ±3.0 ~ ±5.0 | - | - | 1 | - | - | 1 | 6 | 400MHz | - | - | SSOP20-C3 | |
| NJM2583A | 4.5 ~ 5.5 | - | 1 | 1 | 1 | 1 | 1 | 6 | 6.75MHz 13.5/30MHz | 4th | Yes | SSOP32, PCSP32-F7 | Y/C MIX |
| NJM41041 | 4.5 ~ 5.5 | 1 | 1 | 1 | 1 | - | 1 | 6 | 6.75MHz 13.5/37MHz | SD: 2nd HD: 3rd | - | SSOP20-C3 | Y/C MIX |
| NJM41042 | 4.5 ~ 5.5 | 1 | - | 1 | 1 | - | 1 | 6 | 6.75MHz 37MHz | SD: 2nd HD: 3rd | - | SSOP20-C3 | DC-coupled Output, AutoPower Save |

Video Selector for HD

| TYPE No. | Vopr [V] | Frequency | Input* | | | Output* | | | 6dB Amp 75ohms Driver | LPF | I2C BUS | Package Outline | Notes |
|----------|------------------------------|-----------|--------|---|---|---------|---|---|--------------------------|--------------------------|------------|--------------------|--|
| | | | V | S | C | V | S | C | | | | | |
| NJW1323 | 4.5 ~ 5.5 8.5 ~ 9.5 | 80MHz | - | - | 4 | - | - | 1 | Yes | Bypass 13.5, 30/50MHz | Yes | QFP64-H2 | Sync Separator, H/V Sync Input, DC Detector |
| NJW1325 | 4.5 ~ 5.5 or ±3.0 ~ ±4.45 | 100MHz | 7 | 7 | 5 | 6 | 4 | 4 | Yes | - | Yes | QFP100-U1 | Signal Detector |
| NJW1326 | 4.5 ~ 5.5 | 100MHz | 5 | 5 | 3 | 3 | 3 | 3 | Yes | - | Yes | LQFP52 | Y/C MIX |
| NJW1327 | 3.0 ~ 3.45 -3.0 ~ -5.5 | 100MHz | 9 | - | 6 | 5 | - | 4 | Yes | - | Yes | QFP100-U1 | Buffer Output |
| NJW1328 | 4.5 ~ 5.5 | 100MHz | 7 | - | 3 | 2 | - | 1 | Yes | - | Yes | LQFP52-H2 | Differential Input, Buffer Output, Signal Detector |
| NJW1329 | 3.0 ~ 3.45 -3.0 ~ -5.5 | 100MHz | 7 | - | 3 | 2 | - | 1 | Yes | - | Yes | LQFP52-H2 | Signal Detector |

*V: Composite Video Signal, S: S-video Signal(Y/C), C: Component Signal(Y/Pb/Pr) / RGB Signal

Communication IC

FM IF Demodulator IC

| TYPE No. | Vopr [V] | ICC [mA] | Key Features | Main Functions | Package Outline |
|----------|-----------|----------|--|---|-----------------|
| NJM2211 | 4.5 ~ 20 | 5 | Wide frequency range 0.01Hz to 300kHz | PLL for tracking, Quadrature Phase Detector, FSK voltage comparator | DIP14, DMP14 |
| NJM2294 | 1.1 ~ 4.0 | 0.6 | Suitable for battery use | RSSI, FSK Comparator, Battery Save, Battery Alarm | SSOP16 |
| NJM2295A | 2.7 ~ 7.0 | 5 | Suitable to 10.7MHz application | RSSI, FSK Comparator, Battery Charge, Quick Charge | SSOP20 |
| NJM2537 | 1.1 ~ 4.0 | 1.2 | Suitable for battery use | RSSI, FSK Comparator, Battery Charge, Quick Charge | SSOP20 |
| NJM2549 | 2.7 ~ 9.0 | 3 | Wide Band FM IF Demodulator IC | IF Amplifier, Quadrature Detector, RSSI | TVSP10 |
| NJM2550 | 2.0 ~ 9.0 | 4.4 | IF : 5MHz to 50MHz Adjust RSSI 's Thermal Characteristics | RSSI, FSK Comparator, Quick Charge, RSSI Thermal Adj. | SSOP16 |
| NJM2590 | 1.6 ~ 4.0 | 0.55 | Low current/voltage, Built-in RSSI comp. | RSSI, FSK Comparator, Quick Charge, RSSI Comparator | SSOP14 |
| NJM2591 | 1.8 ~ 9.0 | 2.5 | Low current | RSSI, Noise Comparator, Noise Detector | SSOP16 |
| NJM2592 | 1.8 ~ 9.0 | 2.2 | 50Ω Mixer Input Imp., Up to 470MHz input | RSSI, FSK Comparator, Quick Charge, RSSI Comparator | SSOP20 |
| NJM2597 | 1.6 ~ 4.0 | 0.55 | Low current/voltage, Built-in RSSI comp. | RSSI, FSK Comparator, Quick Charge, RSSI Comparator | SSOP14 |
| NJM3357 | 4.0 ~ 8.0 | 3 | - | Squelch | DIP16, DMP16 |
| NJM3359 | 4.0 ~ 9.0 | 3.6 | - | Squelch | DIP18 |

RF Amplifier

| | | | | | |
|---------|-----------|-----|----------------------|--|----------|
| NJM2275 | 1.8 ~ 6.0 | 0.8 | Peak for external CL | Cascode Amplifier, Built-in Bias Circuit | SOT-23-6 |
|---------|-----------|-----|----------------------|--|----------|

Modulation /Demodulation

| | | | | | |
|----------|------------|-----|---------------------------------------|--|----------------------|
| NJM1496 | ~ 30 | - | Up to 50MHz Mod/Demod/Doublers | Balanced Mixer | DIP14, DMP14, SSOP14 |
| NJM2259 | 4.5 ~ 5.5 | 30 | CCIR 30 to 45 ch. | Video-FM/Audio-AM modulator, OSC, Video clamp | DMP16 |
| NJM2288 | 1.8 ~ 5.5 | 2.8 | Low Current, Gain flatness for temp. | 300/400MHz, Down Mixer with Amp. | SOT-23-6 |
| NJM2519A | 4.5 ~ 5.5 | 15 | JPN 1/2ch, USA3/4ch | Video-FM/Audio-AM modulator, OSC for RF, Video clamp | DMP8 |
| NJM2536A | 4.5 ~ 5.5 | 16 | JPN 1/2ch, USA3/4ch | Video-FM/Audio-AM modulator, OSC for RF, Video clamp | DMP14, SSOP14 |
| NJM567 | 4.75 ~ 9.0 | 7 | Wide frequency range 0.01Hz to 500kHz | Phase detector, Current controlled oscillator | DIP8, DMP8 |

3G / 4G / LTE Wireless (GaAs MMIC)

Amplifier IC

| TYPE No. | Main Functions | NF typ. [dB] | IIP3 typ. [dBm] | Frequency [MHz] | Gain typ. [dB] | P-1dB typ. [dBm] | Current typ. [mA] | Package Size [mm] | Package Outline | Notes |
|------------|----------------|--------------|-----------------|-----------------|----------------|------------------|-------------------|-------------------|-----------------|--------------------------------------|
| NJG1108HA8 | Single LNA | 1 | 0 | 1575 | 19 | -15 | 2 | 1.0 x 1.2 x 0.38 | USB6-A8 | |
| NJG1117HA8 | Single LNA | 0.7 | -2 | 1575 | 19.5 | -16.5 | 3 | 1.0 x 1.2 x 0.38 | USB6-A8 | GPS |
| NJG1126HB6 | Single LNA | 1.4*/7.0** | 0*/+16** | 2140 | 16.5*/-7.0** | | 2.2mA/1uA | 1.5 x 1.5 x 0.55 | USB8-B6 | *High gain mode/**Low gain mode |
| NJG1129MD7 | Wide Band LNA | 1.4 | +1*/+20** | 470-770 | 15*/-4** | -6 | 5mA*/16μA** | 1.6 x 1.6 x 0.397 | EQFN14 | *High gain mode/**Low gain mode |
| NJG1130KA1 | Two Stage LNA* | 0.65 | +14(OIP3) | 1575 | 29 | +11(out) | 5 | 1.6 x 1.6 x 0.6 | FLP6-A1 | *GPS |
| NJG1131HA8 | Wide Band LNA | 1.4 | 5 | 470-770 | 10 | -5 | 3.4 | 1.0 x 1.2 x 0.38 | USB6-A8 | UHF BAND |
| NJG1134HA8 | Wide Band LNA | 1.2* | +5*/+23** | 470-770 | 10*/-0.6** | -5* | 4.0mA*/10μA** | 1.0 x 1.2 x 0.38 | USB6-A8 | *High gain mode/**Low gain mode |
| NJG1139UA2 | Wide Band LNA | 1.2 | -4*/+30** | 470-770 | 14*/-2** | -12*/+15** | 3.5*/11μA** | 1.0 x 1.0 x 0.37 | EPFFP6-A2 | *High gain mode/**Low gain mode |
| NJG1140KA1 | Wide Band LNA | 2.5 | 9 | 50-2150 | 9 | 7 | 10 | 1.6 x 1.6 x 0.55 | FLP6-A1 | |
| NJG1142KA1 | Wide Band LNA | 1.5 | +2.0*/+22.0** | 170-1680 | 14.0*/-1.0** | 0*/+17.0** | 6mA*/11μA** | 1.6 x 1.6 x 0.55 | FLP6-A1 | *High gain mode/**Low gain mode |
| NJG1143UA2 | Single LNA | 0.7/0.75* | -2.0/-6.0* | 1575 | 20/19* | -16.5/-19.5* | 4.0/3.0* | 1.0 x 1.0 x 0.37 | EPFFP6-A2 | *VDD=2.85V/1.8V, Stand-by function |
| NJG1144KA1 | Single LNA | 0.65/0.85* | -2.0/-6.0* | 1575 | 21.0/18.0* | -16.5/-18.5* | 3.5/1.8* | 1.6 x 1.6 x 0.55 | FLP6-A1 | *VDD=2.85V/1.8V, GPS, VDD=1.5 ~ 3.6V |

Switch IC

| TYPE No. | FUNCTION | Loss typ. [dB] | Isolation typ. [dB] | P-1dB typ. [dBm] | SW. Speed typ. [ns] | Operating Frequency Range [Hz] | Package Size typ. [mm] | Package Outline | Notes |
|-------------|---------------|--|------------------------------------|------------------|---------------------|--------------------------------|------------------------|-----------------|------------------------------|
| NJG1600KB2 | SPDT SWITCH | 0.4 | 20 | 26 | 100 | 100M ~ 3G | 2.1 x 2.0 x 0.75 | FLP6-B2 | Wireless LAN |
| NJG1608KB2 | SPDT SWITCH | 0.3@f=2.0GHz, 0.5@f=2.5GHz 0.6@f=5.85GHz | 29@2.0GHz, 30@2.5GHz 18@2.5GHz | 30 | 100 | 100M ~ 6G | 2.1 x 2.0 x 0.75 | FLP6-B2 | |
| NJG1612HA8 | SPDT Switch | 0.45 | 21 | | 3 | 100M ~ 5G | 1.0 x 1.2 x 0.38 | USB6-A8 | |
| NJG1615HA8 | SPDT SWITCH | 0.55@5.85GHz | 25@2.5GHz | 30dbm@2.5GHz | 70 | 100M ~ 6G | 1.0 x 1.2 x 0.38 | USB6-A8 | IEEE802.11b/g |
| NJG1617K11 | DPDT SWITCH | 0.75@6GHz | 25@6GHz | 32@P-0.2dB | 20 | 100M ~ 6G | 3.0 x 3.0 x 0.75 | QFN12-11 | Wireless LAN |
| NJG1635AHB6 | SPDT Switch | 0.30@0.9GHz, 0.35@1.9GHz, 0.40@2.7GHz | 35@0.9/1.9GHz, 33@2.7GHz | 32@P-0.1dB | 2000 | 50M ~ 3G | 1.5 x 1.5 x 0.55 | USB8-B6 | |
| NJG1647HD3 | SPDT Switch | 0.25@0.9GHz, 0.3@1.9GHz | 25@0.9GHz, 20@1.9GHz | P-0.2dB=34dB min | 1000 | 50M ~ 3G | 2.0 x 1.8 x 0.8 | USB6-D3 | |
| NJG1648HB6 | DPDT SWITCH | 0.20@0.5GHz, 0.25@1GHz 0.40@2GHz | 26@0.5GHz, 21@1GHz 15@2GHz | 23@P-0.2dB | 2000 | 100M ~ 3G | 1.5 x 1.5 x 0.55 | USB8-B6 | |
| NJG1649HB6 | SPDT SWITCH | 0.35@1.0GHz, 0.40@2.0GHz 0.45@2.5GHz | 27@1.0GHz, 22@2.0GHz 20@2.5GHz | P-0.2dB=28dB min | 1000 | 50M ~ 3G | 1.5 x 1.5 x 0.55 | USB8-B6 | |
| NJG1650HB6 | SP3T Switch | 0.38@1.0GHz, 0.42@2.0GHz 0.45@2.5GHz | 29@1.0GHz, 23@2.0GHz 21@2.5GHz | P-0.2dB=28dB min | 150 | 50M ~ 3G | 1.5 x 1.5 x 0.55 | USB8-B6 | |
| NJG1655SCC | X SP3T Switch | 0.4@1.0GHz, 0.5@2.0GHz | 17@2.0GHz, 20@2.0GHz | P-0.2dB=23dB min | 2000 | 50M ~ 2.5G | 2.7 x 2.7 x 0.8 | PCSP20-CC | balanced triple-band filters |
| NJG1657MD7 | DPDT SWITCH | 0.3@0.9GHz, 0.4@1.9GHz | 32@0.9GHz, 26@1.9GHz | 35@P-0.1dB | 2000 | 50M ~ 3G | 1.6 x 1.6 x 0.397 | EQFN14 | |
| NJG1662MD7 | X-SPDT SWITCH | 0.3@1GHz, 0.4@2GHz | 28@1GHz, 22@2GHz | 24(P-0.2dB) | 1500 | 50M ~ 3G | 1.6 x 1.6 x 0.397 | EQFN14 | |
| NJG1663K44 | X-SP4T SWITCH | 0.45@1.0GHz, 0.55@2.0GHz | 26@1.0GHz, 20@2.0GHz 17@2.7GHz | 23@P-0.2dB | 2000 | 50M ~ 3G | 2.3 x 2.3 x 0.45 | QFN16-44 | |
| NJG1665MD7 | SP5T SWITCH | 0.4@1.0GHz, 0.5@2.0GHz 0.6@2.5GHz | 29@1.0GHz, 23@2.0GHz 21@2.5GHz | 29@P-0.2dB | 1000 | 50M ~ 3G | 1.6 x 1.6 x 0.397 | EQFN14 | |
| NJG1666MD7 | SPDT SWITCH | 0.40@0.25GHz, 0.45@1.0GHz 0.50@2.2GHz | 70@0.25GHz, 60@1.0GHz 60@2.2GHz | 27 | 1000 | - | 1.6 x 1.6 x 0.397 | EQFN14 | |
| NJG1667MD7 | SP5T SWITCH | 0.4@1.0GHz, 0.5@2.0GHz 0.6@2.5GHz | 29@1.0GHz, 23@2.0GHz 21@2.5GHz | 29@P-0.2dB | 1000 | 50M ~ 3G | 1.6 x 1.6 x 0.397 | EQFN14 | |
| NJG1669MD7 | SPDT SWITCH | 0.35@2.5GHz, 0.40@3.5GHz 0.45@6.0GHz | 28@2.5GHz, 29@3.5GHz 25@6.0GHz | 37(P-0.1dB) | 350 | 50M ~ 6G | 1.6 x 1.6 x 0.397 | EQFN14 | |
| NJG1670LG3 | SP10T SWITCH | 0.40@UMTS Band 5, 0.45@UMTS Band 8 0.60@UMTS Band 2, 0.70@UMTS Band 1 0.85@GSM850/900 Tx, 1.00@GSM1800/1900 Tx | - | - | 3000 | - | 3.2 x 2.5 x 0.85 | LCSP20-G3 | Built-in GSM TX LPFs |
| NJG1672LK4 | SP9T SWITCH | 1.0@GSM850/900, 0.9@GSM1800/1900 Tx 1.0@LCR TX | - | - | 100M ~ 3G | - | 3.8 x 3.8 x 0.9 | LCSP24-K4 | |
| NJG1673LG3 | SP9T SWITCH | 0.40@UMTS Band5, 0.60@UMTS Band2 0.70@UMTS Band1, 0.85@GSM850/900 Tx 1.00@GSM1800/1900 Tx | - | - | 3000 | - | 3.2 x 2.5 x 0.85 | LCSP20-G3 | Built-in GSM TX LPFs |

LCD Driver

Bit Map Type

| TYPE No. | Display Size | VDD | Voltage Booster | VLCD | DDRAM [bit] | Duty | Function | Package Outline |
|----------|--------------|--------|-----------------|---------|-------------|------------|----------------------------------|-----------------|
| NJU6657 | 88Com 272Seg | 3V, 5V | x12 | 35V max | 23936 | 1/16, 1/88 | OSC: CR Int., Temperature Sensor | Bumped Chip |

Character Type

| TYPE No. | Display Size | VDD [V] | Voltage Booster | VLCD | CGROM [bit] | Bleeder Resistor | Icon | Font Size [dots] | Duty | Interface System Clock | Hardware Reset | Package Outline | Notes |
|----------|--------------|---------|-----------------|-----------|-------------|------------------|------|------------------|------------|------------------------|----------------|----------------------------|-----------------------------|
| NJU6470 | 16ch.1L | 3 | - | VDD-5V | 7680 | On-Chip | 80 | 5x7 | 40196 | 1 | Yes | QFP100-C1, QFP100-G1 | Interface System Clock(MHz) |
| NJU6466 | 24ch.2L | 3, 5 | x2 | VDD-13.5V | 9600 | - | - | 5x7 | 1/32 | 1 | Yes | Chip | Interface System Clock(MHz) |
| NJU6627 | 10ch.3L | 5 | x2 | 10V(Max.) | 7840 | On-Chip | 100 | 5x7 | 1/16, 1/23 | 1 | Yes | Chip, QFP100-G1 | Interface System Clock(MHz) |
| NJU6426 | 8ch.4L | 5 | x2 | VDD-13.5V | 9600 | On-Chip | 40 | 5x7 | 1/36 | 2 | Yes | Chip, QFP100-C1, QFP100-C2 | Interface System Clock(MHz) |

Segment Type

| TYPE No. | Display Size | VDD | VLCD | Duty | Bias Ratio | Key Scan | Package Outline | Notes |
|----------|--------------------|--------|------|-------------------------|------------|----------|--------------------------|------------------|
| NJU6532 | 3/4Com28Seg, 32Seg | 3V, 5V | 8.0V | 1/3, 1/4 | 1/2, 1/3 | No | SSOP44, LQFP48-R3, QFN48 | Serial interface |
| NJU6549 | 1800Seg max. | 5V | 12V | 1/1, 1/3, 1/4, 1/8, 1/9 | 1/3, 1/4 | No | Chip | Serial interface |

LED Driver

White LED Driver

| TYPE No. | # of Channel | LED Current [mA] | VIN [V] | VOUT [V] | Dimming Control | Temperature compensation | Package Outline |
|----------|--------------|------------------|-----------|----------|-----------------|--------------------------|-----------------|
| NJU6080 | 1 | 100 | 2.5 ~ 5.5 | ~ 7.0 | PWM | No | SOT-23-6 |

RGB LED Driver

| TYPE No. | # of Channel | PWM steps | LED Current | Voltage Booster | VDD [V] | VOUT [V] | Package Outline |
|----------|--------------|--------------|-------------|-----------------|-----------|----------|------------------|
| NJU6062 | 4 | 256 steps/ch | 30mA/ch | No | 1.8 ~ 5.5 | ~ 6.0 | FFP12-B1, SSOP14 |

Motor Driver

Stepper Motor

| TYPE No. | Absolute Maximum Ratings | | Recommended Operating Conditions | | | Output Channel | ICC typ. [mA] | Key Features | | | | Package Outline | Notes |
|----------|--------------------------|--------------------------|----------------------------------|----------|--------------------------|----------------|---------------|---------------|-----------------|----------------|-----|---------------------------------|-----------------|
| | V _{opr} [V] | I _{o max.} [mA] | V _{opr} | | I _{o max.} [mA] | | | Control Mode | Excitation Mode | Excitation OFF | TSD | | |
| NJM3770A | 45 | ±1800 | 4.75 ~ 5.25 | 10 ~ 40 | ±1500 | 1ch. | 48 | PHASE | Full/Half/W1-2 | Yes | Yes | DIP16-D3, EMP20-E2 PLCC28-M2 | Bipolar Driver |
| NJM3771 | 45 | ±700 | 4.75 ~ 5.25 | 10 ~ 40 | ±650 | 2ch. | 38 | PHASE | Full/Micro | No | Yes | DIP22-D2, EMP24-E3 PLCC28-M2 | Bipolar Driver |
| NJM2675 | 55 | 1500 | 4.75 ~ 5.25 | 4.0 ~ 55 | 5 ~ 1200 | 1ch. | 20 | 2IN | Full/Half | Yes | Yes | DIP16, EMP16-E2 | H Bridge Driver |
| NJM2671 | 60 | 500 | 4.75 ~ 5.25 | 10 ~ 55 | 350 | sink 4ch. | 45 | CK-DIR | Full/Half | Yes | Yes | DIP16-D2, EMP16-E2 | Unipolar Driver |
| NJU39610 | 6 | - | 4.75 ~ 5.25 | - | - | 2ch. | - | 8bit parallel | 7bitDAC | No | No | DIP22-D2, PLCC28-M2 | Controller |

Opt Electronic Device

Photo Reflector (Transistor Output)

| TYPE No. | Main Function | Absolute Maximum Ratings | | | IO min. [μA] | IO typ. [μA] | IO max. [μA] | IF [mA] | Detection Distance [mm] | I _{cedo} max. [μA] | tr,tf [μs] | Package Outline |
|------------|---------------------------------------|--------------------------|---------------------|---------------------|--------------|--------------|--------------|---------|-------------------------|-----------------------------|------------|-----------------|
| | | P _{tot} [mW] | I _f [mA] | V _{CC} [V] | | | | | | | | |
| NJL5901R-2 | Small Package Type, Transistor Output | 60 | 20 | 16 | 165 | 412 | 4 | 0.3 | 5 | 20 | | |
| NJL5902R-2 | Small Package Type, Transistor Output | 60 | 20 | 16 | 62 | 155 | 4 | 0.3 | 0.5 | 20 | | |

Ambient Light Sensor

| TYPE No. | Absolute Maximum Ratings V _R [V] | λ _p typ. [nm] | Photo Current [μA] @Ev=1000lx | Package Outline | Notes |
|------------|---|--------------------------|-------------------------------|-------------------------|-----------------------|
| NJL6501R-3 | 3.6 | 560 | 0.27 | COBP(2.0 x 2.0mm) | High Precision (±15%) |
| NJL7502L | 70 | 560 | 330 | Lead Pin Type with lens | High Sensitivity |
| NJL7502R | 35 | 590 | 45 | COBP(1.8 x 1.3mm) | Compact |

SAW Device

SAW Filter

| Part Number | Center Frequency [MHz] | Passband Range [MHz] | Passband Insertion Loss [dB] | Package Size [mm] | Operational Temperature Range [°C] | Application |
|-------------|------------------------|----------------------|------------------------------|-------------------|------------------------------------|--|
| NSVS-1174 | 1575.42 | 1574.42 ~ 1576.42 | 3.5 | 3.0 x 3.0 x 1.15 | -40 ~ 85 | GPS |
| NSVS-1207 | 1575.42 | 1574.42 ~ 1576.42 | 1.6 | 1.6 x 2.0 x 0.7 | -40 ~ 85 | GPS |
| NSVS-1246 | 1575.42 | 1574.42 ~ 1576.42 | 1.2 | 1.6 x 2.0 x 0.7 | -40 ~ 85 | GPS |
| NSVS-1108 | 1227.6 | 1217.6 ~ 1237.6 | 3.7 | 3.0 x 3.0 x 1.15 | -40 ~ 85 | GPS L2 |
| NSVS-999 | 1176.45 | 1166 ~ 1187 | 3.5 | 3.0 x 3.0 x 1.15 | -30 ~ 70 | GPS L5 |
| NSVS-1234 | 174 | 163 ~ 185 | 12.0 | 5.2 x 4.5 x 1.5 | -20 ~ 70 | GPS IF |
| NSVS-1252 | 433.92 | 432.92 ~ 434.92 | 3.5 | 3.0 x 3.0 x 1.15 | -40 ~ 85 | Keyless Entry Systems |
| NSVS-1196 | 433.92 | - | 2.5 | 3.0 x 3.0 x 1.15 | -40 ~ 110 | Resonators |
| NSVS-802 | 869 | 868 ~ 870 | 3.5 | 3.5 x 3.5 x 1.0 | -20 ~ 70 | Transceivers / FRS / Data |
| NSVS-1240 | 915 | 902 ~ 928 | 4.0 | 3.0 x 3.0 x 1.15 | -40 ~ 85 | AMR / ISM / Cordless phones (Full Band) |
| NSVS-1245 | 921 | 914 ~ 928 | 3.6 | 3.0 x 3.0 x 1.15 | -40 ~ 85 | AMR / ISM / Cordless phones (Upper Half) |
| NSVS-1237 | 909 | 902 ~ 916 | 4.0 | 3.0 x 3.0 x 1.15 | -40 ~ 85 | AMR / ISM / Cordless phones (Lower Half) |
| NSVS-1176 | 2450 | 2400 ~ 2500 | 4.0 | 2.5 x 2.0 x 1.0 | 0 ~ 60 | WLAN RF / IF |
| NSVS-778 | 2488.32 | 2487.92 ~ 2488.72 | 6.0 | 3.2 x 2.5 x 1.1 | -30 ~ 85 | Oscillator, SDH/Sonet |
| NSVS-820 | 666.514 | 666.414 ~ 666.614 | 3.5 | 3.2 x 2.5 x 1.1 | -30 ~ 85 | Oscillator, SDH/Sonet |

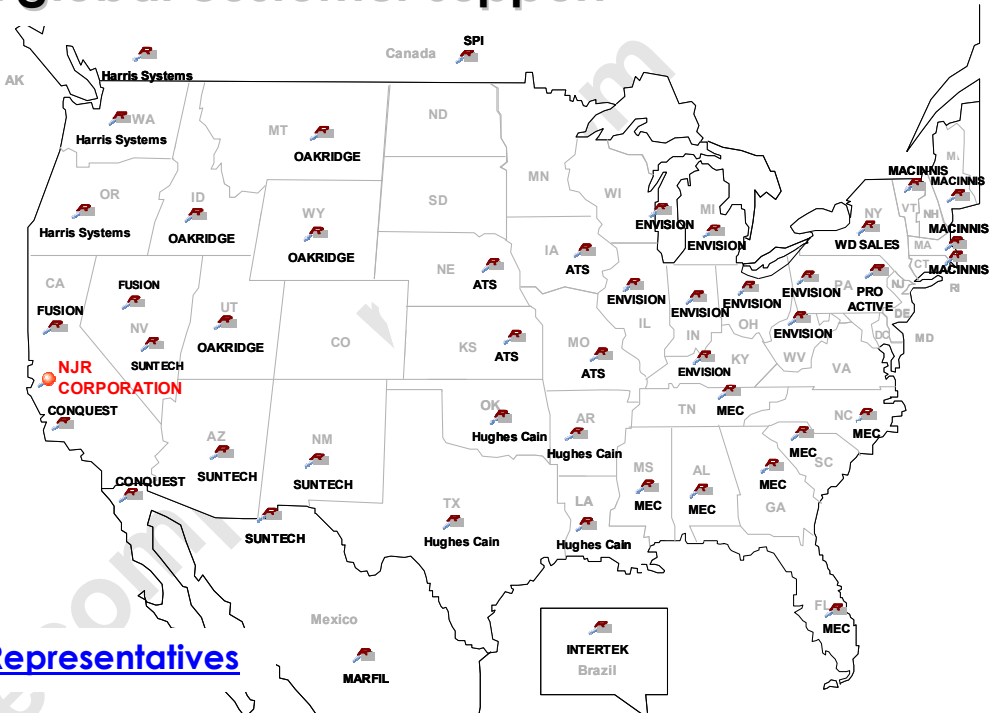
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