



H7809AJ

H7809BJ

3-TERMINAL POSITIVE VOLTAGE REGULATOR

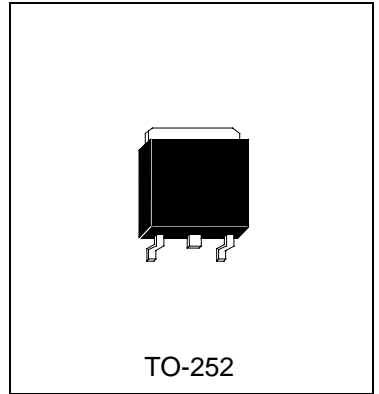
Description

The H7809_J series of three-terminal positive regulators are available in the TO-252 package. These regulators can provide local on-card regulation, eliminating the distribution problems associated with single point regulation. Each employs internal current limiting, thermal shut-down and safe operating area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.

H7809_J is characterized for operation from 0°C to +125°C, and if operating temperature is always high, please refer to the power dissipation curve.

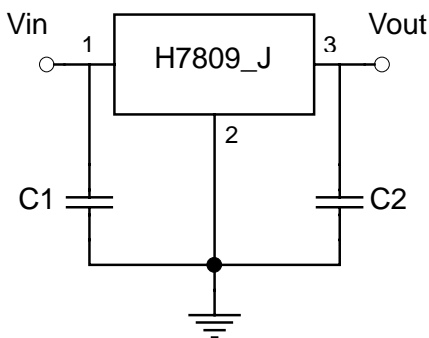
Absolute Maximum Ratings (Ta=25°C)

- Input Voltage 35 V
- Total Power Dissipation (TC=25°C) Internally limited
- Operating Junction Temperature 0 °C to +125 °C
- Storage Temperature Range -55 °C to +150 °C
- Output Current (TC=25°C) 1 A
- Lead Temperature (Soldering 10S) 230 °C



TO-252

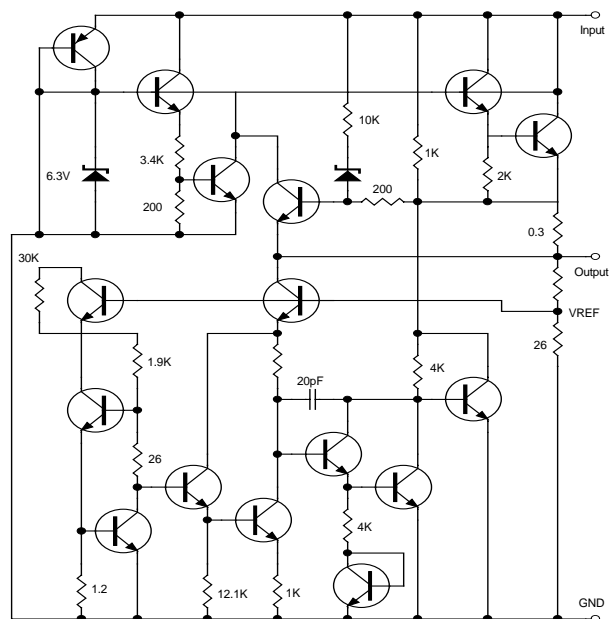
Typical Application



Note:

C1 and C2 are required if regulator is located far from power supply filter and load, or oscillation may induced on the loop.

Schematic Diagram





Electrical Characteristics

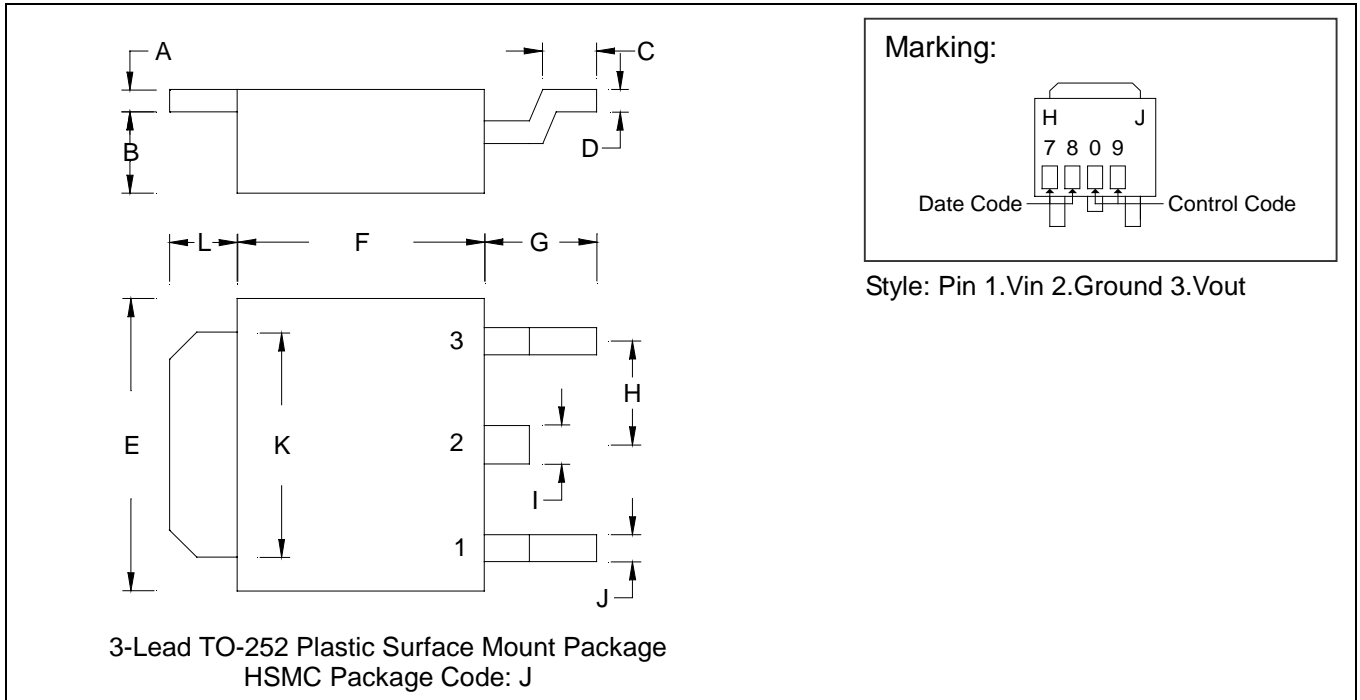
Vin=15V, Io=500mA, 0°C≤Tj≤125°C (unless otherwise noted)

| Symbol | Parameter | Conditions | H7809AJ | | | Units |
|----------|--------------------------|------------------------|---------|------|------|-------|
| | | | Min | Typ | Max | |
| Vo | Output Voltage | Tj=25°C | 8.73 | 9 | 9.27 | V |
| | | PD≤15W, 5mA≤Io≤1A | 8.73 | 9 | 9.27 | |
| ΔVo | Line Regulation | Tj=25°C, 11.5V≤Vin≤25V | - | 6 | 90 | mV |
| | | Tj=25°C, 12V≤Vin≤25V | - | 2 | 45 | |
| ΔVo | Load Regulation | 5mA≤Io≤1A | - | - | 100 | mV |
| | | 250mA≤Io≤750mA | - | - | 50 | |
| IQ | Quiescent Current | Io≤1A, Tj=25°C | - | 5.5 | 8 | mA |
| ΔIQ | Quiescent Current Change | 5mA≤Io≤1A | - | - | 0.5 | mA |
| | | 11.5V≤Vin≤26V | - | - | 1.3 | |
| Vn | Output Noise Voltage | Ta=25°C, 10Hz≤f≤100KHz | - | - | 200 | uV |
| RR | Ripple Rejection | 13V≤Vin≤23V, f=120Hz | - | 68 | - | dB |
| VD | Dropout Voltage | Tj=25°C, Io=1A | - | 2 | - | V |
| Isc | Short Circuit Current | Tj=25°C | - | 1.5 | - | A |
| Ipk | Peak Output Current | Tj=25°C | 1.7 | - | - | A |
| ΔVo / ΔT | Average Tc of Vout | 0°C≤Tj≤+125°C, Io=5mA | - | -0.8 | - | mV/°C |

| Symbol | Parameter | Conditions | H7809BJ | | | Units |
|----------|--------------------------|------------------------|---------|------|------|-------|
| | | | Min | Typ | Max | |
| Vo | Output Voltage | Tj=25°C | 8.64 | 9 | 9.36 | V |
| | | PD≤15W, 5mA≤Io≤1A | 8.55 | 9 | 9.45 | |
| ΔVo | Line Regulation | Tj=25°C, 11.5V≤Vin≤25V | - | 4 | 100 | mV |
| | | Tj=25°C, 12V≤Vin≤25V | - | 2 | 50 | |
| ΔVo | Load Regulation | 5mA≤Io≤1A | - | - | 180 | mV |
| | | 250mA≤Io≤750mA | - | - | 90 | |
| IQ | Quiescent Current | Io≤1A, Tj=25°C | - | 5.5 | 8 | mA |
| ΔIQ | Quiescent Current Change | 5mA≤Io≤1A | - | - | 0.5 | mA |
| | | 11.5V≤Vin≤26V | - | - | 1.3 | |
| Vn | Output Noise Voltage | Ta=25°C, 10Hz≤f≤100KHz | - | - | 300 | uV |
| RR | Ripple Rejection | 13V≤Vin≤23V, f=120Hz | 62 | 73 | - | dB |
| VD | Dropout Voltage | Tj=25°C, Io=1A | - | 2.5 | - | V |
| Isc | Short Circuit Current | Tj=25°C | - | 1.5 | - | A |
| Ipk | Peak Output Current | Tj=25°C | 1.7 | - | - | A |
| ΔVo / ΔT | Average Tc of Vout | 0°C≤Tj≤+125°C, Io=5mA | - | -0.8 | - | mV/°C |



TO-252 Dimension



*: Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|--------|--------|-------------|------|-----|--------|---------|-------------|-------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.0177 | 0.0217 | 0.45 | 0.55 | G | 0.0866 | 0.1102 | 2.20 | 2.80 |
| B | 0.0650 | 0.0768 | 1.65 | 1.95 | H | - | *0.0906 | - | *2.30 |
| C | 0.0354 | 0.0591 | 0.90 | 1.50 | I | - | 0.0354 | - | 0.90 |
| D | 0.0177 | 0.0236 | 0.45 | 0.60 | J | - | 0.0315 | - | 0.80 |
| E | 0.2520 | 0.2677 | 6.40 | 6.80 | K | 0.2047 | 0.2165 | 5.20 | 5.50 |
| F | 0.2125 | 0.2283 | 5.40 | 5.80 | L | 0.0551 | 0.0630 | 1.40 | 1.60 |

Notes: 1.Dimension and tolerance based on our Spec. dated May. 05,1996.
 2.Controlling dimension: millimeters.
 3.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 4.If there is any question with packing specification or packing method, please contact your local HSMC sales office.

Material:

- Lead: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of HSMC.
- HSMC reserves the right to make changes to its products without notice.
- **HSMC semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- HSMC assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.

Head Office And Factory:

- **Head Office** (Hi-Sincerity Microelectronics Corp.): 10F.,No. 61, Sec. 2, Chung-Shan N. Rd. Taipei Taiwan R.O.C.
 Tel: 886-2-25212056 Fax: 886-2-25632712, 25368454
- **Factory 1:** No. 38, Kuang Fu S. Rd., Fu-Kou Hsin-Chu Industrial Park Hsin-Chu Taiwan. R.O.C
 Tel: 886-3-5983621~5 Fax: 886-3-5982931