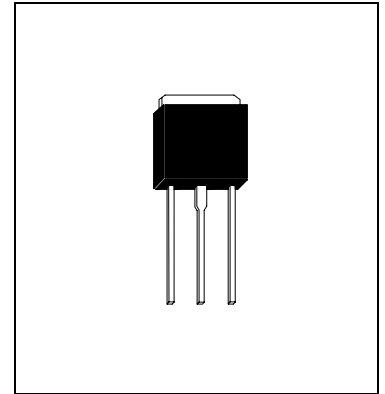




# H7812AI

# H7812BI

3-TERMINAL POSITIVE VOLTAGE REGULATOR

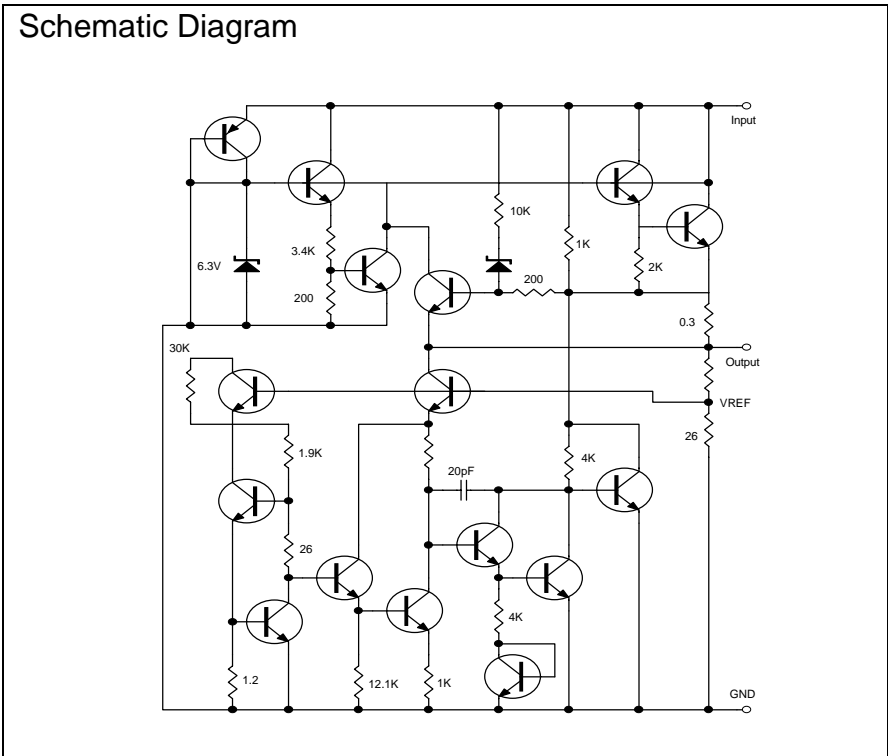
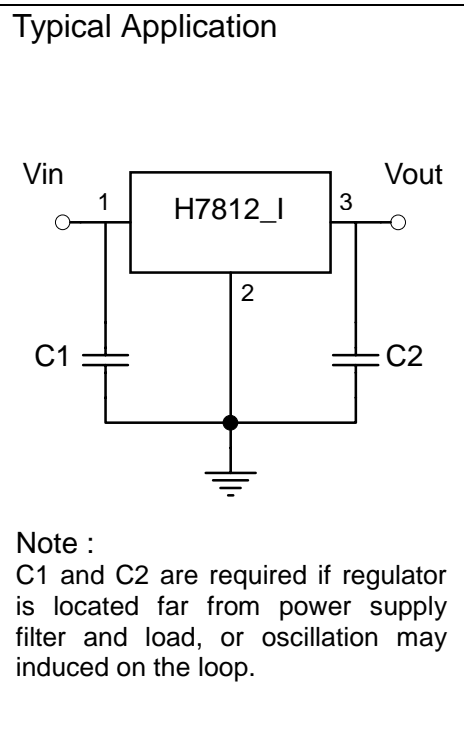


## Description

The H7812\_I series of three-terminal positive regulators are available in the TO-251 package and with several fixed output voltages, making it useful in a wide range of applications. These regulators can provide local on-card regulation, eliminating the distribution problems associated with single point regulation. Each type 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. H7812\_I is characterized for operation from 0°C to +125°C, and if operating temperature will always hi, please refer the power dissipation curve.

## Absolute Maximum Ratings (Ta=25°C)

- Input Voltage..... 35 V (5V Through 9V), 40 V (4V)
- Total Power Dissipation ..... Internal limit
- Operating Temperature Range ..... 0°C to +70°C
- Maximum Junction Temperature..... 125°C
- Storage Temperature Range ..... -55°C to +150°C
- Lead Temperature (Soldering 10S)..... 230°C





### Electrical Characteristics

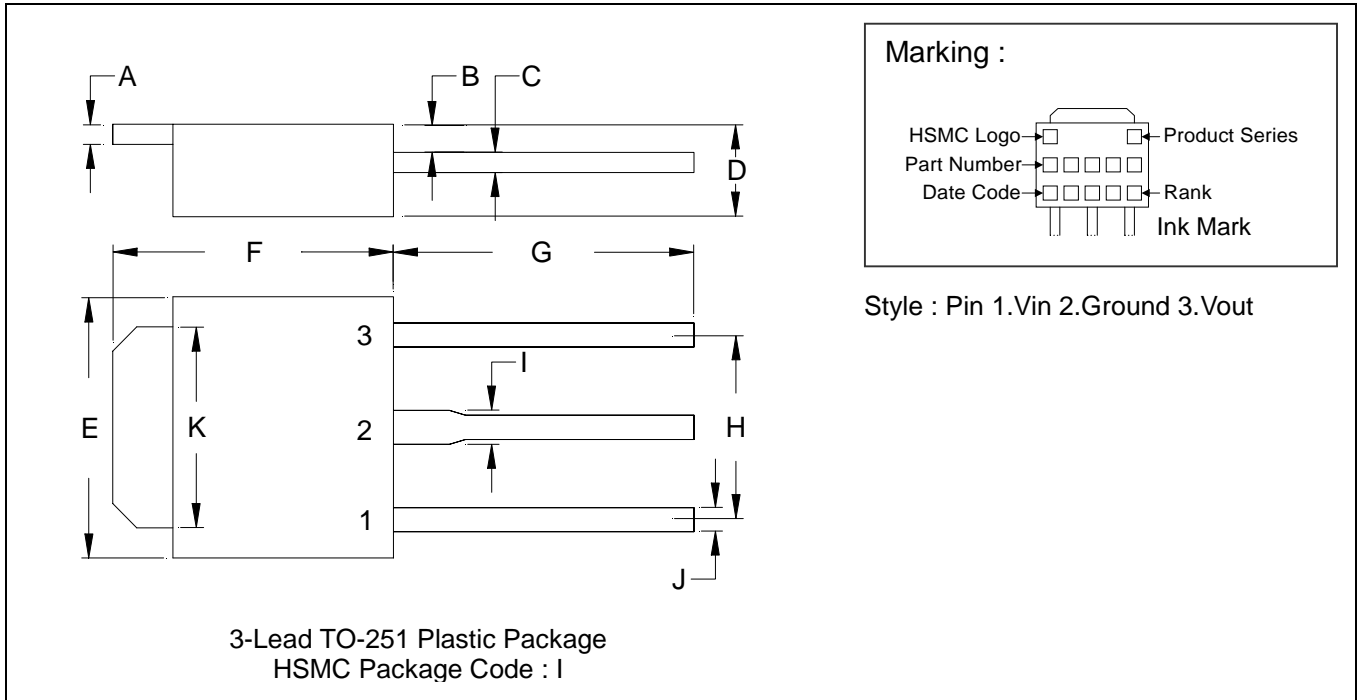
$V_{in}=19V$ ,  $I_o=500mA$ ,  $0^{\circ}C \leq T_j \leq 125^{\circ}C$  (unless otherwise noted)

| Symbol                  | Parameter                | Conditions  | H7812AI |      |       | Units          |
|-------------------------|--------------------------|---|---------|------|-------|----------------|
|                         |                          |   | Min     | Typ  | Max   |                |
| Vo                      | Output Voltage           | $T_j=25^{\circ}C$                                 | 11.64   | 12   | 12.36 | V              |
|                         |                          | $14.5V \leq V_{in} \leq 27V$                      | 11.64   | 12   | 12.36 |                |
| $\Delta V_o$            | Line Regulation          | $T_j=25^{\circ}C, 14.5V \leq V_{in} \leq 30V$     | -       | 20   | 120   | mV             |
|                         |                          | $T_j=25^{\circ}C, 16V \leq V_{in} \leq 22V$       | -       | 16   | 60    |                |
| $\Delta V_o$            | Load Regulation          | $5mA \leq I_o \leq 1A$                            | -       | -    | 120   | mV             |
|                         |                          | $250mA \leq I_o \leq 750mA$                       | -       | -    | 60    |                |
| IQ                      | Quiescent Current        | $I_o \leq 1A, T_j=25^{\circ}C$                    | -       | 5.5  | 8     | mA             |
| $\Delta IQ$             | Quiescent Current Change | $5mA \leq I_o \leq 1A$                            | -       | -    | 0.5   | mA             |
|                         |                          | $14.5V \leq V_{in} \leq 30V$                      | -       | -    | 1.3   |                |
| Vn                      | Output Noise Voltage     | $T_a=25^{\circ}C, 10Hz \leq f \leq 100KHz$        | -       | -    | 200   | $\mu V$        |
| RR                      | Ripple Rejection         | $15V \leq V_{in} \leq 25V, f=120Hz$               | -       | 68   | -     | dB             |
| VD                      | Dropout Voltage          | $T_j=25^{\circ}C, I_o=1A$                         | -       | 2    | -     | V              |
| Isc                     | Short Circuit Current    | $T_j=25^{\circ}C$                                 | -       | 1.5  | -     | A              |
| Ipk                     | Peak Output Current      | $T_j=25^{\circ}C$                                 | 1.7     | -    | -     | A              |
| $\Delta V_o / \Delta T$ | Average Tc of Vout       | $0^{\circ}C \leq T_j \leq +125^{\circ}C, I_o=5mA$ | -       | -0.8 | -     | $mV/^{\circ}C$ |

| Symbol                  | Parameter                | Conditions  | H7812BI |      |      | Units          |
|-------------------------|--------------------------|---|---------|------|------|----------------|
|                         |                          |   | Min     | Typ  | Max  |                |
| Vo                      | Output Voltage           | $T_j=25^{\circ}C$                                 | 11.5    | 12   | 12.5 | V              |
|                         |                          | $14.5V \leq V_{in} \leq 27V$                      | 11.4    | 12   | 12.6 |                |
| $\Delta V_o$            | Line Regulation          | $T_j=25^{\circ}C, 14.5V \leq V_{in} \leq 30V$     | -       | 44   | 240  | mV             |
|                         |                          | $T_j=25^{\circ}C, 16V \leq V_{in} \leq 22V$       | -       | 16   | 120  |                |
| $\Delta V_o$            | Load Regulation          | $5mA \leq I_o \leq 1A$                            | -       | 45   | 240  | mV             |
|                         |                          | $250mA \leq I_o \leq 750mA$                       | -       | 16   | 120  |                |
| IQ                      | Quiescent Current        | $I_o \leq 1A, T_j=25^{\circ}C$                    | -       | 5.5  | 8    | mA             |
| $\Delta IQ$             | Quiescent Current Change | $5mA \leq I_o \leq 1A$                            | -       | -    | 0.5  | mA             |
|                         |                          | $14.5V \leq V_{in} \leq 30V$                      | -       | -    | 1.3  |                |
| Vn                      | Output Noise Voltage     | $T_a=25^{\circ}C, 10Hz \leq f \leq 100KHz$        | -       | -    | 300  | $\mu V$        |
| RR                      | Ripple Rejection         | $15V \leq V_{in} \leq 25V, f=120Hz$               | 62      | 73   | -    | dB             |
| VD                      | Dropout Voltage          | $T_j=25^{\circ}C, I_o=1A$                         | -       | 2.5  | -    | V              |
| Isc                     | Short Circuit Current    | $T_j=25^{\circ}C$                                 | -       | 1.5  | -    | A              |
| Ipk                     | Peak Output Current      | $T_j=25^{\circ}C$                                 | 1.7     | -    | -    | A              |
| $\Delta V_o / \Delta T$ | Average Tc of Vout       | $0^{\circ}C \leq T_j \leq +125^{\circ}C, I_o=5mA$ | -       | -0.8 | -    | $mV/^{\circ}C$ |



### TO-251 Dimension



Style : Pin 1.Vin 2.Ground 3.Vout

\*: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   | 0.2559 | -       | 6.50        | -     |
| B   | 0.0354 | 0.0591 | 0.90        | 1.50 | H   | -      | *0.1811 | -           | *4.60 |
| C   | 0.0177 | 0.0236 | 0.45        | 0.60 | I   | -      | 0.0354  | -           | 0.90  |
| D   | 0.0866 | 0.0945 | 2.20        | 2.40 | J   | -      | 0.0315  | -           | 0.80  |
| E   | 0.2520 | 0.2677 | 6.40        | 6.80 | K   | 0.2047 | 0.2165  | 5.20        | 5.50  |
| F   | 0.2677 | 0.2835 | 6.80        | 7.20 |     |        |         |             |       |

**Notes :** 1.Dimension and tolerance based on our Spec. dated May. 24,1995.  
 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

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**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
- **Factory 2** : No. 17-1, Ta-Tung Rd., Fu-Kou Hsin-Chu Industrial Park Hsin-Chu Taiwan. R.O.C  
 Tel : 886-3-5977061 Fax : 886-3-5979220