



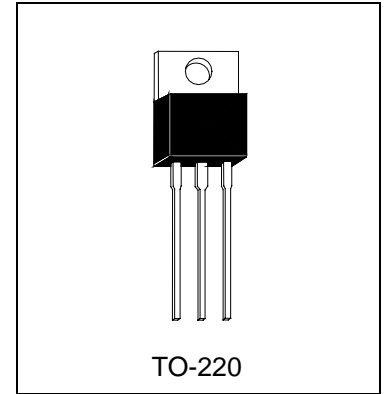
H7812AE

H7812BE

3-TERMINAL POSITIVE VOLTAGE REGULATOR

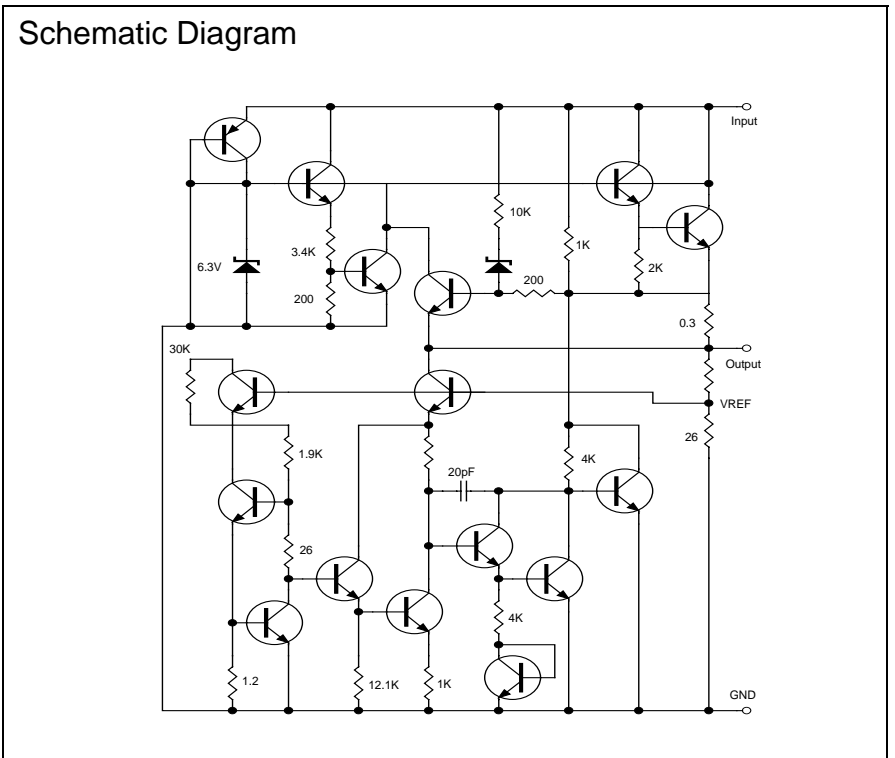
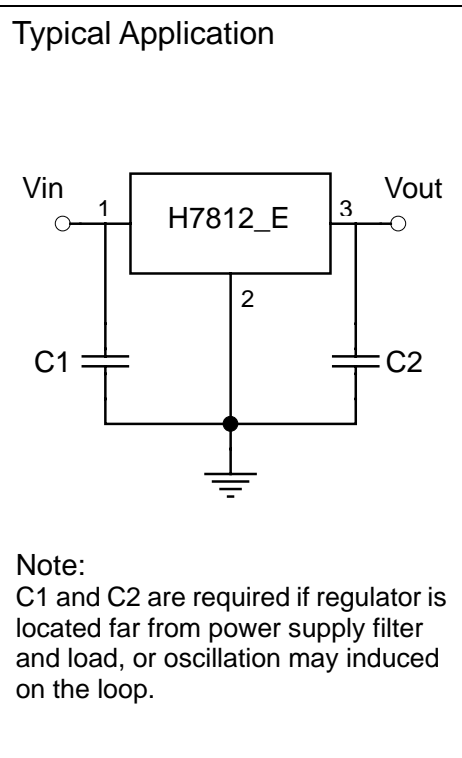
Description

The H7812_E series of three-terminal positive regulators are available in the TO-220AB 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. H7812_E 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..... Internally limited
- Operating Temperature Range 0 °C to +125 °C
- Maximum Junction Temperature..... 125 °C
- Storage Temperature Range..... -55 °C to +150 °C
- Lead Temperature (Soldering 10S)..... 230 °C





Electrical Characteristics

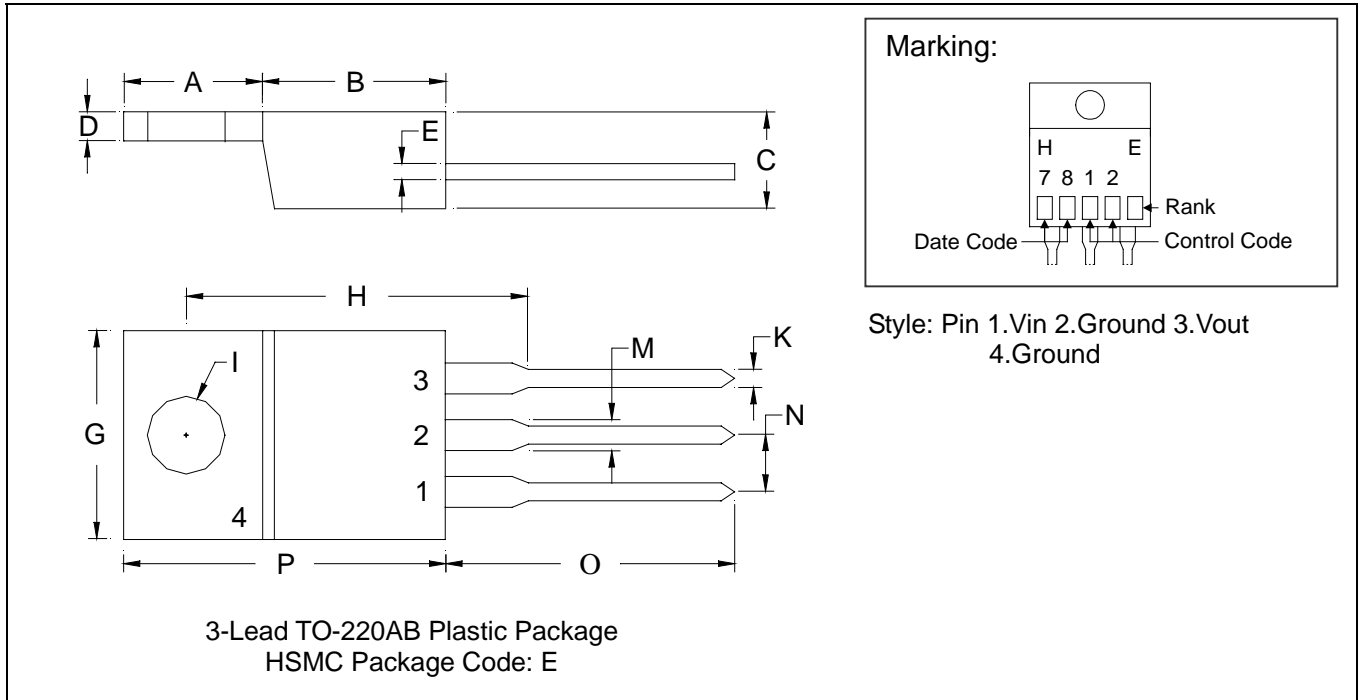
$V_{in}=19V$, $I_o=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ (unless otherwise noted)

| Symbol | Parameter | Conditions | H7812AE | | | 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 | |
| ΔV_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 | |
| ΔV_o | Load Regulation | $5mA \leq I_o \leq 1.5A$ | - | - | 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 |
| ΔIQ | 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 | μV |
| 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 | H7812BE | | | 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 | |
| ΔV_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 | |
| ΔV_o | Load Regulation | $5mA \leq I_o \leq 1.5A$ | - | 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 |
| ΔIQ | 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 | μV |
| 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-220AB Dimension



*: Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|--------|---------|-------------|--------|-----|--------|---------|-------------|-------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.2197 | 0.2949 | 5.58 | 7.49 | I | - | *0.1508 | - | *3.83 |
| B | 0.3299 | 0.3504 | 8.38 | 8.90 | K | 0.0295 | 0.0374 | 0.75 | 0.95 |
| C | 0.1732 | 0.185 | 4.40 | 4.70 | M | 0.0449 | 0.0551 | 1.14 | 1.40 |
| D | 0.0453 | 0.0547 | 1.15 | 1.39 | N | - | *0.1000 | - | *2.54 |
| E | 0.0138 | 0.0236 | 0.35 | 0.60 | O | 0.5000 | 0.5618 | 12.70 | 14.27 |
| G | 0.3803 | 0.4047 | 9.66 | 10.28 | P | 0.5701 | 0.6248 | 14.48 | 15.87 |
| H | - | *0.6398 | - | *16.25 | | | | | |

- Notes:**
- 1.Dimension and tolerance based on our Spec. dated Sep. 07,1997.
 - 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