

Features

- Low voltage drop: 0.06V@100mA
- High input voltage: 8.5V
- Low temperature coefficient
- Low Quiescent Current: 2uA at 5.0V
- Output voltage accuracy: tolerance $\pm 2\%$

Applications

- Battery-powered equipment
- Hand-Hold Equipment
- GRS Receivers
- Wireless LAN

General Description

The H7651 series is a group of positive voltage output, three-pin regulators, that provide a high current even when the input/output voltage differential is small. Low power consumption and high accuracy is achieved through CMOS and laser trimming technologies.

The H7651 consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Transient response to load variations have improved in comparison to the existing series.

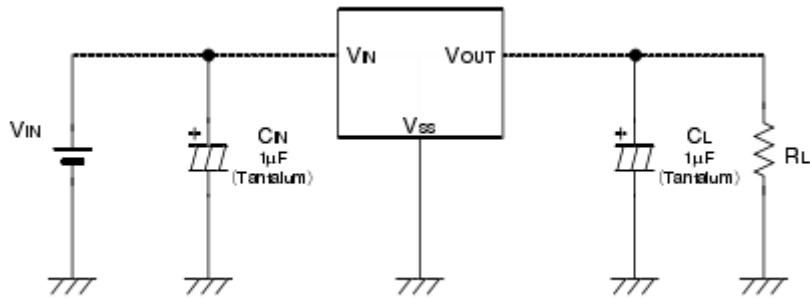
SOT89 and SOT223 packages are available.

Order Information

H7651-①②③④

| Designator | Symbol | Description |
|------------|---------|---------------------------|
| ① ② | Integer | Output Voltage(1.2V~5.0V) |
| ③ | P | Package:SOT89 |
| | G | Package:SOT223 |
| ④ | R | RoHS / Pb Free |
| | G | Halogen Free |

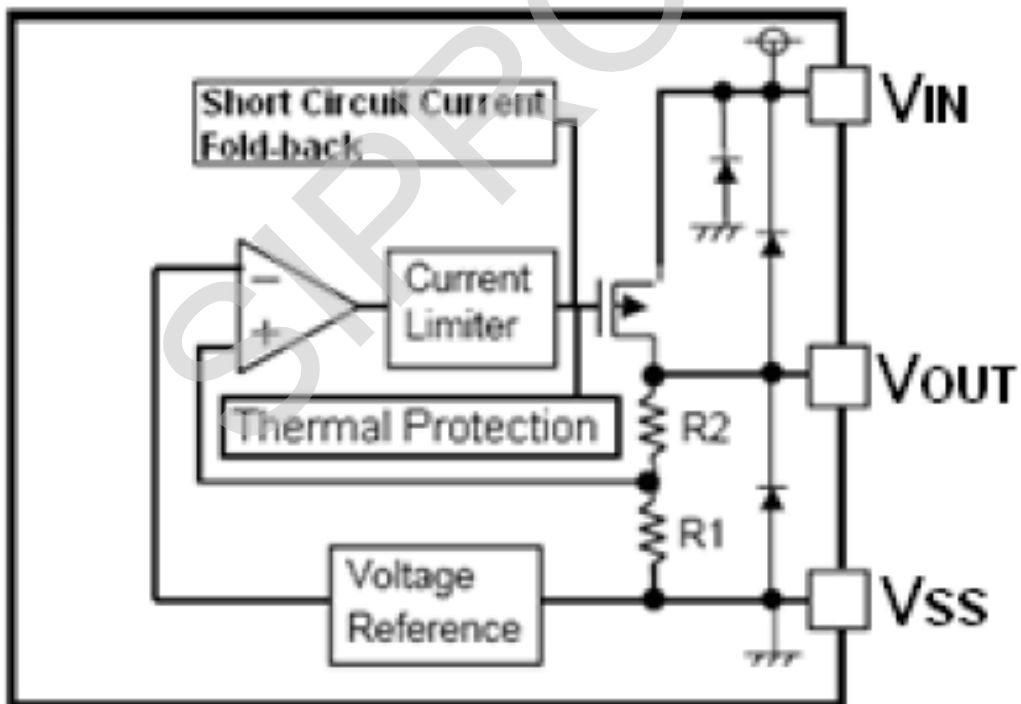
Typical Application



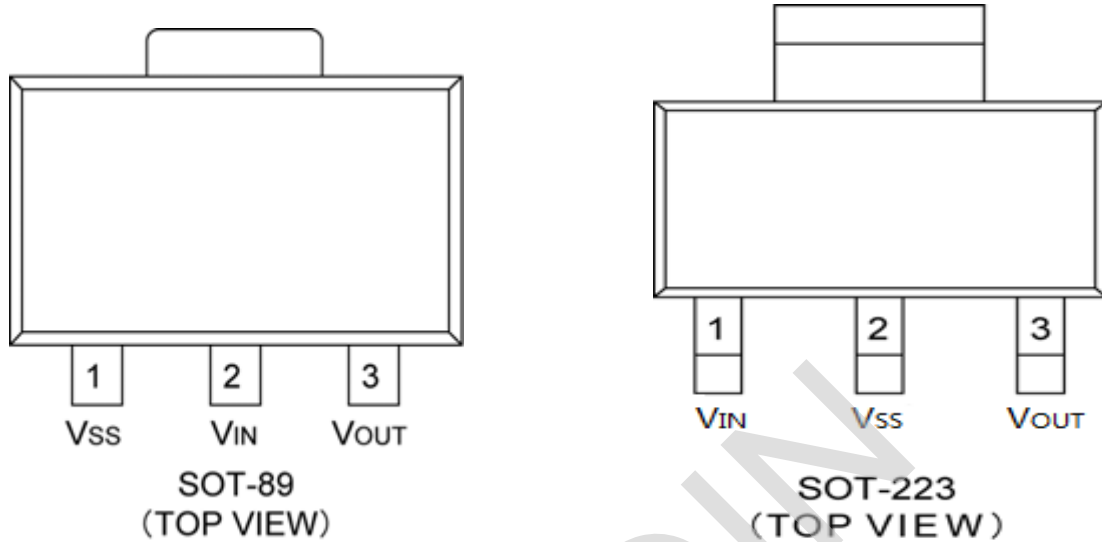
Note1: Input capacitor $C_{IN}=1\mu F$.

Note2: Output capacitor $C_{OUT}=1\mu F/6.8\mu F$ (1µF Tantalum capacitor or 6.8µF ceramic capacitor is recommended).

Block Diagram



Pin Assignment



Absolute Maximum Ratings

| | | | |
|----------------------|---------------|-----------------------------|----------------|
| Supply Voltage | -0.3V to 8.5V | Operating Temperature | -40°C to 85°C |
| Output Current..... | 1.1A | Storage Temperature | -40°C to 125°C |

Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Electrical Characteristics

H7651 for any output voltage

(Ta=25°C)

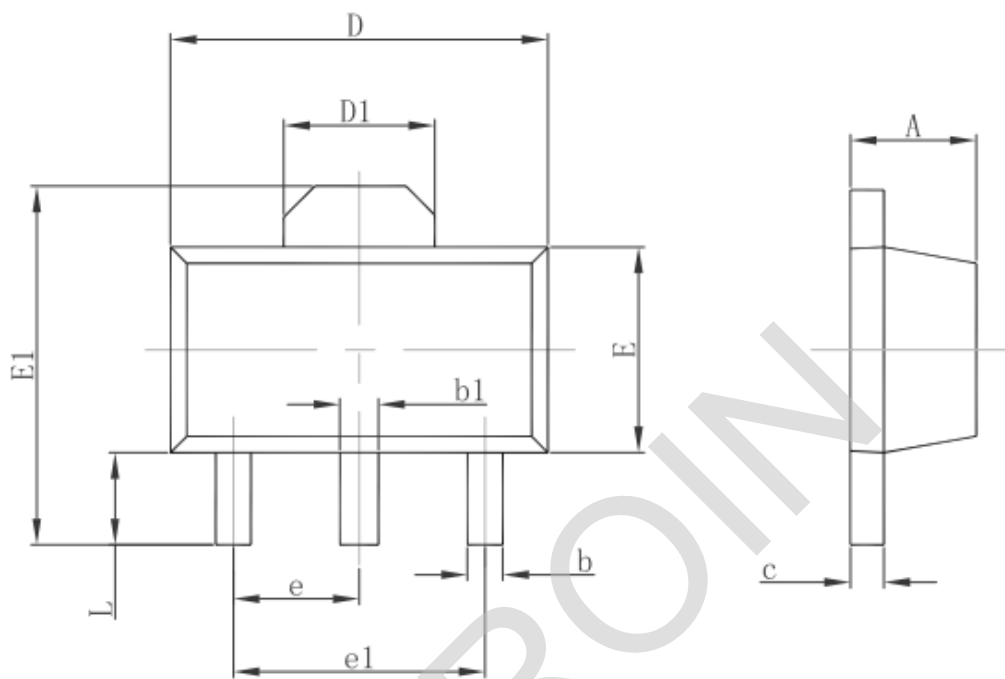
| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|--|---------------------------------|-----------|------|-----------|--------|
| Output Voltage | Vout | Vin=Vout+1V 1.0mA≤Iout≤30mA | Vout×0.98 | -- | Vout×1.02 | V |
| Output Current*1 | Iout | Vin-Vout=1V | -- | 1000 | -- | mA |
| Low dropout*2 | Vdrop | Refer to the next table | | | | |
| Line Regulation | $\Delta V_{out1}/(V_{in} \cdot V_{out})$ | 1.6V≤Vin≤8V Iout=100mA | -- | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{out} | Vin=Vout+1V 1.0mA≤Iout≤100mA | -- | 12 | 30 | mV |
| Output voltage Temperature Coefficiency | $\Delta V_{out}/(T_a \cdot V_{out})$ | Iout=30mA 0°C≤Ta≤70°C | -- | ±100 | -- | Ppm/°C |
| Supply Current | Iss1 | -- | -- | 2.0 | 5.0 | uA |
| Input Voltage | Vin | -- | -- | -- | 8.5 | V |
| Thermal shutdown detection temperature | TSD | Junction temperature | - | 160 | - | °C |
| Thermal shutdown release temperature | TSR | Junction temperature | - | 140 | - | °C |

Electrical Characteristics by Output Voltage:

| Output Voltage Vout(V) | Dropout Voltage Vdif (V) | | |
|------------------------|--------------------------|------|------|
| | Conditions | Typ. | Max. |
| Vout ≤ 2.0V | Iout=60 mA | 0.05 | 0.08 |
| 2.0 < Vout ≤ 3.0 | Iout=80 mA | 0.05 | 0.08 |
| 3.0 < Vout ≤ 4.0 | Iout=100 mA | 0.06 | 0.08 |
| 4.0 < Vout ≤ 5.0 | | 0.05 | 0.08 |
| 3.0 < Vout ≤ 4.0 | Iout=200 mA | 0.13 | 0.16 |
| 4.0 < Vout ≤ 5.0 | | 0.12 | 0.16 |
| 3.0 < Vout ≤ 4.0 | Iout=1000 mA | 0.65 | 0.8 |
| 4.0 < Vout ≤ 5.0 | | 0.6 | 0.8 |

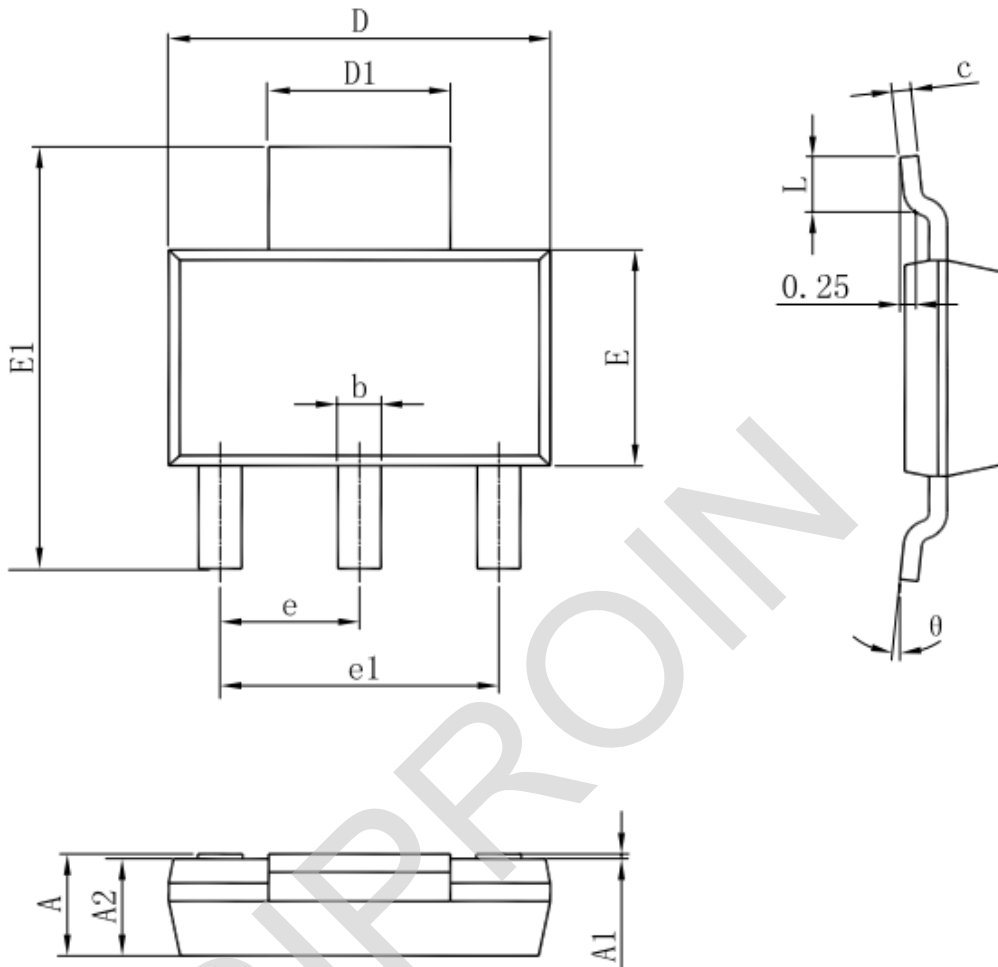
Package Information

3-pin SOT89 Outline Dimensions



| Symbol | Dimensions in Millimeters | | Dimensions in Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.400 | 1.600 | 0.055 | 0.063 |
| b | 0.320 | 0.520 | 0.013 | 0.020 |
| b1 | 0.400 | 0.580 | 0.016 | 0.023 |
| c | 0.350 | 0.440 | 0.014 | 0.017 |
| D | 4.400 | 4.600 | 0.173 | 0.181 |
| D1 | 1.550 REF. | | 0.061 REF. | |
| E | 2.300 | 2.600 | 0.091 | 0.102 |
| E1 | 3.940 | 4.250 | 0.155 | 0.167 |
| e | 1.500 TYP. | | 0.060 TYP. | |
| e1 | 3.000 TYP. | | 0.118 TYP. | |
| L | 0.900 | 1.200 | 0.035 | 0.047 |

SOT-223 PACKAGE OUTLINE DIMENSIONS



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.520 | 1.800 | 0.060 | 0.071 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.500 | 1.700 | 0.059 | 0.067 |
| b | 0.660 | 0.820 | 0.026 | 0.032 |
| c | 0.250 | 0.350 | 0.010 | 0.014 |
| D | 6.200 | 6.400 | 0.244 | 0.252 |
| D1 | 2.900 | 3.100 | 0.114 | 0.122 |
| E | 3.300 | 3.700 | 0.130 | 0.146 |
| E1 | 6.830 | 7.070 | 0.269 | 0.278 |
| e | 2.300(BSC) | | 0.091(BSC) | |
| e1 | 4.500 | 4.700 | 0.177 | 0.185 |
| L | 0.900 | 1.150 | 0.035 | 0.045 |
| θ | 0° | 10° | 0° | 10° |

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