

Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- Low Quiescent Current: 1.5uA at 6V
- Output voltage accuracy: tolerance $\pm 2\%$

Applications

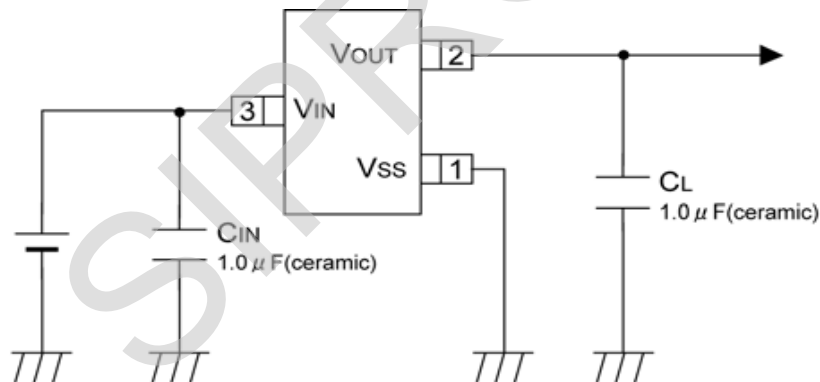
- Battery-powered equipment
- Reference voltage sources
- Cameras, video cameras
- Portable AV systems
- Mobile phones
- Portable games

General Description

H7605 series are a highly precise, lower consumption, 3 terminal, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage. The H7605 consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error correction circuit. The series is

compatible with low ESR ceramic capacitors. The current limiter's fold back circuit operates as a short circuit protection as well as the output current limiter for the output pin. Output voltages are internally by laser trimming technologies. It is selectable in 0.1V increments within a range of 1.2V to 5.0V. H7605 series are available in SOT-23, SOT23-3 and SOT-89 packages.

Typical Application



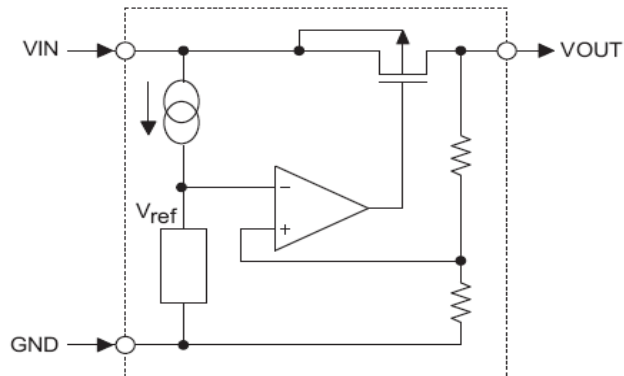
Order Information

H7605-①②③④

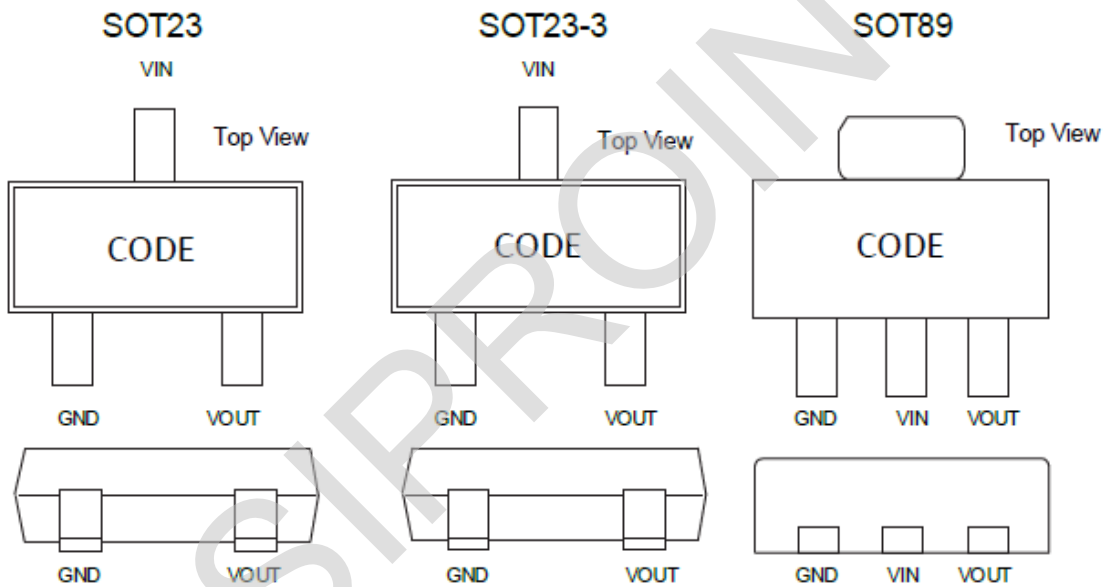
| Designator | Symbol | Description |
|------------|---------|---------------------------|
| ① ② | Integer | Output Voltage(1.2V~5.0V) |
| ③ | N | Package:SOT23 |
| | M | Package:SOT23-3 |
| | P | Package:SOT89-3 |
| ④ | R | RoHS / Pb Free |
| | G | Halogen Free |

Note: "①②" stands for output voltages. Other voltages can be specially customized

Block Diagram



Pin Assignment



Absolute Maximum Ratings

| Parameter | Symbol | Ratings | Units |
|-----------------------------|-----------|------------------------------|-------|
| Input Voltage | V_{IN} | 10 | V |
| Output Current | I_{OUT} | 300* | mA |
| Output Voltage | V_{OUT} | $V_{SS}-0.3 \sim V_{IN}+0.3$ | V |
| Power Dissipation | SOT-23 | 0.20 | W |
| | SOT-89 | 0.50 | W |
| | SOT23-3 | 0.20 | W |
| Operating Temperature Range | T_{opr} | -40~+85 | °C |
| Storage Temperature Range | T_{stg} | -55~+125 | °C |

* $I_{OUT} = P_d / (V_{IN} - V_{OUT})$

Electrical Characteristics

H7605 for any output voltage

(Ta=25°C)

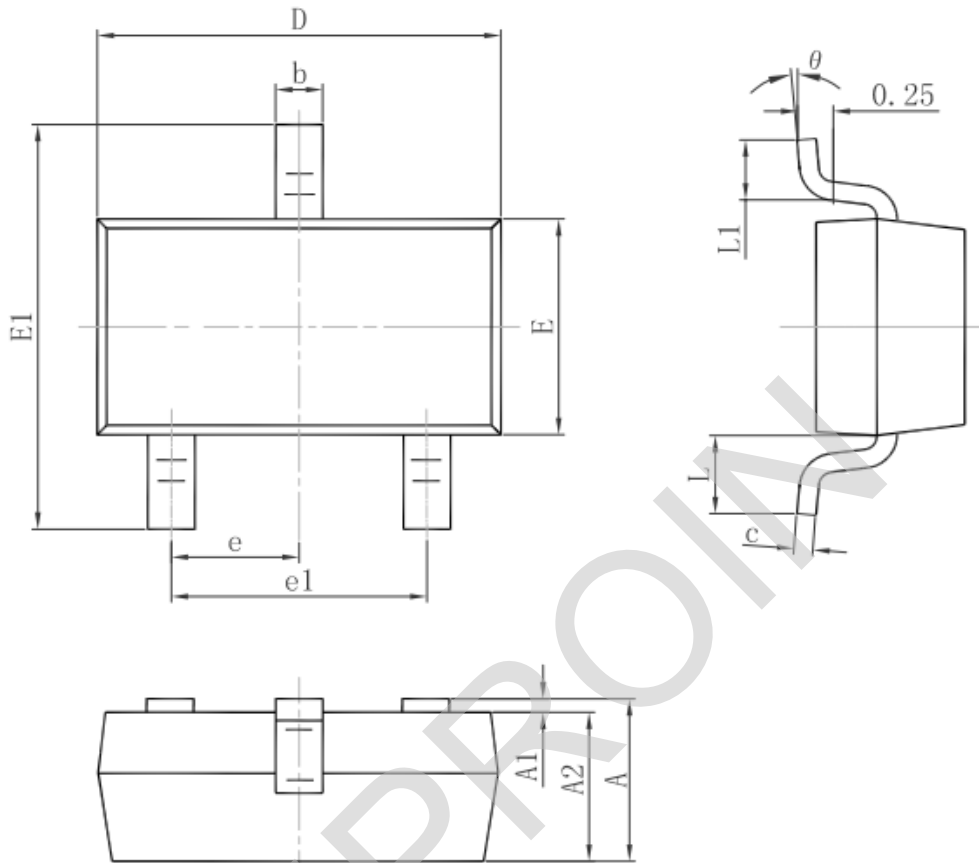
| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|--------------------------------|-----------|------|-----------|--------|
| Output Voltage | Vout | Vin=Vout+1V 1.0mA≤Iout≤30mA | Vout×0.98 | -- | Vout×1.02 | V |
| Output Current*1 | Iout | Vin-Vout=1V | -- | 300 | -- | mA |
| Low dropout*2 | Vdrop | Refer to the next table | | | | |
| Line Regulation | $\Delta V_{out}/(V_{in} \cdot V_{out})$ | 1.6V≤Vin≤6.5V Iout=40mA | -- | 0.05 | 0.2 | %/V |
| Load Regulation | $\Delta V_{out}/\Delta I_{out}$ | Vin=Vout+1V 1.0mA≤Iout≤80mA | -- | 12 | 30 | mV |
| Output voltage Temperature Coefficiency | $\Delta V_{out}/(T_a \cdot V_{out})$ | Iout=30mA 0°C≤Ta≤70°C | -- | ±75 | -- | Ppm/°C |
| Supply Current | Iss | -- | -- | 1.5 | 2 | uA |
| Input Voltage | Vin | -- | -- | 6 | 8 | V |

Electrical Characteristics by Output Voltage:

| Output Voltage Vout(V) | Dropout Voltage Vdif (V) | | |
|------------------------|--------------------------|------|------|
| | Conditions | Typ. | Max. |
| Vout≤1.5V | Iout=100 mA | 0.35 | 0.57 |
| Vout=1.6V | | 0.32 | 0.50 |
| Vout=1.7V | | 0.30 | 0.45 |
| 1.8 ≤ Vout ≤ 2 | | 0.28 | 0.42 |
| 2.1 ≤ Vout ≤ 2.7 | | 0.25 | 0.38 |
| 2.8 ≤ Vout ≤ 5.0 | | 0.19 | 0.35 |

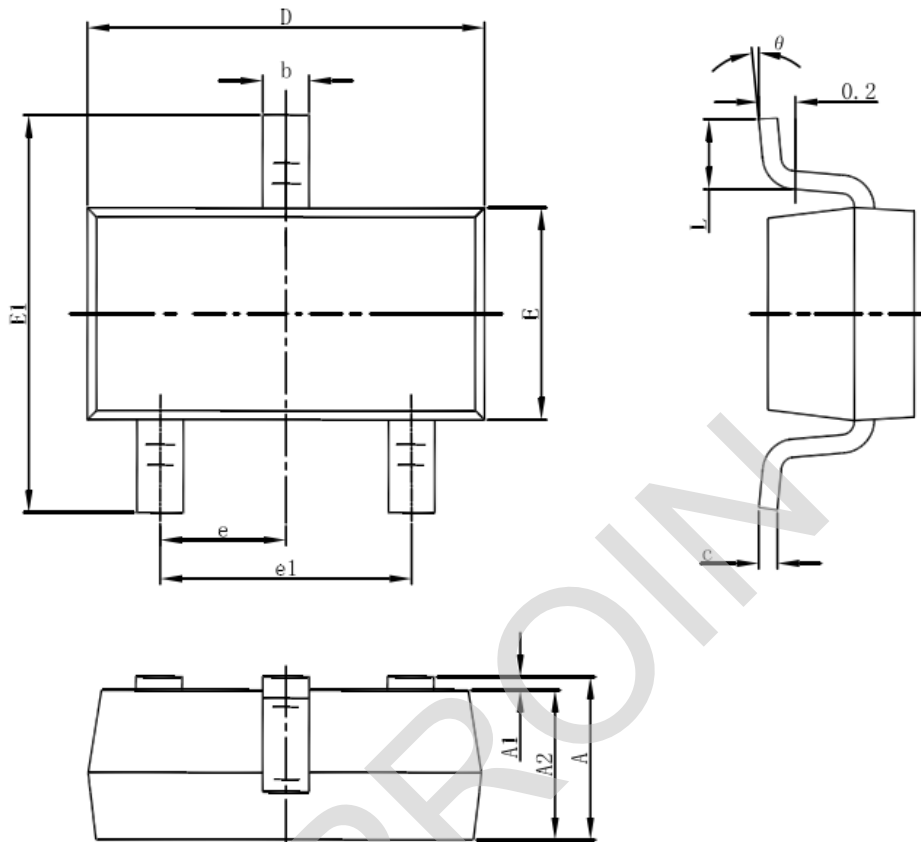
Package Information

3-pin SOT23 Outline Dimensions



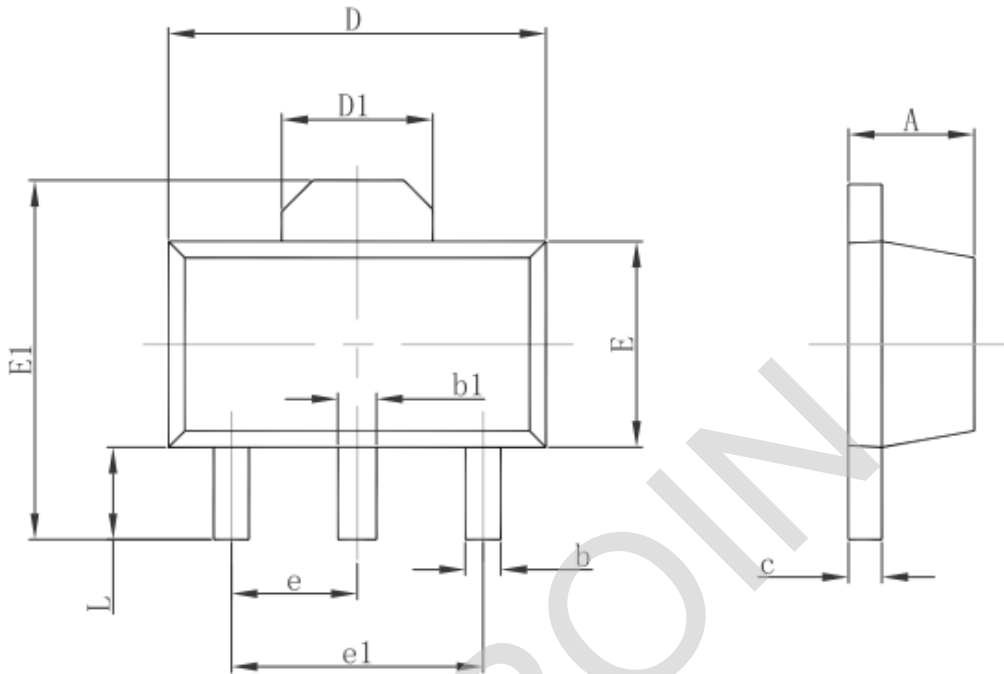
| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|----------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP. | | 0.037 TYP. | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF. | | 0.022 REF. | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |

3-pin SOT23-3 Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 2.820 | 3.020 | 0.111 | 0.119 |
| E | 1.500 | 1.700 | 0.059 | 0.067 |
| E1 | 2.650 | 2.950 | 0.104 | 0.116 |
| e | 0.950(BSC) | | 0.037(BSC) | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.300 | 0.600 | 0.012 | 0.024 |
| θ | 0° | 8° | 0° | 8° |

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 |

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