

Features

- Low voltage drop: 0.06V@100mA
- High input voltage: 10V
- Low temperature coefficient
- Low Quiescent Current: 2uA at 5.0V
- Output voltage accuracy: tolerance $\pm 1\%$
- SOT23-5, SOT89 and SOT89-5 package

Applications

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

General Description

The TX6250 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.

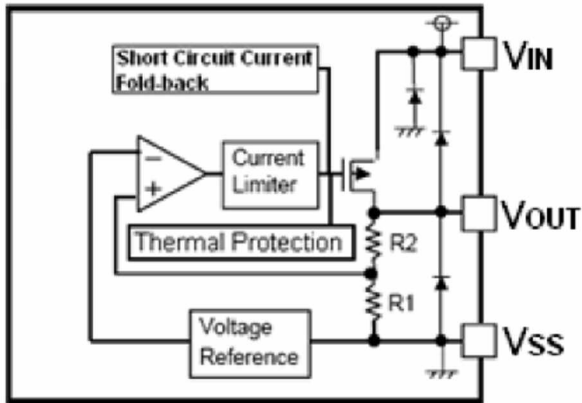
The TX6250 consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Transient response to load variations have improved in comparison to the existing series.

Order Information

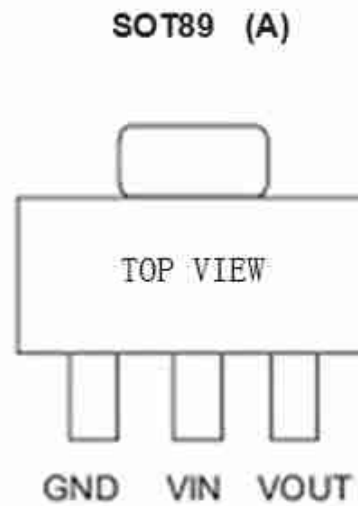
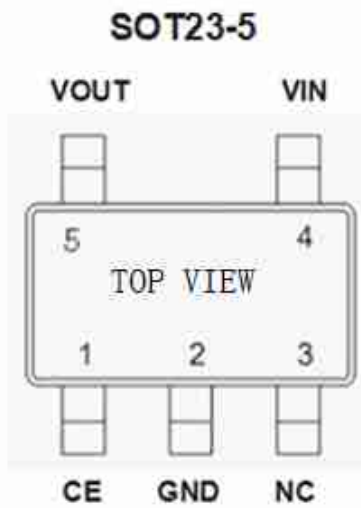
TX6250-①②③④

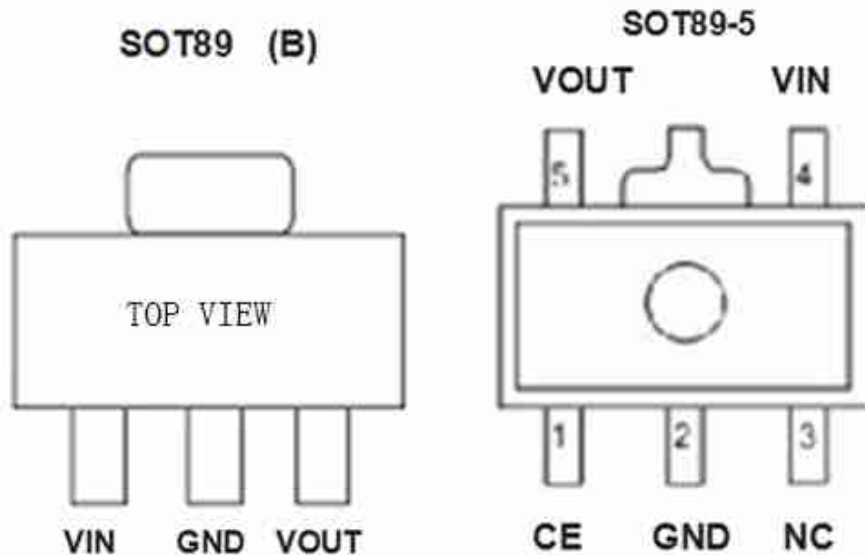
| Designator | Symbol | Description |
|------------|---------|--------------------------|
| ① ② | Integer | Output Voltage(2.1~5.0V) |
| ③ | M5 | Package:SOT23-5 |
| | P3 | Package:SOT89-3 |
| | P5 | Package:SOT89-5 |
| ④ | R | RoHS / Pb Free |
| | G | Halogen Free |

Block Diagram



Pin Assignment





Absolute Maximum Ratings

Supply Voltage-0.3V to 12V

Operating Temperature-40°C to 85°C

Output Current.....1.5A

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

TX6250 for any output voltage

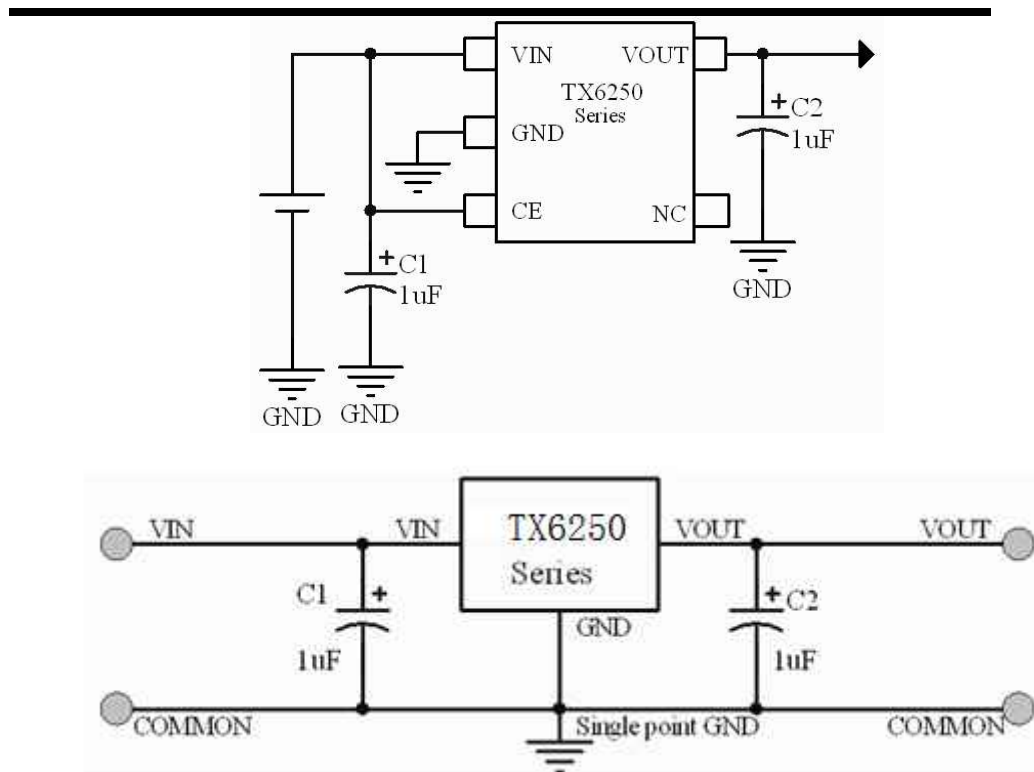
(Ta=25°C)

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|--|--|--|------------------------|------|------------------------|--------|
| V _{OUT} | Output Voltage | V _{in} =V _{out} +1V 1.0mA≤I _{out} ≤30mA | V _{out} ×0.99 | -- | V _{out} ×1.01 | V |
| I _{OUT} | Output Current*1 | V _{in} -V _{out} =1V | 1000 | -- | -- | mA |
| V _{DROP} | Low dropout*2 | Refer to the next table | | | | |
| $\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$ | Line Regulation | 1.6V≤V _{in} ≤8V I _{out} =100mA | -- | 0.05 | 0.2 | %/V |
| $\Delta V_{OUT} / \Delta I_{OUT}$ | $\Delta V_{out} / \Delta I_{out}$ | V _{in} =V _{out} +1V 1.0mA≤I _{out} ≤100mA | -- | 12 | 30 | mV |
| Output voltage Temperature Coefficient | $\Delta V_{out} / (T_a \cdot V_{out})$ | I _{out} =30mA 0°C≤T _a ≤70°C | -- | ±100 | -- | Ppm/°C |
| Supply Current | I _{ss1} | -- | -- | 1.5 | 5 | uA |
| Input Voltage | V _{in} | -- | -- | -- | 10 | V |

Electrical Characteristics by Output Voltage:

| Output Voltage V _{out} (V) | Dropout Voltage V _{dif} (V) | | |
|-------------------------------------|--------------------------------------|------|------|
| | Conditions | Typ. | Max. |
| V _{out} ≤ 2.0V | I _{out} =60 mA | 0.05 | 0.08 |
| 2.0 < V _{out} ≤ 3.0 | I _{out} =80 mA | 0.05 | 0.08 |
| 3.0 < V _{out} ≤ 4.0 | I _{out} =100 mA | 0.06 | 0.08 |
| 4.0 < V _{out} ≤ 5.0 | | 0.05 | 0.08 |
| 3.0 < V _{out} ≤ 4.0 | I _{out} =200 mA | 0.13 | 0.16 |
| 4.0 < V _{out} ≤ 5.0 | | 0.12 | 0.16 |
| 3.0 < V _{out} ≤ 4.0 | I _{out} =1000 mA | 0.65 | 0.8 |
| 4.0 < V _{out} ≤ 5.0 | | 0.6 | 0.8 |

Application Circuits

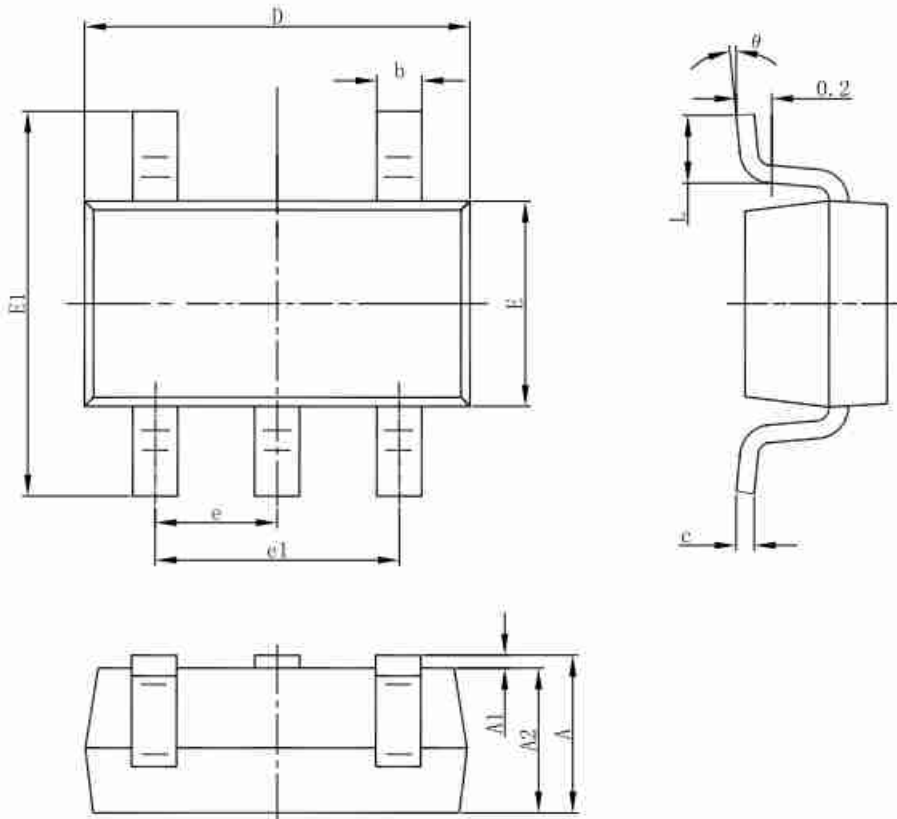


Note1: Input capacitor $C_{IN}=1\mu F$.

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

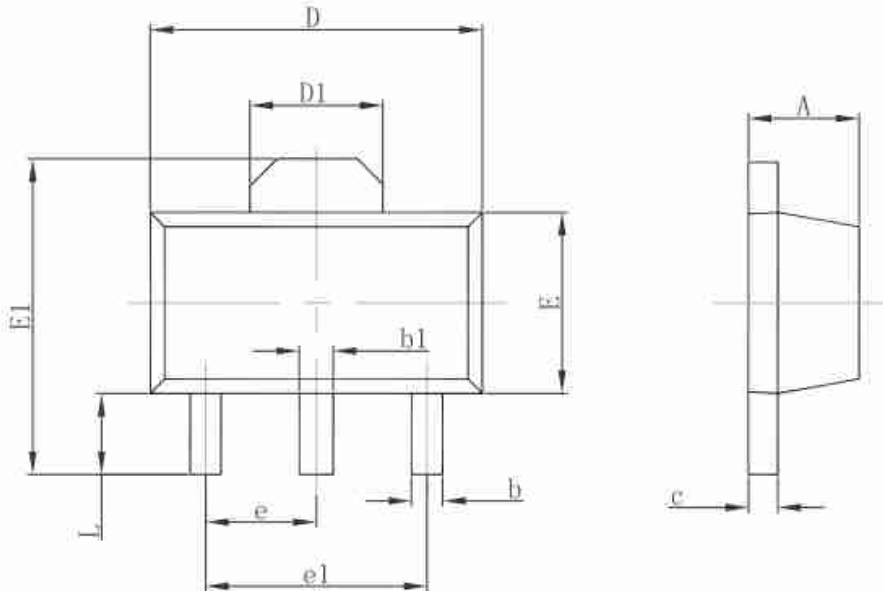
Package Information

SOT-23-5L PACKAGE OUTLINE DIMENSIONS



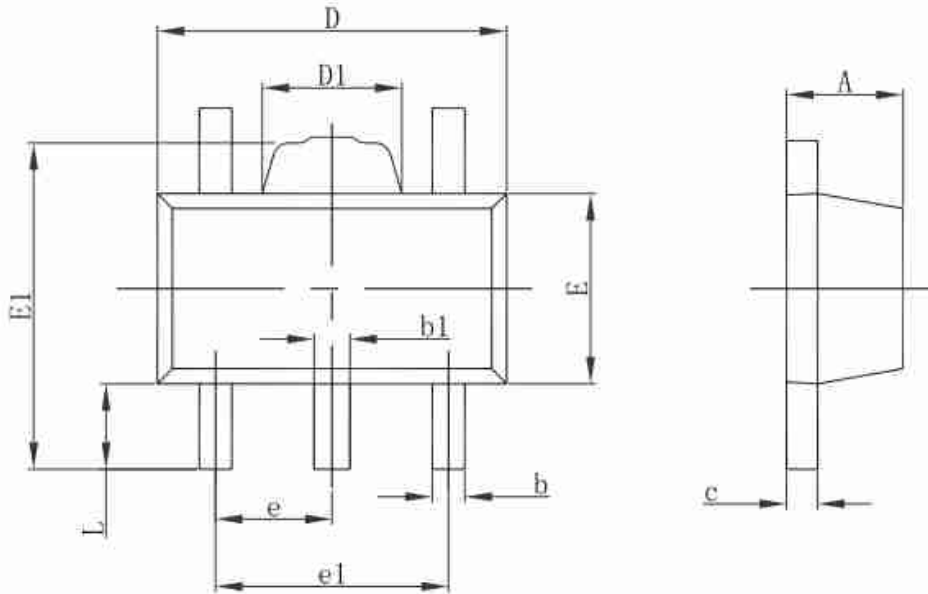
| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|----------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 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° |

SOT-89-3L PACKAGE 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-89-5L PACKAGE 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 | 0.360 | 0.560 | 0.014 | 0.022 |
| c | 0.350 | 0.440 | 0.014 | 0.017 |
| D | 4.400 | 4.600 | 0.173 | 0.181 |
| D1 | 1.400 | 1.800 | 0.055 | 0.071 |
| E | 2.300 | 2.600 | 0.091 | 0.102 |
| E1 | 3.940 | 4.250 | 0.155 | 0.167 |
| e | 1.500TYP. | | 0.060TYP. | |
| e1 | 2.900 | 3.100 | 0.114 | 0.122 |
| L | 0.900 | 1.100 | 0.035 | 0.043 |