

## Description

The GM6250's combine high accuracy with very low power consumption, providing high output current even when the application requires extremely low input-output voltage differential.

The GM6250's include a precision voltage reference, an error correction circuit, over-temperature protection, and a current limited output driver. Fast transient response to load variations provides excellent stability under dynamic load conditions.

The GM6250's come in SOT-23 (150mW), SOT-89 (500mW) and TO-92 packages.

## Features

- ◆ Maximum output current 250mA (within maximum power dissipation)
- ◆ Output voltage: from 1.8 V to 6.0V in 0.1V increments
- ◆ Output voltage  $\pm 2\%$
- ◆ CMOS low power consumption, typically 1.0 $\mu$ A at  $V_{OUT} = 5.0V$
- ◆ Input stability typically 0.2%/V
- ◆ Ultra-low dropout voltage 0.38V @  $I_{OUT} = 200mA$  at  $V_{OUT} = 5.0V$
- ◆ Small input/ output differential: 0.4V at 160mA ( $V_{OUT} = 3.3V$ )
- ◆ SOT-23 (150mW), SOT-89 (500mW) and TO-92 packages

## Application

Palmtops

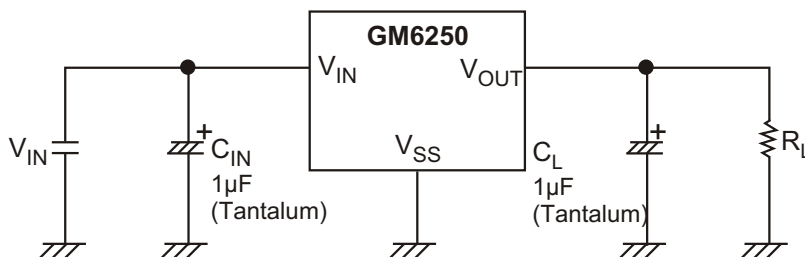
Portable Cameras

Video Recorders

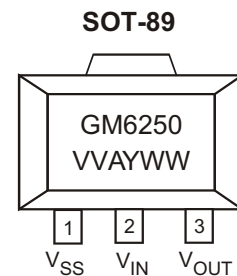
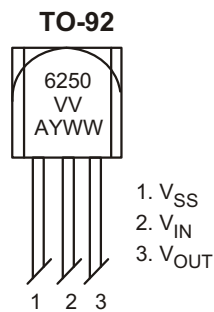
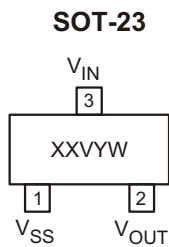
Battery Powered Equipment

Reference Voltage Sources

## TYPICAL APPLICATION CIRCUITS



# ◆ MARKING INFORMATION & PIN CONFIGURATIONS (TOP VIEW)



XX = Specific Device Code(EA = GM6250)  
 V = Voltage Code  
 VV = Voltage Suffix (18=1.8V, 50=5.0V)  
 A = Assembly Location  
 Y = Year  
 WW, W= Work Week

# ◆ ORDERING INFORMATION (Continued)

| Ordering Number  | Output Voltage | Voltage Code | Package | Shipping                      |
|------------------|----------------|--------------|---------|-------------------------------|
| GM6250-1.5T92B   | 1.5V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-1.5T92RL  | 1.5V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-1.5ST23R  | 1.5V           | C            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-1.5ST89R  | 1.5V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-1.8T92B   | 1.8V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-1.8T92RL  | 1.8V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-1.8ST23R  | 1.8V           | E            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-1.8ST89R  | 1.8V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-2.5T92B   | 2.5V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-2.5T92RL  | 2.5V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-2.5ST23R  | 2.5V           | G            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-2.5ST89R  | 2.5V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-2.7T92B   | 2.7V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-2.7T92RL  | 2.7V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-2.7ST23R  | 2.7V           | T            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-2.7ST89R  | 2.7V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-2.8T92B   | 2.8V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-2.8T92RL  | 2.8V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-2.8ST23R  | 2.8V           | H            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-2.8ST89R  | 2.8V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-2.85T92B  | 2.85V          |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-2.85T92RL | 2.85V          |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-2.85ST23R | 2.85V          | I            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-2.85ST89R | 2.85V          |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-3.0T92B   | 3.0V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-3.0T92RL  | 3.0V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-3.0ST23R  | 3.0V           | J            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-3.0ST89R  | 3.0V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |

\* For detail Ordering Number identification, please see last page.

◆ **ORDERING INFORMATION** (Continued)

| Ordering Number | Output Voltage | Voltage Code | Package | Shipping                      |
|-----------------|----------------|--------------|---------|-------------------------------|
| GM6250-3.2T92B  | 3.2V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-3.2T92RL | 3.2V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-3.2ST23R | 3.2V           | U            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-3.2ST89R | 3.2V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-3.3T92B  | 3.3V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-3.3T92RL | 3.3V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-3.3ST23R | 3.3V           | K            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-3.3ST89R | 3.3V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-3.5T92B  | 3.5V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-3.5T92RL | 3.5V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-3.5ST23R | 3.5V           | V            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-3.5ST89R | 3.5V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-3.6T92B  | 3.6V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-3.6T92RL | 3.6V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-3.6ST23R | 3.6V           | L            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-3.6ST89R | 3.6V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-4.0T92B  | 4.0V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-4.0T92RL | 4.0V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-4.0ST23R | 4.0V           | M            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-4.0ST89R | 4.0V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-4.4T92B  | 4.4V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-4.4T92RL | 4.4V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-4.4ST23R | 4.4V           | W            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-4.4ST89R | 4.4V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-4.5T92B  | 4.5V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-4.5T92RL | 4.5V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-4.5ST23R | 4.5V           | N            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-4.5ST89R | 4.5V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |
| GM6250-5.0T92B  | 5.0V           |              | TO-92   | 1,000 Units/ ESD Bag          |
| GM6250-5.0T92RL | 5.0V           |              | TO-92   | 2,000 Units/ Ammo Pack (Tape) |
| GM6250-5.0ST23R | 5.0V           | Q            | SOT-23  | 3,000 Units/ Tape and Reel    |
| GM6250-5.0ST89R | 5.0V           |              | SOT-89  | 1,000 Units/ Tape and Reel    |

\* For detail Ordering Number identification, please see last page.

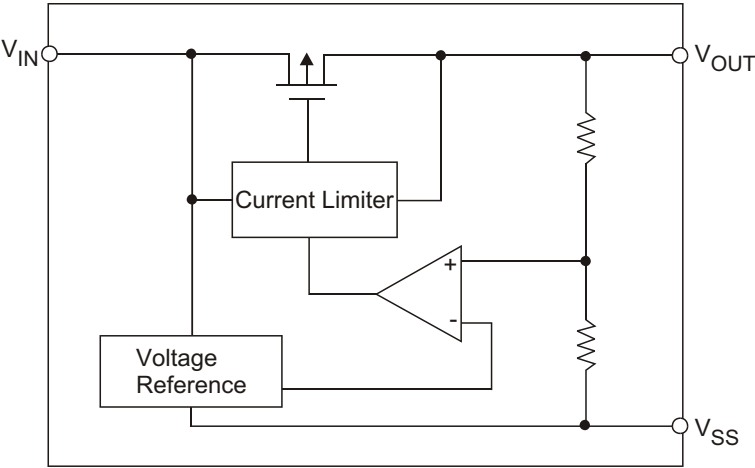
◆ ABSOLUTE MAXIMUM RATINGS

| PARAMETER                          |          | SYMBOL    | RATINGS                          | UNITS |
|------------------------------------|----------|-----------|----------------------------------|-------|
| Input Voltage                      |          | $V_{IN}$  | 12                               | V     |
| Output Current                     |          | $I_{OUT}$ | 500                              | mA    |
| Output Voltage                     |          | $V_{OUT}$ | $V_{SS} - 0.3 \sim V_{IN} + 0.3$ | V     |
| Continuous Total Power Dissipation | SOT - 23 | $P_D$     | 150                              | mW    |
|                                    | SOT - 89 |           | 500                              |       |
|                                    | TO - 92  |           | 300                              |       |
| Operating Ambient Temperature      |          | $T_{opr}$ | -30 ~ +80                        | °C    |
| Storage Temperature                |          | $T_{stg}$ | -40 ~ +125                       | °C    |
| Maximum Junction Temperature       |          | $T_J$     | 150                              | °C    |

◆ Thermal Information

| PARAMETER                          |        | Maximum | Unit  |
|------------------------------------|--------|---------|-------|
| Thermal Resistance $R_{\theta jc}$ | SOT-89 | 100     | °C/ W |
| Thermal Resistance $R_{\theta ja}$ |        | 300     | °C/ W |

◆ BLOCK DIAGRAM



◆ **ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| Parameter              |             | Symbol                                | Condition                                                                           | Min   | Typ   | Max   | Unit | Circuit |
|------------------------|-------------|---------------------------------------|-------------------------------------------------------------------------------------|-------|-------|-------|------|---------|
| Output Voltage         | GM6250-1.8V | $V_{\text{OUT(E)}}^{(\text{Note 2})}$ | $I_{\text{OUT}}=40\text{mA},$<br>$V_{\text{IN}} > V_{\text{Drop}} + V_{\text{OUT}}$ | 1.764 | 1.800 | 1.836 | V    | 1       |
|                        | GM6250-2.5V |                                       |                                                                                     | 2.450 | 2.500 | 2.550 |      |         |
|                        | GM6250-2.7V |                                       |                                                                                     | 2.646 | 2.700 | 2.754 |      |         |
|                        | GM6250-2.8V |                                       |                                                                                     | 2.744 | 2.800 | 2.856 |      |         |
|                        | GM6250-3.0V |                                       |                                                                                     | 2.940 | 3.000 | 3.060 |      |         |
|                        | GM6250-3.2V |                                       |                                                                                     | 3.136 | 3.200 | 3.264 |      |         |
|                        | GM6250-3.3V |                                       |                                                                                     | 3.234 | 3.300 | 3.366 |      |         |
|                        | GM6250-3.5V |                                       |                                                                                     | 3.430 | 3.500 | 3.570 |      |         |
|                        | GM6250-3.6V |                                       |                                                                                     | 3.528 | 3.600 | 3.672 |      |         |
|                        | GM6250-4.0V |                                       |                                                                                     | 3.920 | 4.000 | 4.080 |      |         |
|                        | GM6250-4.4V |                                       |                                                                                     | 4.312 | 4.400 | 4.488 |      |         |
|                        | GM6250-4.5V |                                       |                                                                                     | 4.410 | 4.500 | 4.590 |      |         |
|                        | GM6250-5.0V |                                       |                                                                                     | 4.900 | 5.000 | 5.100 |      |         |
| Maximum Output Current | GM6250-1.8V | $I_{\text{OUT max}}$                  | $V_{\text{IN}}=3.0\text{V}, V_{\text{OUT(E)}} \geq 1.62\text{V}$                    | 250   |       |       | mA   | 1       |
|                        | GM6250-2.5V |                                       | $V_{\text{IN}}=4.0\text{V}, V_{\text{OUT(E)}} \geq 2.3\text{V}$                     |       |       |       |      |         |
|                        | GM6250-2.7V |                                       | $V_{\text{IN}}=4.0\text{V}, V_{\text{OUT(E)}} \geq 2.43\text{V}$                    |       |       |       |      |         |
|                        | GM6250-2.8V |                                       | $V_{\text{IN}}=4.0\text{V}, V_{\text{OUT(E)}} \geq 2.52\text{V}$                    |       |       |       |      |         |
|                        | GM6250-3.0V |                                       | $V_{\text{IN}}=4.0\text{V}, V_{\text{OUT(E)}} \geq 2.7\text{V}$                     |       |       |       |      |         |
|                        | GM6250-3.2V |                                       | $V_{\text{IN}}=4.0\text{V}, V_{\text{OUT(E)}} \geq 2.88\text{V}$                    |       |       |       |      |         |
|                        | GM6250-3.3V |                                       | $V_{\text{IN}}=4.0\text{V}, V_{\text{OUT(E)}} \geq 2.97\text{V}$                    |       |       |       |      |         |
|                        | GM6250-3.5V |                                       | $V_{\text{IN}}=5.0\text{V}, V_{\text{OUT(E)}} \geq 3.15\text{V}$                    |       |       |       |      |         |
|                        | GM6250-3.6V |                                       | $V_{\text{IN}}=5.0\text{V}, V_{\text{OUT(E)}} \geq 3.24\text{V}$                    |       |       |       |      |         |
|                        | GM6250-4.0V |                                       | $V_{\text{IN}}=5.0\text{V}, V_{\text{OUT(E)}} \geq 3.6\text{V}$                     |       |       |       |      |         |
|                        | GM6250-4.4V |                                       | $V_{\text{IN}}=6.0\text{V}, V_{\text{OUT(E)}} \geq 3.96\text{V}$                    |       |       |       |      |         |
|                        | GM6250-4.5V |                                       | $V_{\text{IN}}=6.0\text{V}, V_{\text{OUT(E)}} \geq 4.05\text{V}$                    |       |       |       |      |         |
|                        | GM6250-5.0V |                                       | $V_{\text{IN}}=6.0\text{V}, V_{\text{OUT(E)}} \geq 4.5\text{V}$                     |       |       |       |      |         |

◆ **ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| Parameter                                       |             | Symbol    | Condition                                                       | Min | Typ | Max  | Unit | Circuit |
|-------------------------------------------------|-------------|-----------|-----------------------------------------------------------------|-----|-----|------|------|---------|
| Load Stability                                  | GM6250-1.8V | $V_{OUT}$ | $V_{IN}=2.8\text{V}, 1\text{mA} \leq I_{OUT} \leq 60\text{mA}$  |     | 45  | 90   | mV   | 1       |
|                                                 | GM6250-2.5V |           | $V_{IN}=3.5\text{V}, 1\text{mA} \leq I_{OUT} \leq 80\text{mA}$  |     | 45  | 90   |      |         |
|                                                 | GM6250-2.7V |           | $V_{IN}=3.7\text{V}, 1\text{mA} \leq I_{OUT} \leq 80\text{mA}$  |     | 45  | 90   |      |         |
|                                                 | GM6250-2.8V |           | $V_{IN}=3.8\text{V}, 1\text{mA} \leq I_{OUT} \leq 80\text{mA}$  |     | 45  | 90   |      |         |
|                                                 | GM6250-3.0V |           | $V_{IN}=4.0\text{V}, 1\text{mA} \leq I_{OUT} \leq 80\text{mA}$  |     | 45  | 90   |      |         |
|                                                 | GM6250-3.2V |           | $V_{IN}=4.2\text{V}, 1\text{mA} \leq I_{OUT} \leq 80\text{mA}$  |     | 45  | 90   |      |         |
|                                                 | GM6250-3.3V |           | $V_{IN}=4.3\text{V}, 1\text{mA} \leq I_{OUT} \leq 100\text{mA}$ |     | 45  | 90   |      |         |
|                                                 | GM6250-3.5V |           | $V_{IN}=4.5\text{V}, 1\text{mA} \leq I_{OUT} \leq 100\text{mA}$ |     | 45  | 90   |      |         |
|                                                 | GM6250-3.6V |           | $V_{IN}=4.6\text{V}, 1\text{mA} \leq I_{OUT} \leq 100\text{mA}$ |     | 45  | 90   |      |         |
|                                                 | GM6250-4.0V |           | $V_{IN}=5.0\text{V}, 1\text{mA} \leq I_{OUT} \leq 100\text{mA}$ |     | 40  | 80   |      |         |
|                                                 | GM6250-4.4V |           | $V_{IN}=5.4\text{V}, 1\text{mA} \leq I_{OUT} \leq 100\text{mA}$ |     | 40  | 80   |      |         |
|                                                 | GM6250-4.5V |           | $V_{IN}=4.5\text{V}, 1\text{mA} \leq I_{OUT} \leq 100\text{mA}$ |     | 40  | 80   |      |         |
|                                                 | GM6250-5.0V |           | $V_{IN}=6.0\text{V}, 1\text{mA} \leq I_{OUT} \leq 100\text{mA}$ |     | 40  | 80   |      |         |
| Input - Output<br>Voltage Differential (Note 3) | GM6250-1.8V | Vdif1     | $I_{OUT} = 60\text{mA}$                                         |     | 180 | 360  | mV   | 1       |
|                                                 |             | Vdif2     | $I_{OUT} = 160\text{mA}$                                        |     | 900 | 1300 |      |         |
|                                                 | GM6250-2.5V | Vdif1     | $I_{OUT} = 80\text{mA}$                                         |     | 180 | 360  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 160\text{mA}$                                        |     | 550 | 850  |      |         |
|                                                 | GM6250-2.7V | Vdif1     | $I_{OUT} = 80\text{mA}$                                         |     | 180 | 360  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 160\text{mA}$                                        |     | 400 | 700  |      |         |
|                                                 | GM6250-2.8V | Vdif1     | $I_{OUT} = 80\text{mA}$                                         |     | 180 | 360  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 160\text{mA}$                                        |     | 400 | 700  |      |         |
|                                                 | GM6250-3.0V | Vdif1     | $I_{OUT} = 80\text{mA}$                                         |     | 180 | 360  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 160\text{mA}$                                        |     | 400 | 700  |      |         |
|                                                 | GM6250-3.2V | Vdif1     | $I_{OUT} = 80\text{mA}$                                         |     | 180 | 360  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 160\text{mA}$                                        |     | 400 | 700  |      |         |
|                                                 | GM6250-3.3V | Vdif1     | $I_{OUT} = 100\text{mA}$                                        |     | 170 | 330  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 200\text{mA}$                                        |     | 400 | 630  |      |         |
|                                                 | GM6250-3.5V | Vdif1     | $I_{OUT} = 100\text{mA}$                                        |     | 120 | 300  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 200\text{mA}$                                        |     | 380 | 600  |      |         |
|                                                 | GM6250-3.6V | Vdif1     | $I_{OUT} = 100\text{mA}$                                        |     | 120 | 300  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 200\text{mA}$                                        |     | 380 | 600  |      |         |
|                                                 | GM6250-4.0V | Vdif1     | $I_{OUT} = 100\text{mA}$                                        |     | 170 | 330  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 200\text{mA}$                                        |     | 400 | 630  |      |         |
|                                                 | GM6250-4.4V | Vdif1     | $I_{OUT} = 100\text{mA}$                                        |     | 120 | 300  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 200\text{mA}$                                        |     | 380 | 600  |      |         |
|                                                 | GM6250-4.5V | Vdif1     | $I_{OUT} = 100\text{mA}$                                        |     | 120 | 300  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 200\text{mA}$                                        |     | 380 | 600  |      |         |
|                                                 | GM6250-5.0V | Vdif1     | $I_{OUT} = 100\text{mA}$                                        |     | 120 | 300  |      |         |
|                                                 |             | Vdif2     | $I_{OUT} = 200\text{mA}$                                        |     | 380 | 600  |      |         |

◆ **ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| Parameter                                  |             | Symbol                                  | Condition                                                                         | Min | Typ       | Max | Unit                  | Circuit |
|--------------------------------------------|-------------|-----------------------------------------|-----------------------------------------------------------------------------------|-----|-----------|-----|-----------------------|---------|
| Supply Current                             | GM6250-1.8V | $I_{SS}$                                | $V_{IN} = 2.8\text{V}$                                                            |     | 1.0       | 2.9 | $\mu\text{A}$         | 2       |
|                                            | GM6250-2.5V |                                         | $V_{IN} = 3.5\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-2.7V |                                         | $V_{IN} = 3.7\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-2.8V |                                         | $V_{IN} = 3.8\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-3.0V |                                         | $V_{IN} = 4.0\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-3.2V |                                         | $V_{IN} = 4.2\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-3.3V |                                         | $V_{IN} = 4.3\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-3.5V |                                         | $V_{IN} = 4.5\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-3.6V |                                         | $V_{IN} = 4.6\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-4.0V |                                         | $V_{IN} = 5.0\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-4.4V |                                         | $V_{IN} = 5.4\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-4.5V |                                         | $V_{IN} = 5.5\text{V}$                                                            |     |           |     |                       |         |
|                                            | GM6250-5.0V |                                         | $V_{IN} = 6.0\text{V}$                                                            |     |           |     |                       |         |
| Output Current Limit                       |             |                                         |                                                                                   |     | 500       |     | mA                    | -       |
| Input Stability                            | GM6250-1.8V | $\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$  | $I_{OUT} = 40\text{mA}$<br>$2.8\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     | 0.2       | 0.3 | %/V                   | 1       |
|                                            | GM6250-2.5V |                                         | $I_{OUT} = 40\text{mA}$<br>$3.5\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-2.7V |                                         | $I_{OUT} = 40\text{mA}$<br>$3.7\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-2.8V |                                         | $I_{OUT} = 40\text{mA}$<br>$3.8\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-3.0V |                                         | $I_{OUT} = 40\text{mA}$<br>$4.0\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-3.2V |                                         | $I_{OUT} = 40\text{mA}$<br>$4.2\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-3.3V |                                         | $I_{OUT} = 40\text{mA}$<br>$4.3\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-3.5V |                                         | $I_{OUT} = 40\text{mA}$<br>$4.5\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-3.6V |                                         | $I_{OUT} = 40\text{mA}$<br>$4.6\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-4.0V |                                         | $I_{OUT} = 40\text{mA}$<br>$5.0\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-4.4V |                                         | $I_{OUT} = 40\text{mA}$<br>$5.4\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-4.5V |                                         | $I_{OUT} = 40\text{mA}$<br>$5.5\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
|                                            | GM6250-5.0V |                                         | $I_{OUT} = 40\text{mA}$<br>$6.0\text{V} \leq V_{IN} \leq 10.0\text{V}$            |     |           |     |                       |         |
| Input Voltage                              |             | $V_{IN}$                                |                                                                                   |     |           | 10  | V                     | -       |
| Output Voltage Temperature Characteristics |             | $\frac{V_{OUT}}{T_{opr} \cdot V_{OUT}}$ | $I_{OUT} = 10\text{mA}$<br>$-30^\circ\text{C} \leq T_{opr} \leq 80^\circ\text{C}$ |     | $\pm 100$ |     | ppm/ $^\circ\text{C}$ | 1       |

**Note:** 1.  $V_{OUT}(T)$  = Specified Output Voltage

2.  $V_{OUT}(E)$  = Effective Output Voltage (the output voltage when " $V_{OUT}(T) + 1.0\text{V}$ " is provided at the  $V_{IN}$  pin while maintaining a certain  $I_{OUT}$  value)

3.  $V_{dif} = \{V_{IN1}(\text{Note 4}) - V_{OUT}(E)\}$

4.  $V_{IN1}$  = The input voltage at the time 98% of  $V_{OUT}(E)$  is output (input voltage has been gradually reduced).

\* Output Voltage from 1.8V to 6.0V in 0.1V increments are available

## ◆ DIRECTIONS FOR USE

### Notes on Use

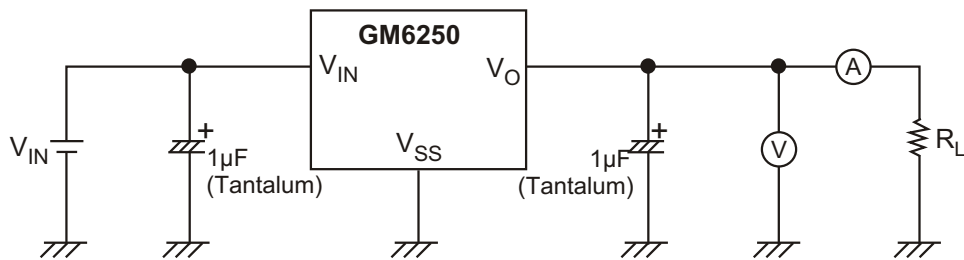
1. Please use this IC within the stipulated absolute maximum ratings as the IC is liable to malfunction outside of such parameters.
2. There is a possibility that oscillation may occur as a result of the impedance present between the power supply and the IC's input. Where impedance is 10  $\Omega$  or more, please use a capacitor ( $C_{IN}$ ) of at least 1 $\mu$ F.

With a large output current, operations can be stabilised by increasing capacitor size ( $C_{IN}$ ). If  $C_{IN}$  is small and capacitor size ( $C_L$ ) is increased, there is a possibility of oscillation due to input impedance. In such cases, operations can be stabilised by either increasing the size of  $C_{IN}$  or decreasing the size of  $C_L$ .

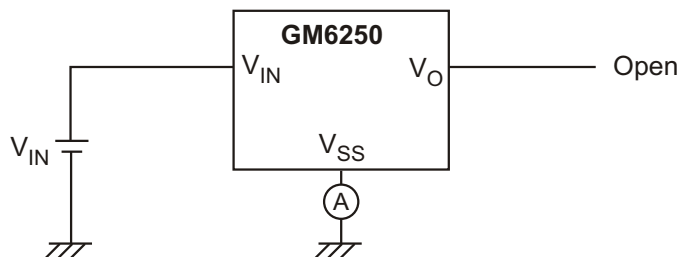
3. Please ensure that output current ( $I_{OUT}$ ) is less than  $P_d \div (V_{IN} - V_{OUT})$  and does not exceed the stipulated continuous total power dissipation value ( $P_d$ ) for the package.

## ◆ TEST CIRCUIT

Circuit 1

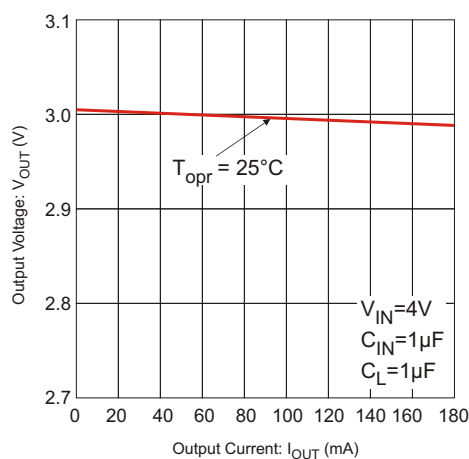


Circuit 2

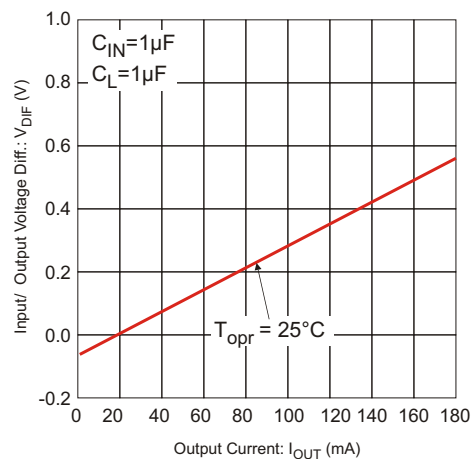




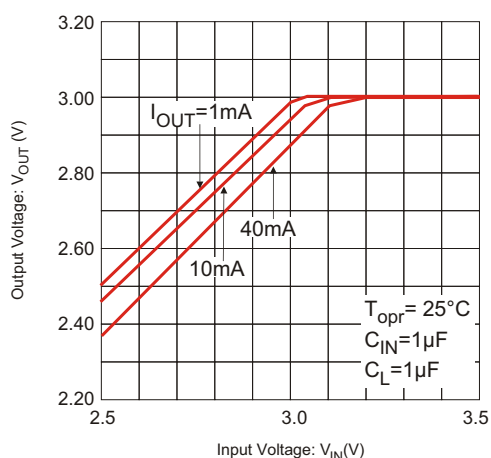
## ◆ PERFORMANCE CHARACTERISTICS FOR GM6250 - 3.0



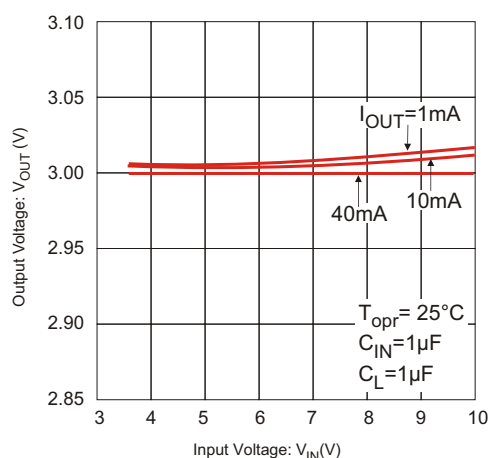
**Figure 1: Output Voltage vs. Output Current**



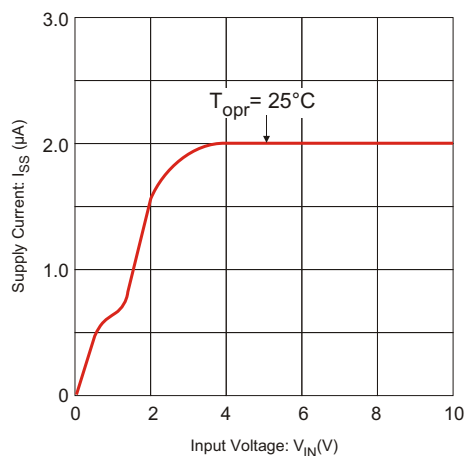
**Figure 2: Input/ Output Voltage differential vs. Output Current**



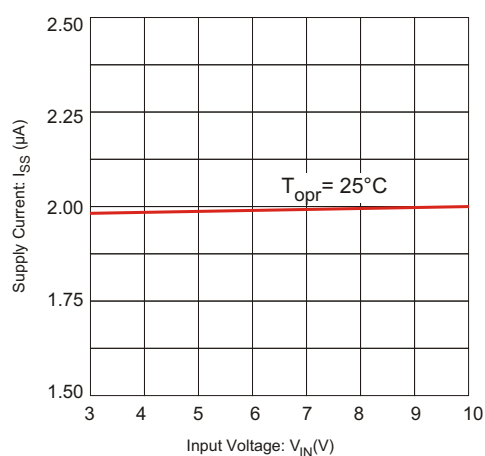
**Figure 3: Output Voltage vs. Input voltage**



**Figure 4: Output Voltage vs. Input voltage**



**Figure 5: Supply Current vs. Input Voltage**



**Figure 6: Supply Current vs. Input Voltage**

## ◆ PERFORMANCE CHARACTERISTICS FOR GM6250 - 3.0

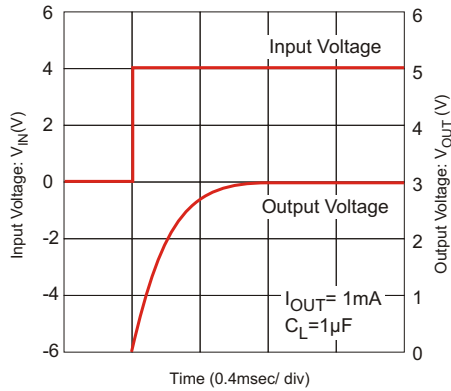


Figure 7: Input Transient Response 1

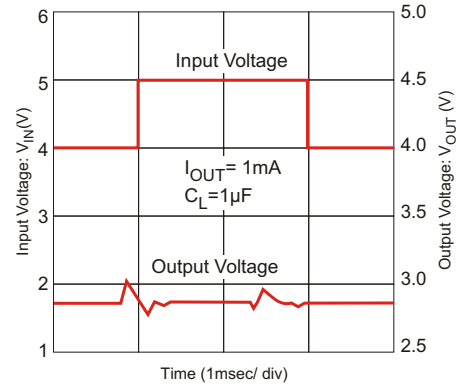


Figure 8: Input Transient Response 2

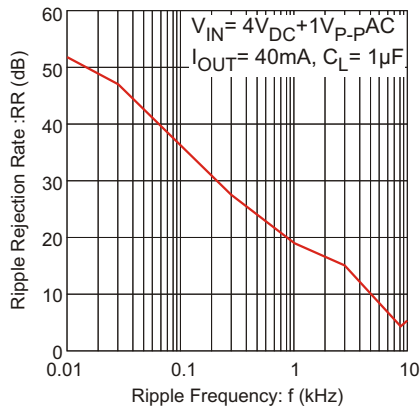
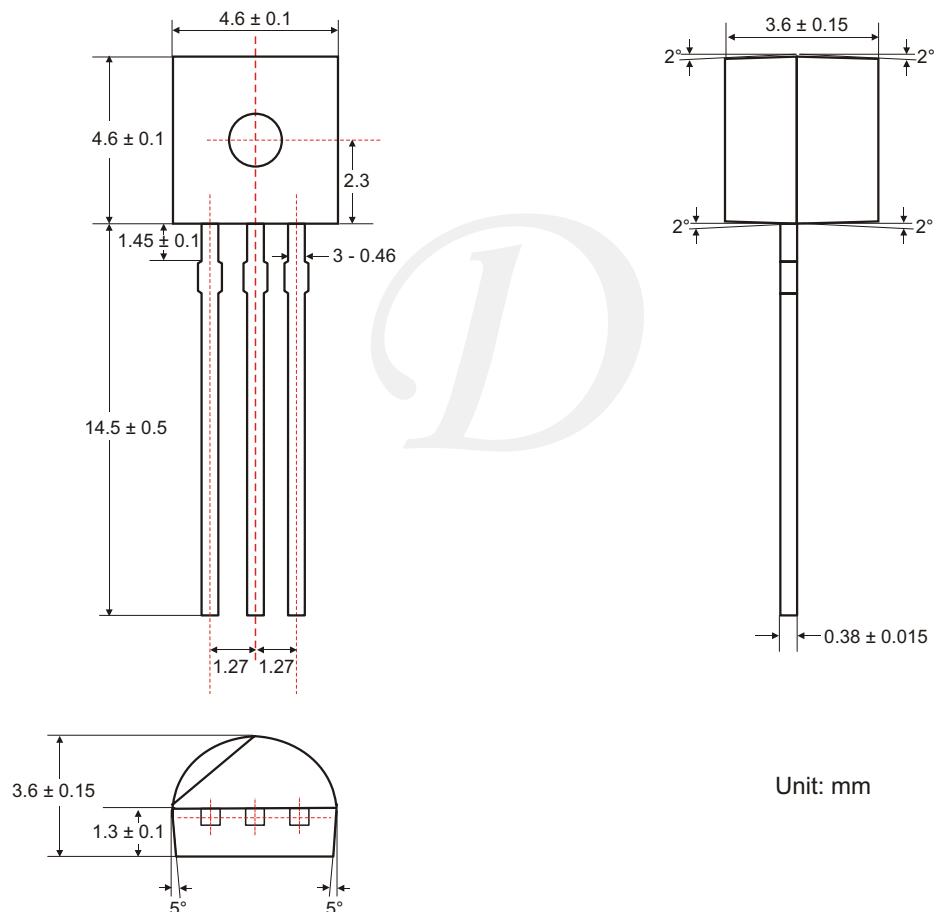


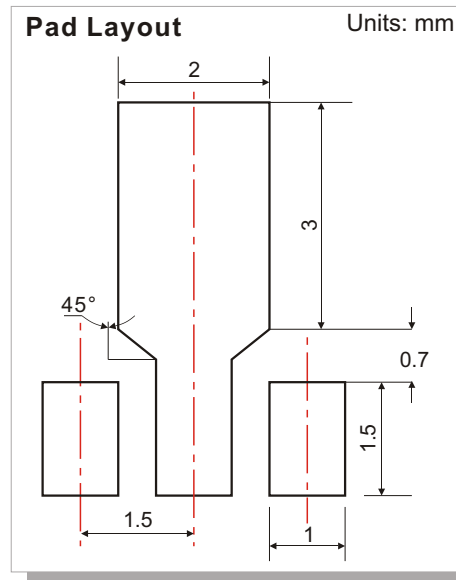
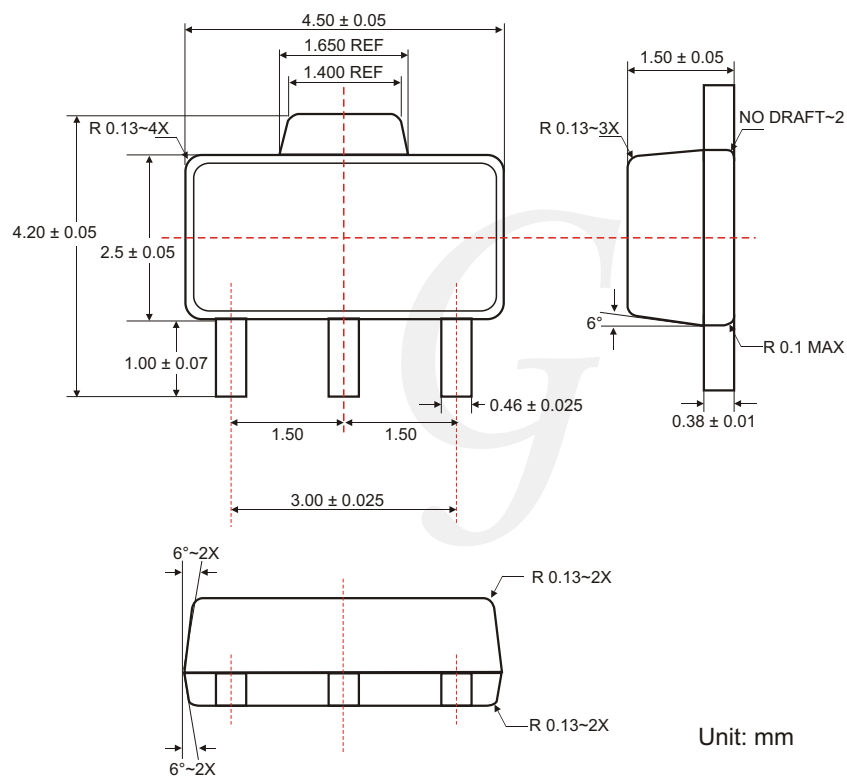
Figure 9: Ripple Rejection Rate

## ◆ TO-92 PACKAGE OUTLINE DIMENSIONS

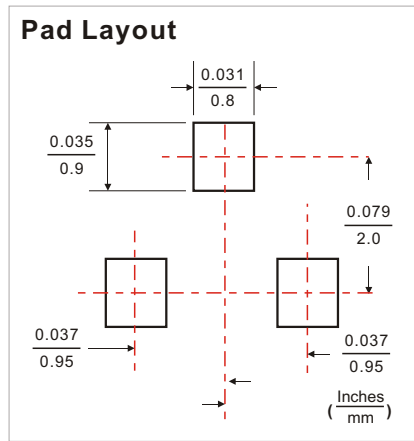
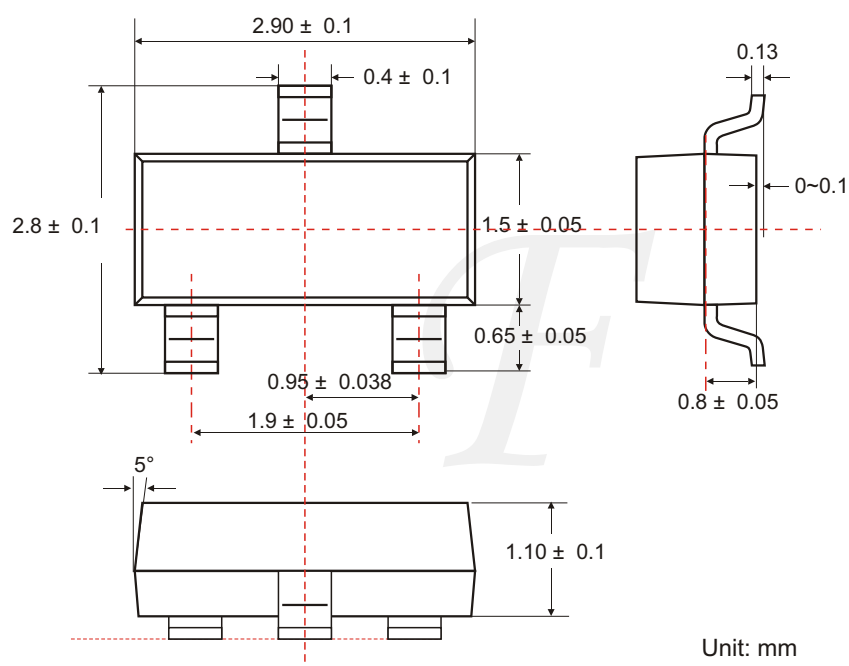


Unit: mm

## ◆ SOT-89 PACKAGE OUTLINE DIMENSIONS



## ◆ SOT-23 PACKAGE OUTLINE DIMENSIONS



## ◆ ORDERING NUMBER

