

## / Descriptions

SOT-89

Low dropout linear regulator in a SOT-89 Plastic Package.

## / Features

30V

2.5 $\mu$ A $\pm 2\%$ 

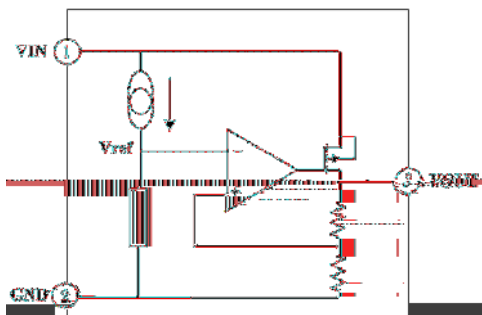
AEC-Q100

Low power consumption, Low voltage drop, Small temperature drift coefficient, High input voltage up to 30V, The static current 2.5 $\mu$ A, The output voltage accuracy:  $\pm 2\%$ , Qualified to AEC-Q100 Standards for High Reliability, HF Product.

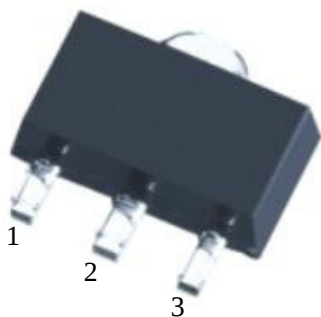
## / Applications

For use in power equipment, Communication equipment, Audio and video equipment, Meet the stringent requirements of automotive applications.

## / Equivalent Circuit



## / Pinning



PIN1 VIN      PIN 2 GND      PIN 3 VOUT

## / Marking

/ See Marking Instructions.

/ Absolute Maximum Ratings( $T_a=25^\circ\text{C}$ )

| Parameter           | Symbol          | Rating   | Unit |
|---------------------|-----------------|----------|------|
| Working Voltage     | $V_{IN}$        | -0.3~33  | V    |
| Thermal Resistance  | $R_{\theta JA}$ | 200      | /W   |
| Power Consumption   | $P_W$           | 500      | mW   |
| Storage Temperature | $T_{STG}$       | -50~+125 |      |
| Working Temperature | $T_A$           | -40~+85  |      |

Notes: If the device operating conditions over the maximum rating of the above-mentioned conditions, may cause permanent damage to the device. The above parameters is only part of the operating conditions the maximum, we do not recommend the device running outside the scope of this specification. If the device to work long hours under the condition of absolute maximum limit, its stability may be affected.

/ Electrical Characteristics( $T_a=25^\circ\text{C}$ )

| Parameter               | Symbol                                                              | Test Conditions                                                                   | Min  | Typ  | Max  | Unit                  |
|-------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|------|-----------------------|
| The Output Voltage      | $V_{OUT}$                                                           | $V_{IN}=7.0V, I_{OUT}=10mA$                                                       | 4.90 | 5.00 | 5.10 | V                     |
| The Output Current      | $I_{OUT}$                                                           | $V_{IN}=7.0V$                                                                     | 200  |      |      | mA                    |
| Load Regulation         | $\Delta V_{OUT}$                                                    | $V_{IN}=7.0V$<br>$1mA \leq I_{OUT} \leq 150mA$                                    |      | 25   | 60   | mV                    |
| Low Dropout             | $V_{DIF}$                                                           | $I_{OUT}=1mA, \Delta V_{OUT}=2\%$                                                 |      | 25   | 55   | mV                    |
| Static Power            | $I_{SS}$                                                            | $V_{IN}=7.0V$                                                                     |      | 2.5  | 4.0  | $\mu A$               |
| Linear Regulation       | $\frac{\Delta V_{OUT}}{V_{OUT}} \cdot \frac{V_{IN}}{\Delta V_{IN}}$ | $7.0V \leq V_{IN} \leq 30V$<br>$I_{OUT}=10mA$                                     |      |      | 0.2  | %/V                   |
| The Input Voltage       | $V_{IN}$                                                            |                                                                                   |      |      | 30   | V                     |
| Temperature Coefficient | $\frac{\Delta V_{OUT}}{\Delta T_A} \cdot V_{OUT}$                   | $V_{IN}=7.0V, I_{OUT}=10mA$<br>$-40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$ |      | 100  |      | ppm/ $^\circ\text{C}$ |

 $V_{IN}=7.0V$ 

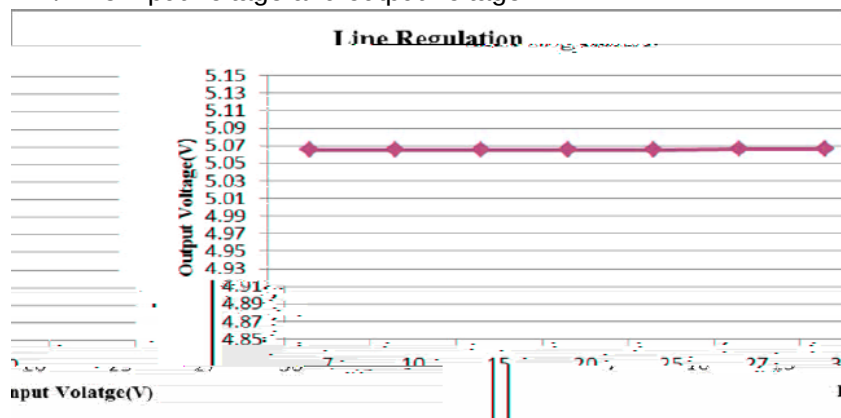
2%

 $V_{DIF}$ 

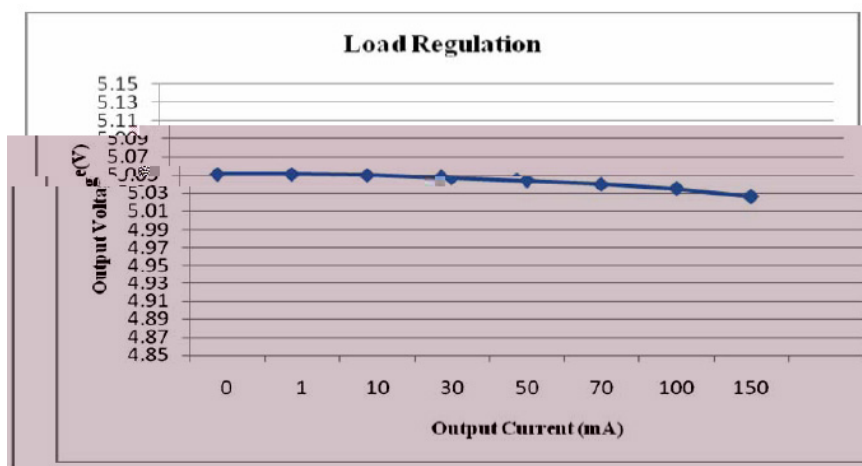
Note:  $V_{DIF}$  is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN}=7.0V$  with a fixed load.

## / Electrical Characteristic Curve

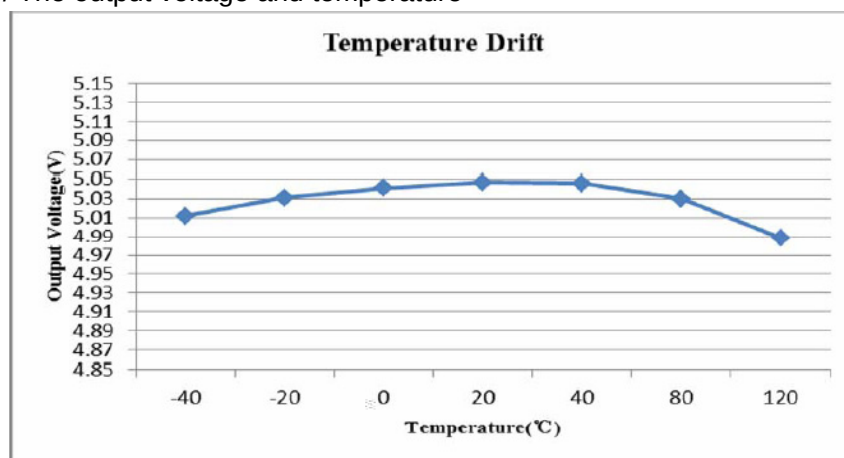
/ The input voltage and output voltage

 $I_{OUT}=10mA$ 

/ The output voltage and load current

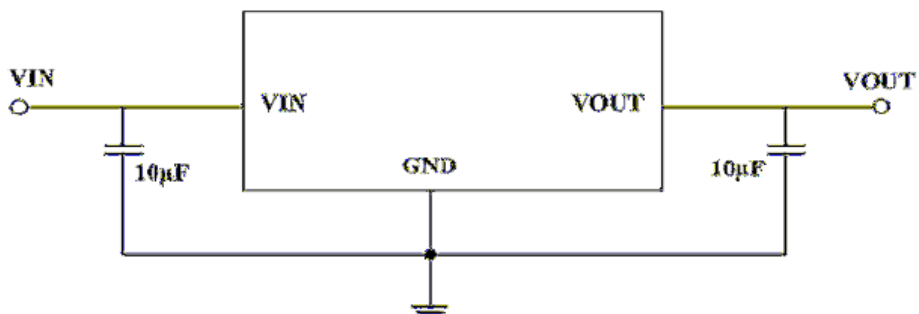
 $V_{IN}=7.0V$ 

/ The output voltage and temperature

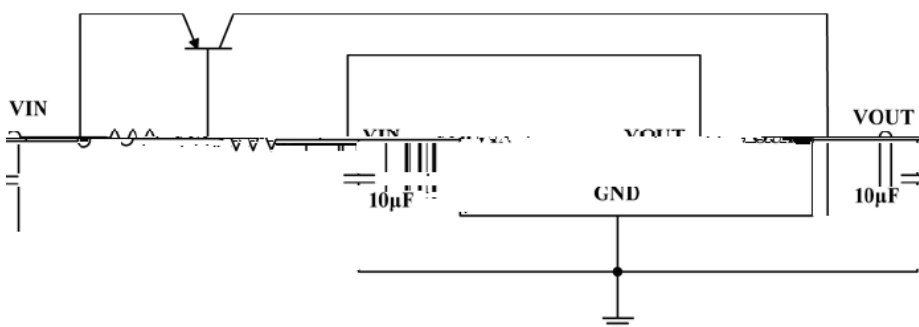
 $V_{IN}=7.0V$  $I_{OUT}=10mA$

## / Typical Application Circuit

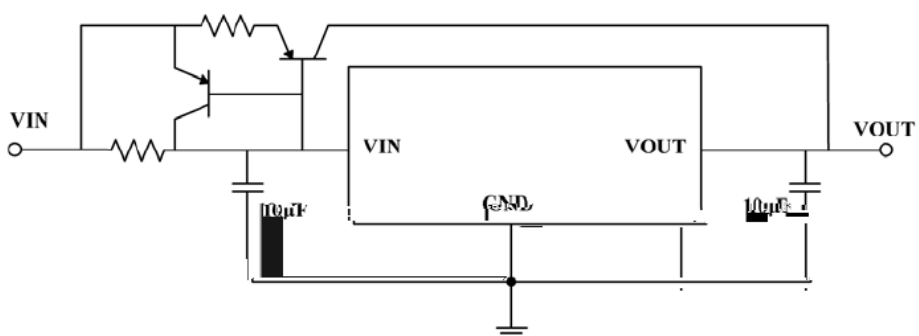
### / Basic Application



### / High Output Current Voltage Regulator

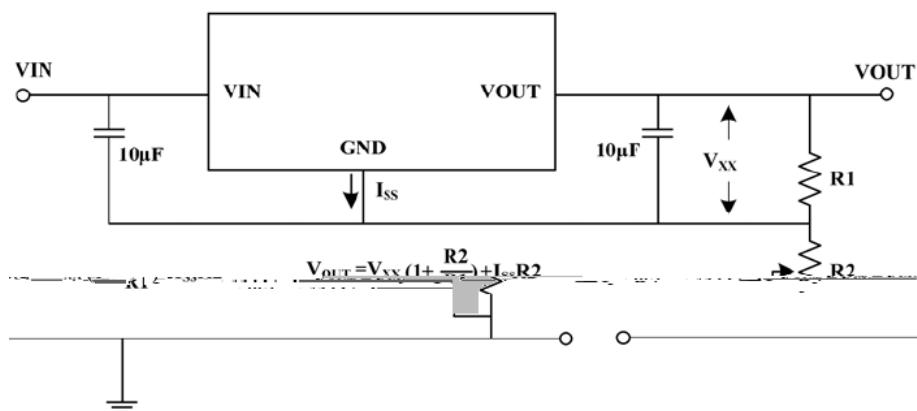


### / Short-Circuit Protection

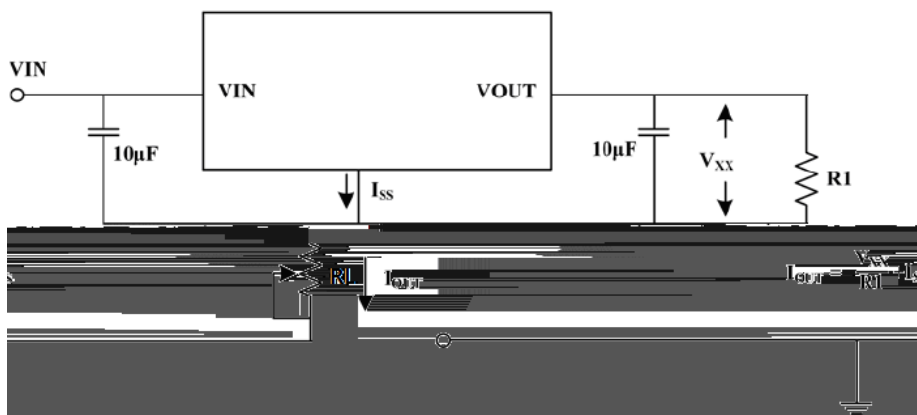


## / Typical Application Circuit

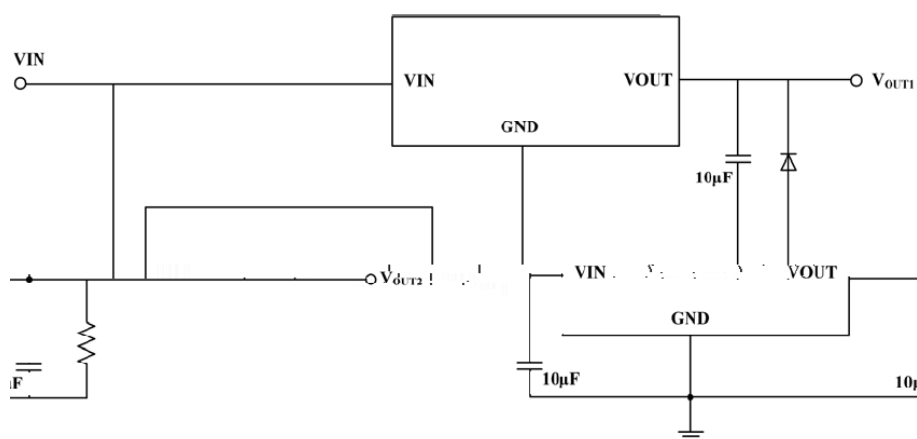
### / Circuit for Increasing Output Voltage



### / Constant Current Regulator



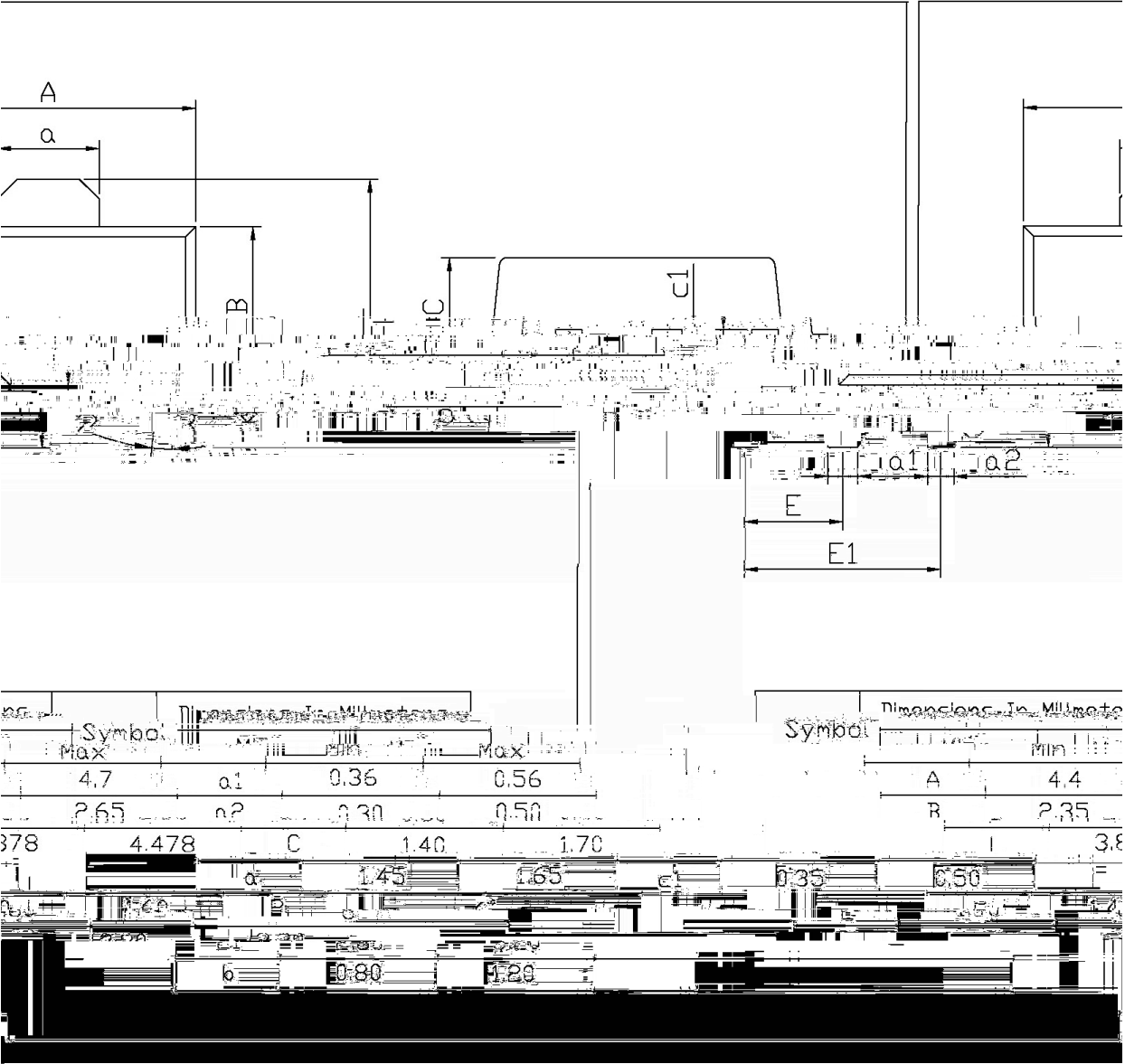
### / Double Output Circuit



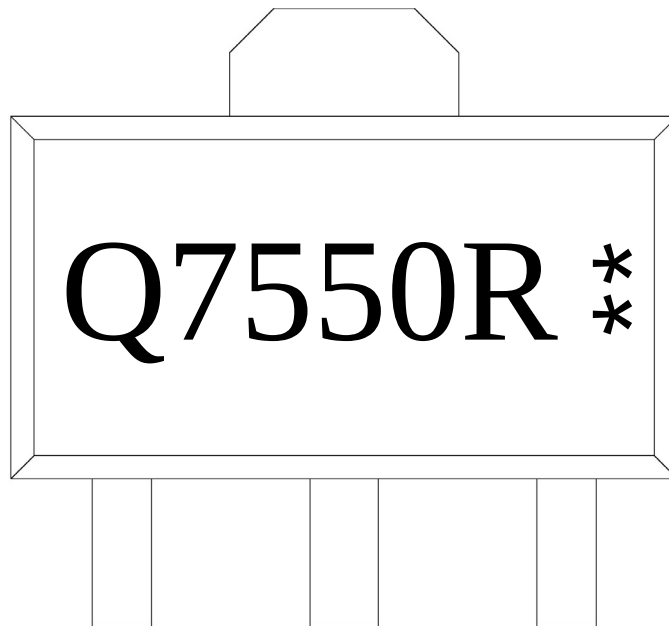
/ Package Dimensions

SOT-89

单位: mm



/ **Marking Instructions**



Q

7550R

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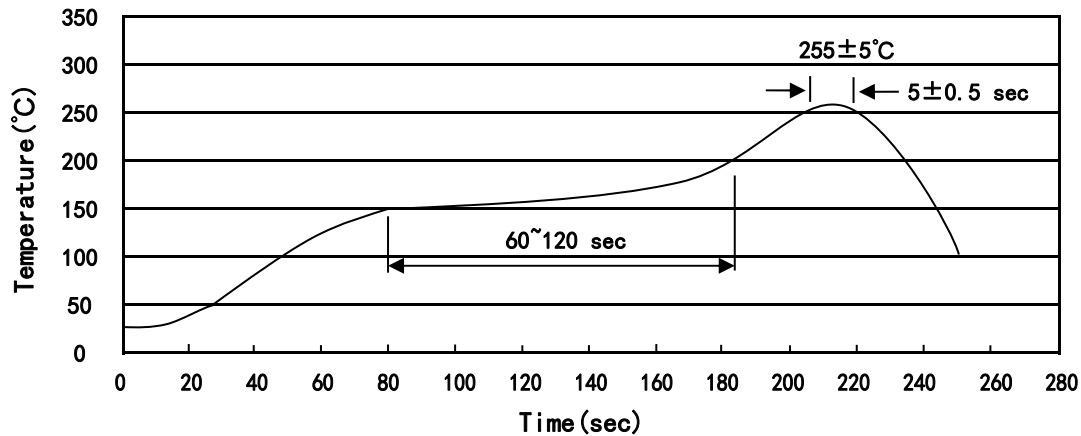
Note:

Q: Automobile halogen-free product Code

7550R: Product Type

\*\*: Lot No. Code, code change with Lot No

## ( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- |   |       |     |    |           |                                         |
|---|-------|-----|----|-----------|-----------------------------------------|
| 1 | 150   | 200 | 60 | 120sec;   | 1.Preheating:150~200 , Time:60~120sec.  |
| 2 | 255±5 |     |    | 5±0.5sec; | 2.Peak Temp.:255±5 , Duration:5±0.5sec. |
| 3 |       |     | 2  | 10 /sec.  | 3. Cooling Speed: 2~10 /sec.            |

## / Resistance to Soldering Heat Test Conditions

260±5

10±1 sec.

Temp.:260±5

Time:10±1 sec

## / Packaging SPEC.

/ REEL

| Package Type | Units           |                      |                      |                            |                      | Dimension (unit mm) |             |             |
|--------------|-----------------|----------------------|----------------------|----------------------------|----------------------|---------------------|-------------|-------------|
|              | Units/Reel<br>/ | Reels/Inner Box<br>/ | Units/Inner Box<br>/ | Inner Boxes/Outer Box<br>/ | Units/Outer Box<br>/ | Reel                | Inner Box   | Outer Box   |
| SOT-89       | 1,000           | 7                    | 7,000                | 6                          | 42,000               | 7" ×12              | 180×120×180 | 390×385×205 |

## / Notices