

### Product Summary

The GPL6205 series are a group of positive voltage regulators manufactured by CMOS technologies with high ripple rejection, ultra-low noise, low power consumption and low dropout voltage, which can prolong battery life in portable electronics. The GPL6205 series work with low-ESR ceramic capacitors, reducing the amount of board space necessary for power applications. The GPL6205 series consume less than 0.1 $\mu$ A in shutdown mode and have fast turn-on time less than 50 $\mu$ S. The series are very suitable for the battery-powered equipments, such as RF applications and other systems requiring a quiet voltage source.

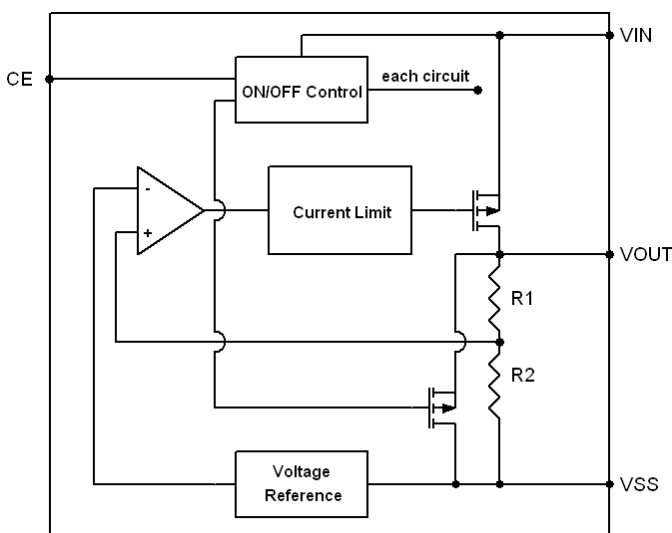
### Features

- Low Quiescent Current: 50 $\mu$ A
- Low Output Noise: 40 $\mu$ V<sub>RMS</sub>(10Hz~100kHz)
- Operating Voltage Range: 2.0V~6.0V
- Low Dropout Voltage: 150mV@150mA
- Output Voltage: 1.2~ 5.0V
- High Accuracy:  $\pm$ 2%(Typ.)
- TTL-Logic-Controlled Shutdown Input
- Excellent Line and Load Transient Response
- Built-in Current Limiter, Short-Circuit Protection

### Applications

- Cellular and Smart Phones
- Radio control systems
- Laptop, Palmtops and PDAs
- Digital Still and Video Cameras
- MP3, MP4 Player
- Battery-Powered Equipment

### Block Diagram

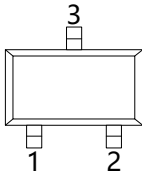
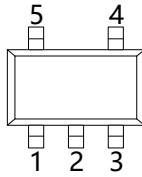
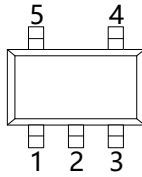
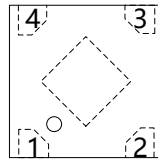
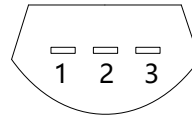
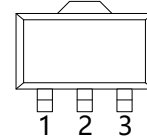
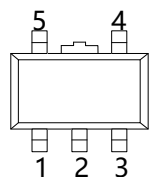


### Order Information

GPL6205V①②

| Designator | Description   |
|------------|---|
| ①          | Output Voltage<br>e.g. 1.8V=18  |
| ②          | Package:<br>SOT-23-3L=K3<br>SOT-23-5L=K5<br>WBFBP-04C(DFN1*1-4)=H4<br>SOT-89-3L=KE<br>SOT-89-5L=KT<br>TO-92=Z |

## Pin Configuration

**SOT-23-3**

**SOT-23-5**

**SOT-353**

**WFBFP-04C**

**TO-92**

**SOT-89-3**

**SOT-89-5**


| Pin Number |       |          | Pin Name  | Function    |
|------------|-------|----------|-----------|-------------|
| SOT-23-3   | TO-92 | SOT-89-3 |           |             |
| 1          | 1     | 1        | $V_{SS}$  | Ground      |
| 2          | 3     | 3        | $V_{OUT}$ | Output      |
| 3          | 2     | 2        | $V_{IN}$  | Power input |

| Pin Number |         | Pin Name  | Function        |
|------------|---------|-----------|-----------------|
| SOT-23-5L  | SOT-353 |           |                 |
| 1          | 1       | $V_{IN}$  | Power Input Pin |
| 2          | 2       | $V_{SS}$  | Ground          |
| 3          | 3       | CE        | Chip Enable Pin |
| 4          | 4       | NC        | No Connection   |
| 5          | 5       | $V_{OUT}$ | Output Pin      |

### WFBFP-04C

| Pin Number | Pin Name  | Function        |
|------------|-----------|-----------------|
| 1          | $V_{OUT}$ | Output Pin      |
| 2          | $V_{SS}$  | Ground          |
| 3          | CE        | Chip Enable Pin |
| 4          | $V_{IN}$  | Power Input Pin |

### SOT-89-5L

| Pin Number | Pin Name  | Function        |
|------------|-----------|-----------------|
| 1          | $V_{OUT}$ | Output Pin      |
| 2          | $V_{SS}$  | Ground          |
| 3          | NC        | No Connection   |
| 4          | CE        | Chip Enable Pin |
| 5          | $V_{IN}$  | Power Input Pin |

## Absolute Maximum Ratings ( $T_a=25^{\circ}\text{C}$ , unless otherwise noted)

| Parameter                            | Symbol       | Ratings                     | Units              |   |
|--------------------------------------|--------------|-----------------------------|--------------------|---|
| Input Voltage                        | $V_{IN}$     | $V_{SS}-0.3\sim V_{SS}+7$   | V                  |   |
| Output Voltage                       | $V_{OUT}$    | $V_{SS}-0.3\sim V_{IN}+0.3$ | V                  |   |
| Output Current                       | $I_{OUT}$    | 600                         | mA                 |   |
| Power Dissipation                    | SOT-23       | $P_D$                       | 0.37               | W |
|                                      | SOT-23-5     | $P_D$                       | 0.25               | W |
|                                      | SOT-89/TO-92 | $P_D$                       | 0.50               | W |
|                                      | DFN1*1-4     | $P_D$                       | 0.40               | W |
| Operating Free Air Temperature Range | $T_A$        | -40~85                      | $^{\circ}\text{C}$ |   |
| Operating Junction Temperature Range | $T_j$        | -40~125                     | $^{\circ}\text{C}$ |   |
| Storage Temperature                  | $T_{stg}$    | -40~125                     | $^{\circ}\text{C}$ |   |
| Lead Temperature(Soldering, 10 sec)  | $T_{solder}$ | 260                         | $^{\circ}\text{C}$ |   |

## Electrical Characteristics( $V_{IN}=V_{OUT}+1\text{V}$ , $C_{IN}=C_{OUT}=1\mu\text{F}$ , $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

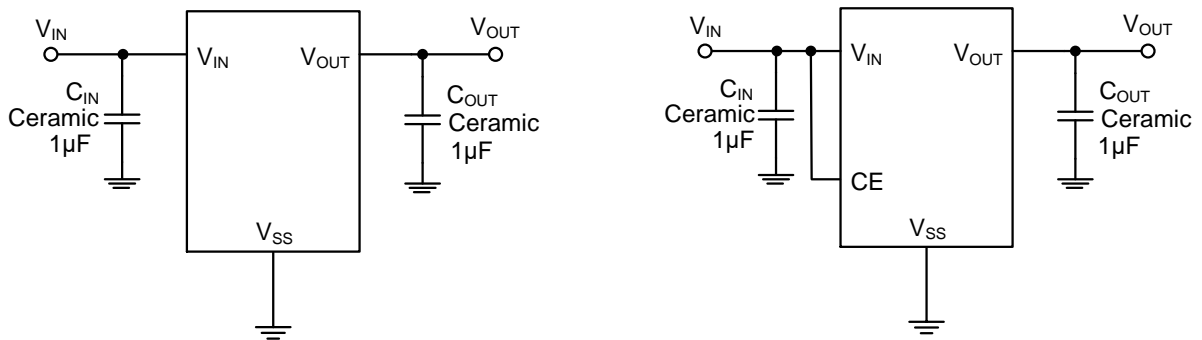
| Parameter                                  | Symbol            | Conditions  | Min.           | Typ.      | Max.           | Units         |
|--|-------------------|---|----------------|-----------|----------------|---------------|
| Output Voltage                             | $V_{OUT(E)}^{2)}$ | $I_{OUT}=1\text{mA}$  | $V_{OUT}*0.98$ | $V_{OUT}$ | $V_{OUT}*1.02$ | V             |
| Supply Current                             | $I_{SS}$          | $I_{OUT}=0$   |                | 50        | 100            | $\mu\text{A}$ |
| Standby Current                            | $I_{STBY}$        | $CE = V_{SS}$   |                |           | 0.1            | $\mu\text{A}$ |
| Output Current                             | $I_{OUT}$         | —   | 500            |           |                | mA            |
| Dropout Voltage3)                          | $V_{dif}$         | $I_{OUT}=150\text{mA}$<br>$V_{OUT}\geq 2.8\text{V}$                       |                | 150       |                | mV            |
| Load Regulation                            | $\Delta V_{OUT}$  | $V_{IN}=V_{OUT}+1\text{V}$ ,<br>$1\text{mA}\leq I_{OUT}\leq 100\text{mA}$ |                | 10        |                | mV            |
| Line Regulation                            |                   | $I_{OUT}=10\text{mA}$<br>$V_{OUT}+1\text{V}\leq V_{IN}\leq 6\text{V}$     |                | 0.01      | 0.2            | %/V           |
| Output Voltage Temperature Characteristics |                   | $I_{OUT}=10\text{mA}$<br>$-40\leq T\leq +85$                              |                | 100       |                | ppm           |
| Short Current                              | $I_{Short}$       | $V_{OUT}=V_{SS}$  |                | 100       |                | mA            |
| Input Voltage                              | $V_{IN}$          | —   | 2.0            |           | 6.0            | V             |
| Power Supply Rejection Rate                | 217Hz             | $I_{OUT}=50\text{mA}$   |                | 80        |                | dB            |
|  | 1kHz              |   |                | 75        |                |               |
|  | 10kHz             |   |                | 70        |                |               |
| CE "High" Voltage                          | $V_{CE"H"}$       |   | 1.5            |           | $V_{IN}$       | V             |
| CE "Low" Voltage                           | $V_{CE"L"}$       |   |                |           | 0.3            | V             |

- 1)  $V_{OUT}$ : Specified Output Voltage.
- 2)  $V_{OUT(E)}$ : Effective Output Voltage ( i.e. The output voltage when  $V_{IN} = (V_{OUT} + 1.0\text{V})$  and maintain a certain  $I_{OUT}$  Value).
- 3)  $V_{dif}$ : The Difference Of Output Voltage And Input Voltage When Input Voltage Is Decreased Gradually Till Output Voltage Equals To 98% Of  $V_{OUT(E)}$ .

**Dropout Voltage Chart**

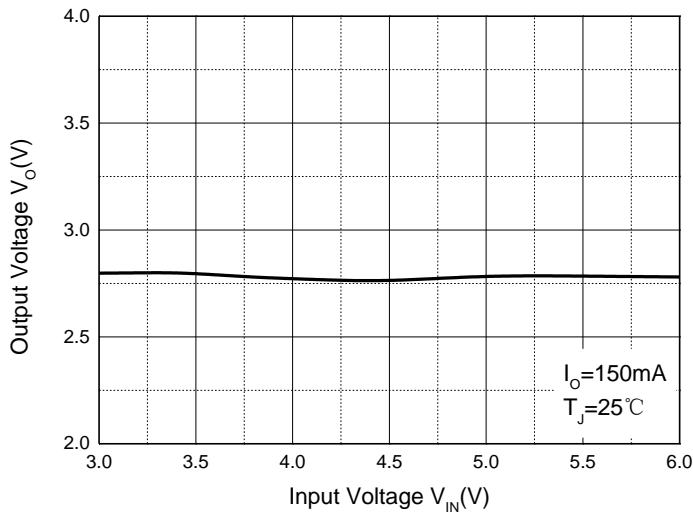
| Setting Output Voltage<br>$V_{OUT}(V)$ | Dropout Voltage(mV) @ $I_{OUT}=150mA$ |      |
|--|---------------------------------------|------|
|  | Typ.                                  | Max. |
| 1.5                                    | 270                                   | 600  |
| 1.8                                    | 230                                   | 600  |
| 2.5                                    | 180                                   | 400  |
| 2.8                                    | 160                                   | 220  |
| 3.0                                    | 155                                   | 220  |
| 3.3                                    | 150                                   | 220  |

**Typical Application**

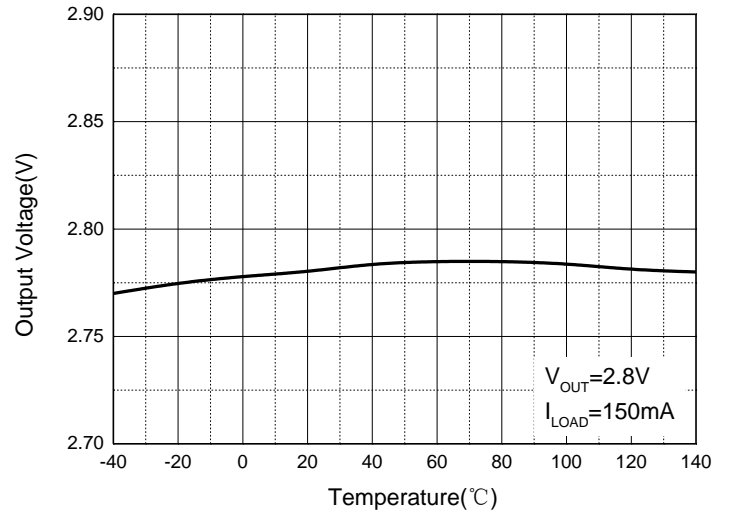


## Typical Performance Characteristics

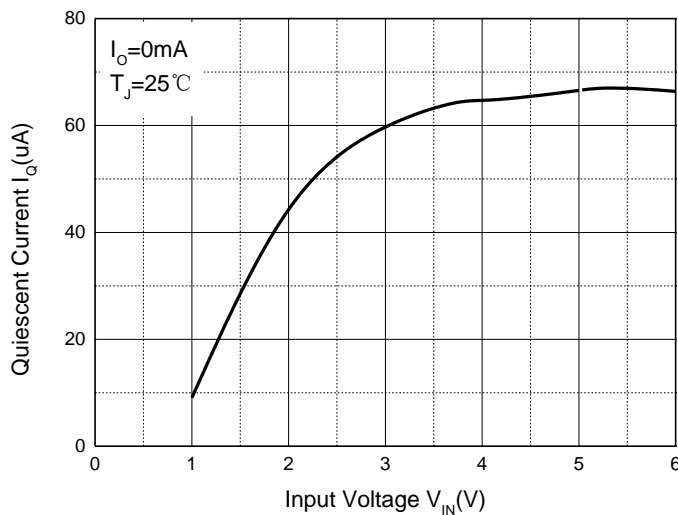
### Output Characteristics



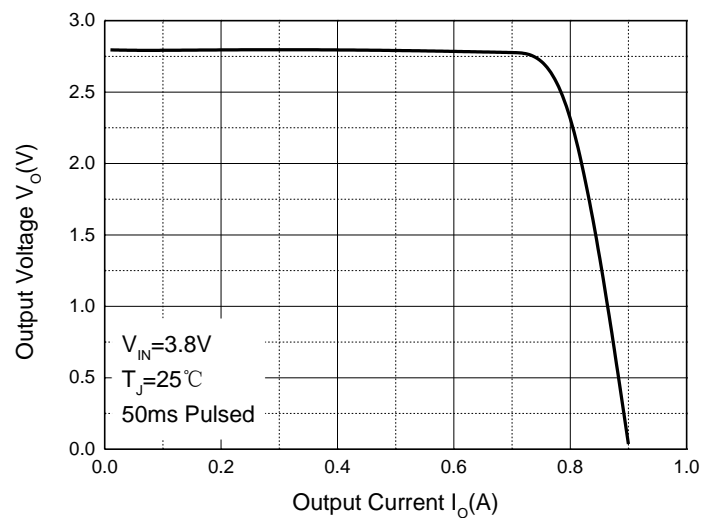
### Output Voltage vs. Temperature



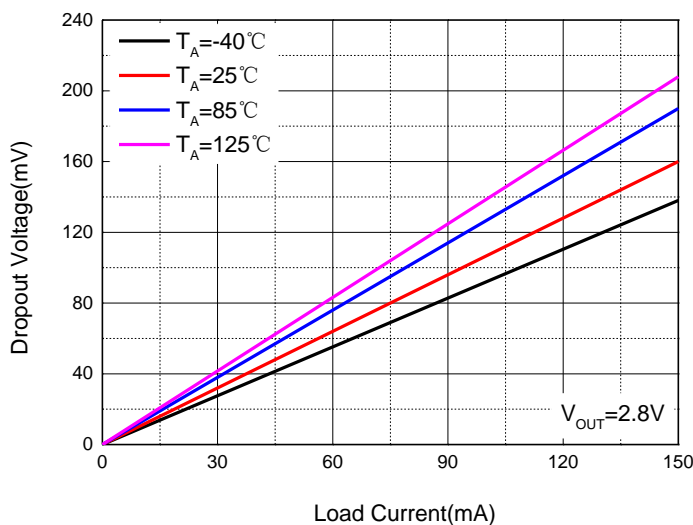
### Quiescent Current



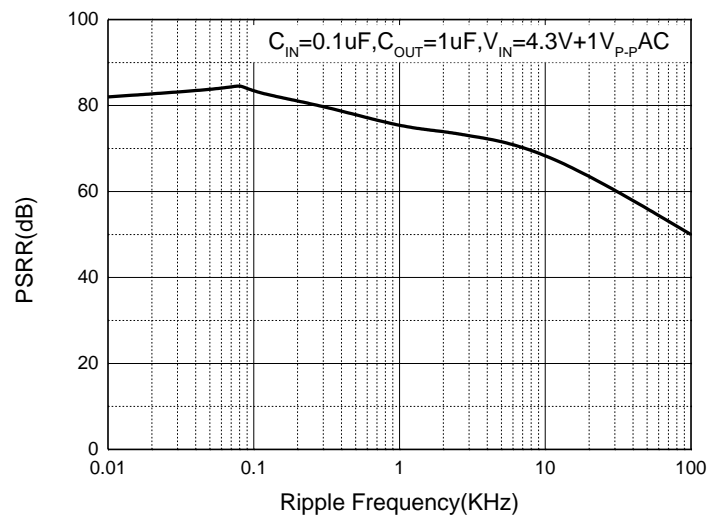
### Current Cut-off Grid Voltage



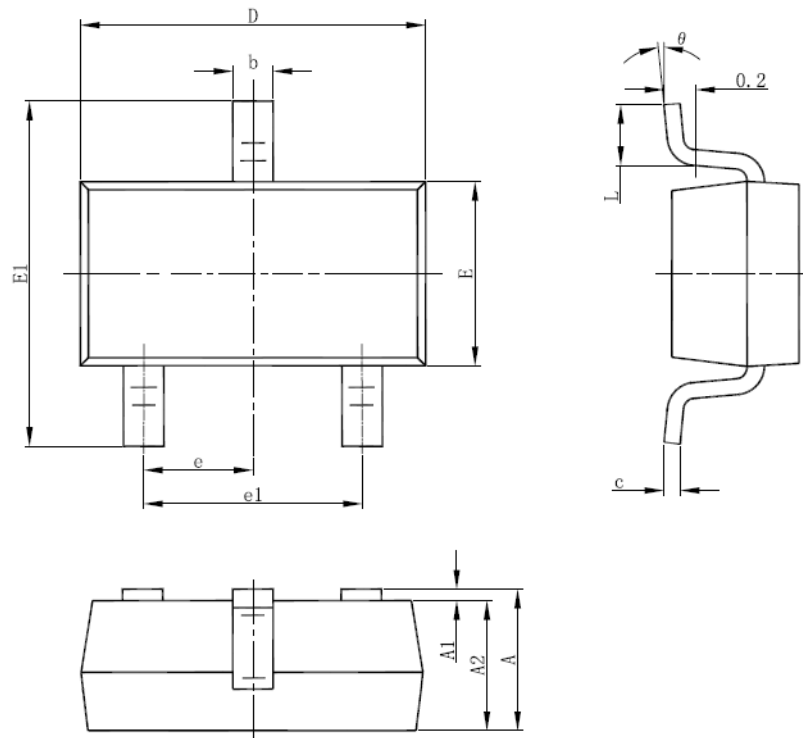
### Dropout Voltage vs. Load Current



### PSRR vs. Frequency

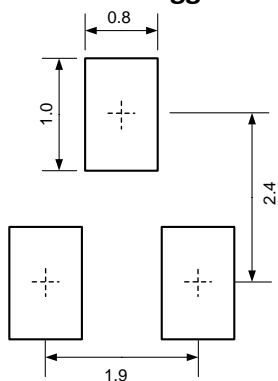


## SOT-23-3L Package Outline Dimensions



| Symbol   | Dimensions in millimeters |       |
|----------|---------------------------|-------|
|          | Min.                      | Max.  |
| A        | 1.050                     | 1.250 |
| A1       | 0.000                     | 0.100 |
| A2       | 1.050                     | 1.150 |
| b        | 0.300                     | 0.500 |
| c        | 0.100                     | 0.200 |
| D        | 2.820                     | 3.020 |
| E        | 1.500                     | 1.700 |
| E1       | 2.650                     | 2.950 |
| e        | 0.950TYP                  |       |
| e1       | 1.800                     | 2.000 |
| L        | 0.300                     | 0.600 |
| $\theta$ | 0°                        | 8°    |

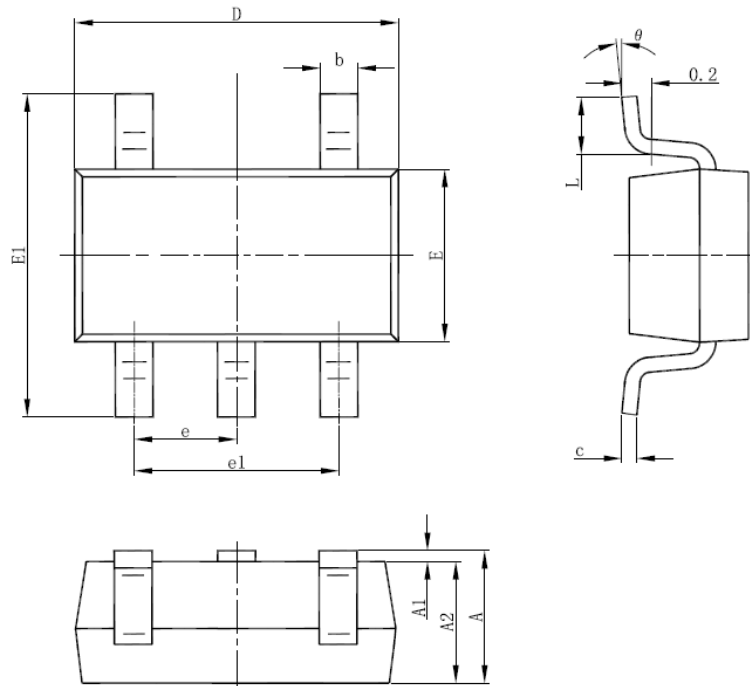
### SOT-23-3L Suggested Pad Layout (Unit: mm)



#### Notes:

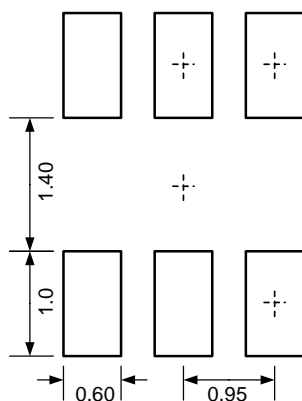
1. General tolerance:  $\pm 0.05\text{mm}$ .
2. The pad layout is for reference purposes only.

## SOT-23-5L Package Outline Dimensions



| Symbol   | Dimensions In Millimeters |       |
|----------|---------------------------|-------|
|          | Min.                      | Max.  |
| A        | 1.050                     | 1.250 |
| A1       | 0.000                     | 0.100 |
| A2       | 1.050                     | 1.150 |
| b        | 0.300                     | 0.500 |
| c        | 0.100                     | 0.200 |
| D        | 2.820                     | 3.020 |
| E        | 1.500                     | 1.700 |
| E1       | 2.650                     | 2.950 |
| e        | 0.950(BSC)                |       |
| e1       | 1.800                     | 2.000 |
| L        | 0.300                     | 0.600 |
| $\theta$ | 0°                        | 8°    |

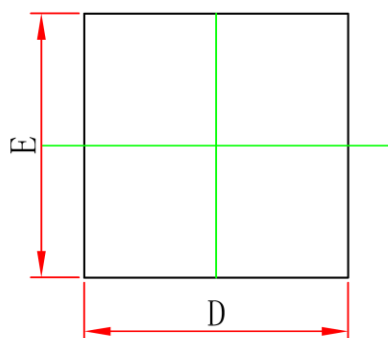
### SOT-23-5L Suggested Pad Layout (Unit: mm)



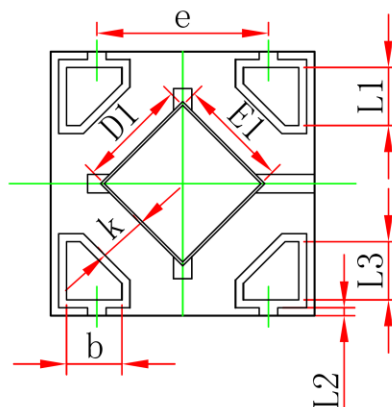
#### Notes:

1. General tolerance:  $\pm 0.05$ mm.
2. The pad layout is for reference purposes only.

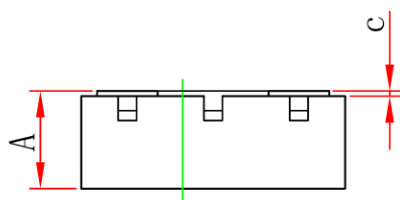
## WBFBP-04C Package Outline Dimensions



TOP VIEW  
[顶视图]



BOTTOM VIEW  
[背视图]

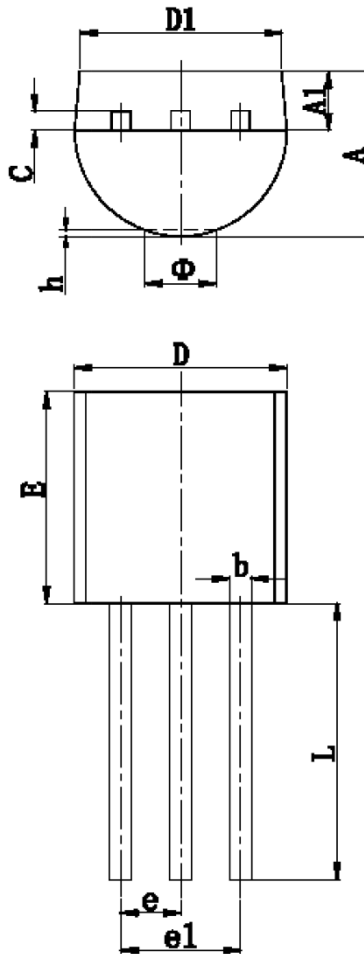


SIDE VIEW  
[侧视图]

| Symbol | Dimensions in millimeters |       | Dimensions in inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 0.335                     | 0.495 | 0.013                | 0.016 |
| D      | 0.950                     | 1.050 | 0.037                | 0.041 |
| E      | 0.950                     | 1.050 | 0.037                | 0.041 |
| D1     | 0.037                     | 0.047 | 0.015                | 0.019 |
| E1     | 0.037                     | 0.047 | 0.015                | 0.019 |
| k      | 0.17MIN                   |       | 0.007MIN             |       |
| b      | 0.160                     | 0.260 | 0.006                | 0.010 |
| c      | 0.010                     | 0.090 | 0.000                | 0.004 |
| e      | 0.600                     | 0.700 | 0.024                | 0.028 |
| L1     | 0.185                     | 0.255 | 0.007                | 0.010 |
| L2     | 0.030REF                  |       | 0.001REF             |       |
| L3     | 0.185                     | 0.255 | 0.007                | 0.010 |

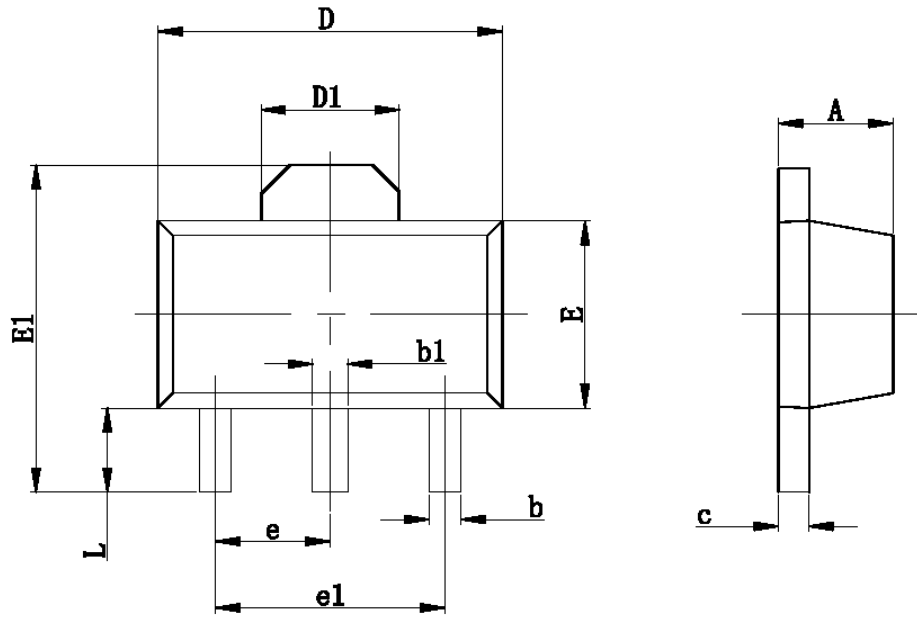


## TO-92 Package Outline Dimensions



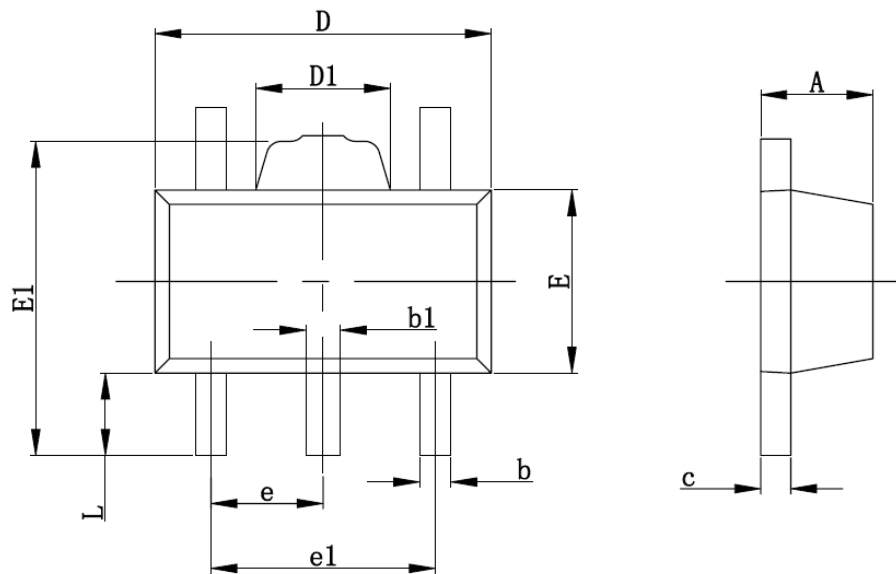
| Symbol | Dimensions in millimeters |        | Dimensions in inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min.                      | Max.   | Min.                 | Max.  |
| A      | 3.300                     | 3.700  | 0.130                | 0.146 |
| A1     | 1.100                     | 1.400  | 0.043                | 0.055 |
| b      | 0.380                     | 0.550  | 0.015                | 0.022 |
| c      | 0.360                     | 0.510  | 0.014                | 0.020 |
| D      | 4.400                     | 4.700  | 0.173                | 0.185 |
| D1     | 3.430                     |        | 0.135                |       |
| E      | 4.300                     | 4.700  | 0.169                | 0.185 |
| e      | 1.270TYP                  |        | 0.050TYP             |       |
| e1     | 2.440                     | 2.640  | 0.096                | 0.104 |
| L      | 14.100                    | 14.500 | 0.555                | 0.571 |
| $\phi$ |                           | 1.600  |                      | 0.063 |
| h      | 0.000                     | 0.380  | 0.000                | 0.015 |

## SOT-89-3L Package Outline Dimensions



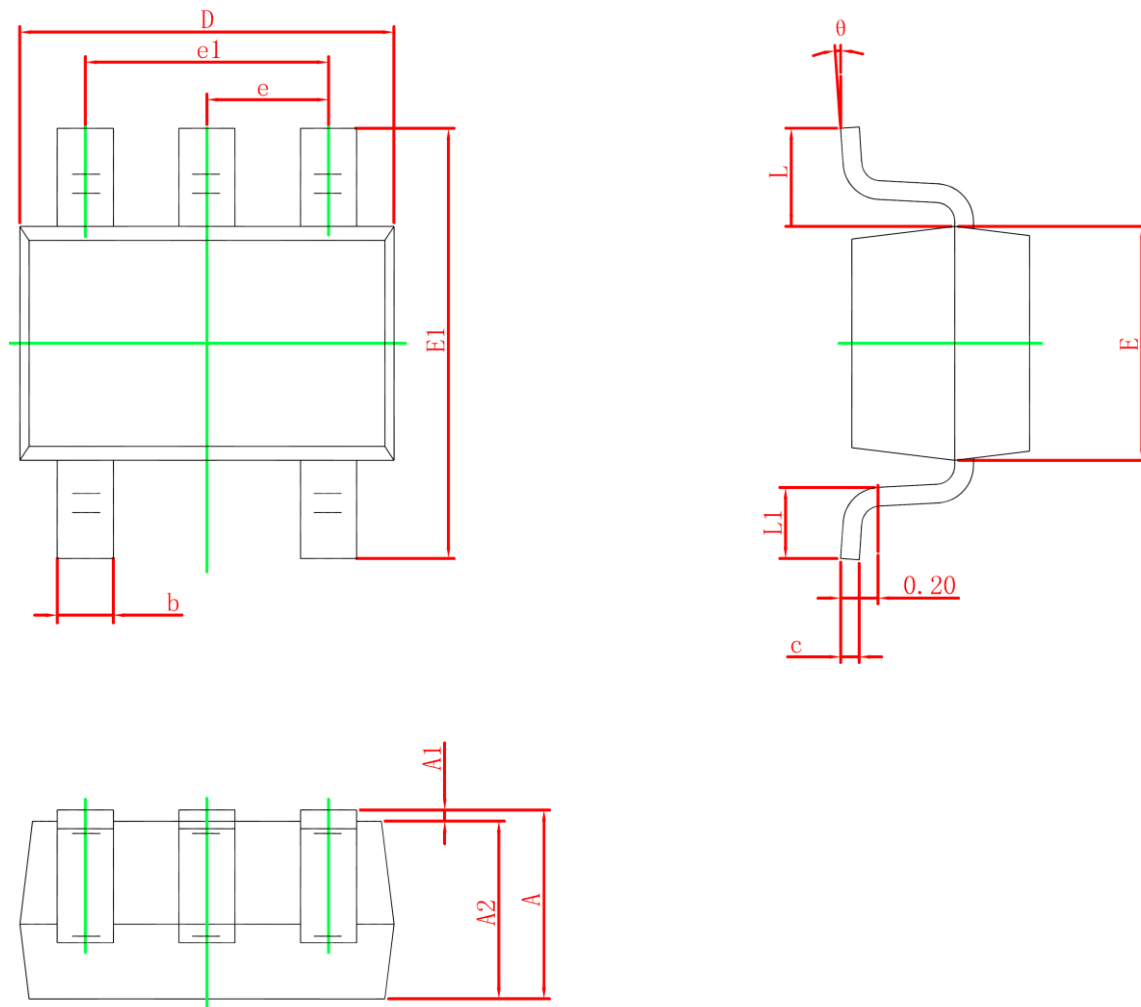
| Symbol | Dimensions in millimeters |       | Dimensions in inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 1.400                     | 1.600 | 0.055                | 0.063 |
| b      | 0.320                     | 0.520 | 0.013                | 0.197 |
| 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     | 1.550REF                  |       | 0.061REF             |       |
| E      | 2.300                     | 2.600 | 0.091                | 0.102 |
| E1     | 3.940                     | 4.250 | 0.155                | 0.167 |
| e      | 1.500TYP                  |       | 0.060TYP             |       |
| e1     | 3.000TYP                  |       | 0.118TYP             |       |
| 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                | 0.197 |
| 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 |

## SOT-353 Package Outline Dimensions



| Symbol   | Dimensions In Millimeters |       |
|----------|---------------------------|-------|
|          | Min.                      | Max.  |
| A        | 0.900                     | 1.100 |
| A1       | 0.000                     | 0.100 |
| A2       | 0.900                     | 1.000 |
| b        | 0.150                     | 0.350 |
| c        | 0.110                     | 0.175 |
| D        | 2.000                     | 2.200 |
| E        | 1.150                     | 1.350 |
| E1       | 2.150                     | 2.450 |
| e        | 0.650 TYP                 |       |
| e1       | 1.200                     | 1.400 |
| L        | 0.525 REF                 |       |
| L1       | 0.260                     | 0.460 |
| $\theta$ | 0°                        | 8°    |

单击下面可查看定价，库存，交付和生命周期等信息

[>>GP\(格瑞宝\)](#)