## DESCRIPTION

The A6151A series is a set of three-terminal middle current low voltage regulator implemented in CMOS technology. They can deliver 100mA output current and allow an input voltage as high as 18V. They are available with several fixed output voltages ranging from 3.0V to 8.0V. CMOS technology ensures low voltage drop and low quiescent current.

A6151A is available in SOT89-3 and TO-92 packages.

## FEATURES

- Low power: 2uA (typ.)
- Low voltage drop: 100mV @ $I_{OUT}$=1mA
- Low temperature coefficient : < ±100ppm/℃
- High input voltage : 18V
- Maximum output current : 100mA
- Available in SOT89-3 and TO-92 Packages

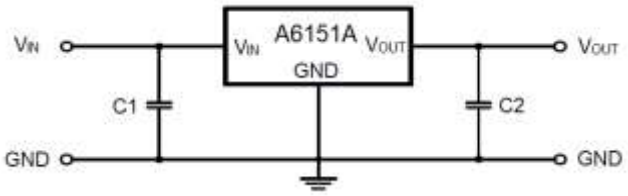
## APPLICATION

- Battery-powered equipment
- Communication equipment
- Audio/Video equipment

## ORDERING INFORMATION

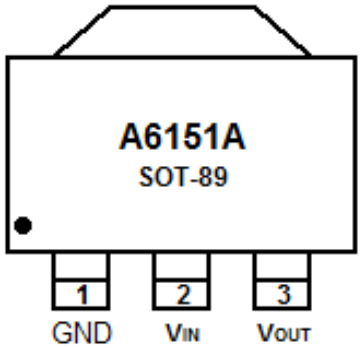
| Package Type | Part Number | |
|---|---|---|
| SOT89-3<br>SPQ: 1,000pcs/Reel | K3 | A6151AK3R-XX |
| | | A6151AK3VR-XX |
| TO-92<br>SPQ: 1,000pcs/Bag | Z | A6151AZB-XX |
| | | A6151AZVB-XX |
| Note | XX: Output Voltage,<br>30=3.0V, 33=3.3V,<br>50=5.0V<br>V: Halogen free Package<br>R: Tape & Reel<br>B: Bulk Packing | |
| AiT provides all RoHS products | | |

## TYPICAL APPLICATION

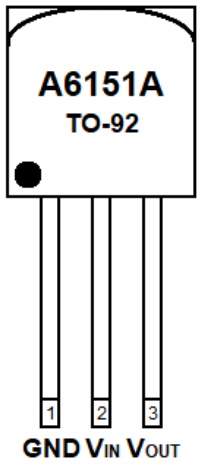



Note: $C_{IN}$(C1)≥10μF; $C_{OUT}$(C2)≥10 μF.

## PIN DESCRIPTION




Top View




Front View

| Pin # | Symbol | Function |
|---|---|---|
| 1 | GND | Ground |
| 2 | $V_{IN}$ | Power Input |
| 3 | $V_{OUT}$ | Output |

## ABSOLUTE MAXIMUM RATINGS

| | | |
|---|---|---|
| $V_{IN}$, Input Voltage | | -0.3V~18V |
| $P_D$, Power Dissipation | SOT89-3 | 500mW |
| | TO-92 | 300mW |
| $T_{OPR}$, Operating Ambient Temperature | | -40℃ ~ +85℃ |
| $T_{STG}$, Storage Temperature | | -40℃ ~ +125℃ |

Stresses above may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

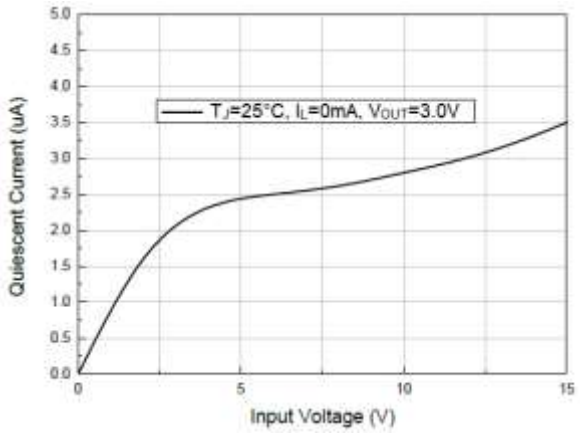
## ELECTRICAL CHARACTERISTICS

$T_A$=25℃

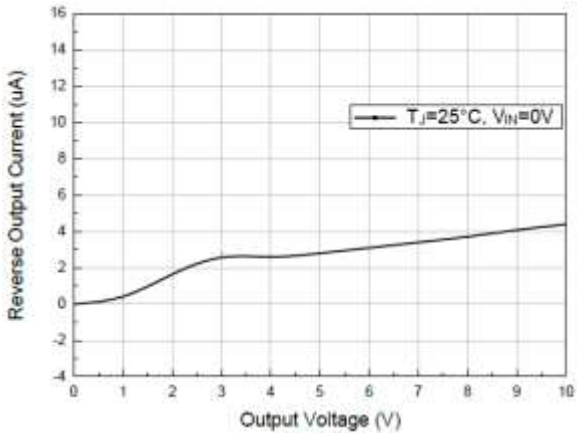
| Parameter | Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| | | $V_{IN}$ | Conditions | | | | |
| Output Voltage Tolerance | $V_{OUT}$ | $V_{OUT}$+2V | $I_{OUT}$=10mA | 0.98× $V_{OUT}$ | $V_{OUT}$ | 1.02× $V_{OUT}$ | V |
| Output Current | $I_{OUT}$ | $V_{OUT}$+2V | | 60 | 100 | 120 | mA |
| Load Regulation | $\Delta V_{OUT}$ | $V_{OUT}$+2V | 1mA≤$I_{OUT}$≤50mA | - | 60 | 150 | mV |
| Voltage Drop | $V_{DROP}$ | | $I_{OUT}$=1mA | - | 100 | - | mV |
| Current Consumption | $I_{SS}$ | $V_{OUT}$+2V | No Load | - | 2 | 4 | uA |
| Output Shorted Current | $I_{SHORT}$ | $V_{OUT}$+2V | $V_{OUT}$ Connected to ground | 20 | - | 80 | mA |
| Line Regulation | $\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$ | | $V_{OUT}$+2V≤$V_{IN}$≤18 $I_{OUT}$=1mA | - | 0.2 | - | %/V |
| Input Voltage | $V_{IN}$ | | | - | - | 18 | V |
| Temperature Coefficient | $\frac{\Delta V_{OUT}}{\Delta T_A}$ | $V_{OUT}$+2V | $I_{OUT}$=10mA -40℃≤$T_A$≤85℃ | - | ±0.45× $\frac{V_{OUT}}{3}$ | - | $\frac{mV}{℃}$ |
| Power Supply Ripple Rejection Rate | PSRR | | f=1.0kHz | - | - | 40 | dB |

## TYPICAL PERFORMANCE CHARACTERISTICS

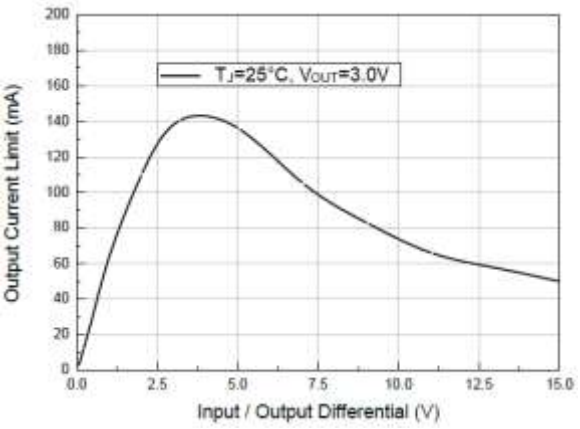
1. Quiescent Current vs. Input Voltage



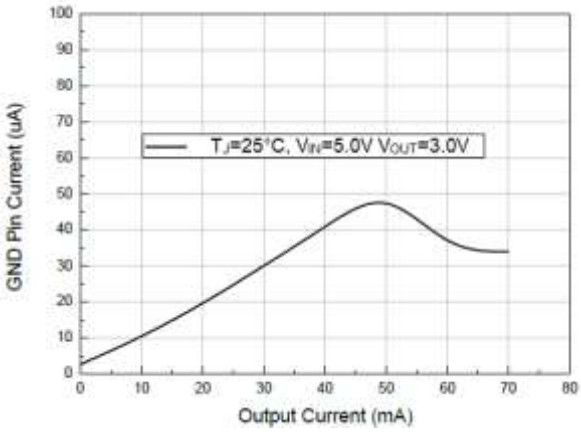

2. Reverse Output Current vs. Output Voltage



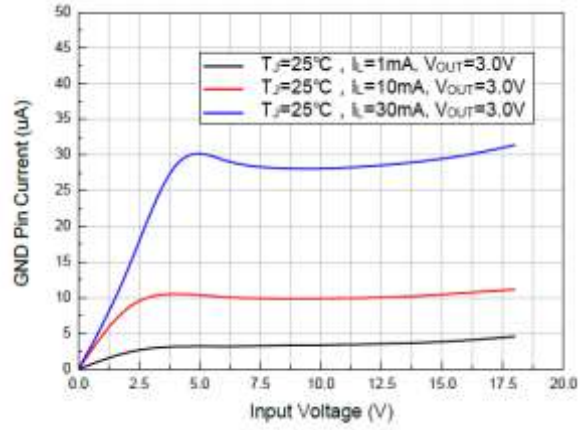

3. Current Limit vs. $V_{IN}$-$V_{OUT}$



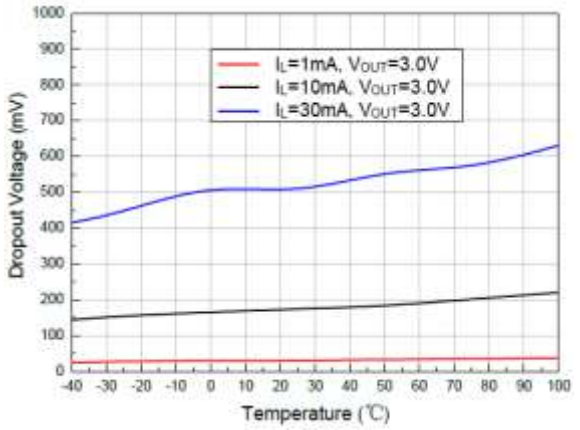

4. GND Pin Current vs. Output Current



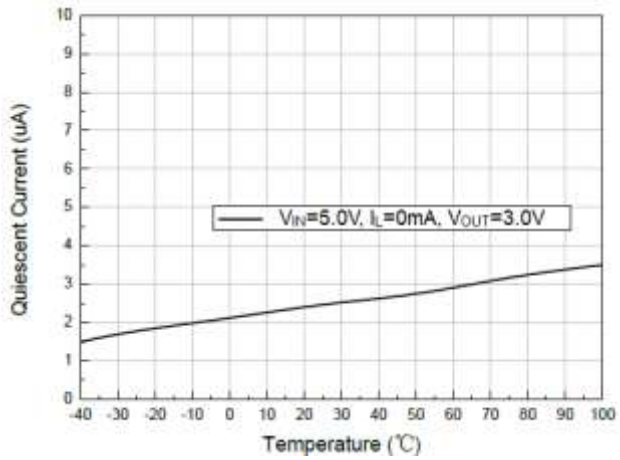

5. GND Pin Current vs. Input Voltage



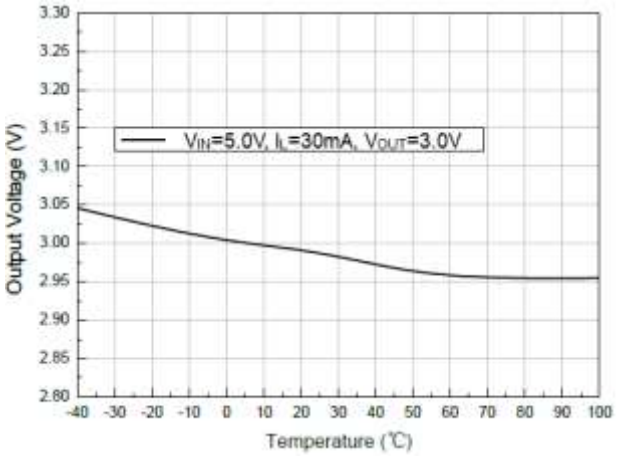

6. Dropout Voltage vs. Temperature



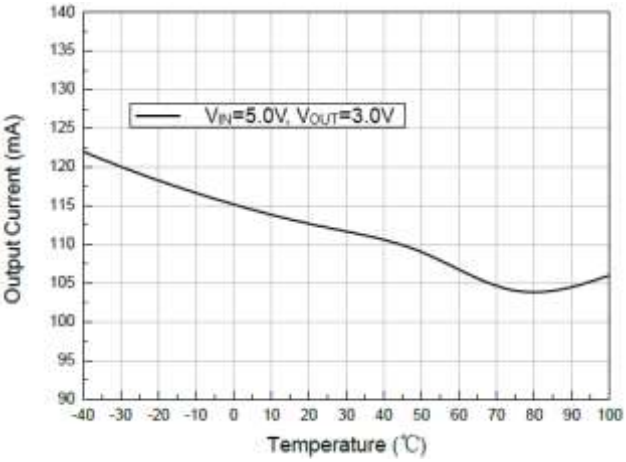
7. Quiescent Current vs. Temperature



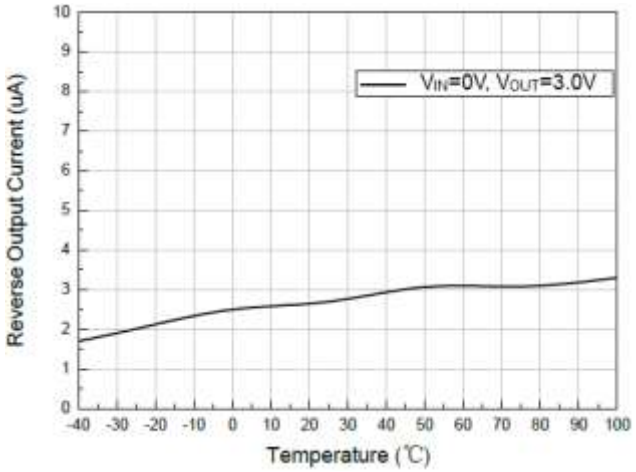

8. Output Voltage vs. Temperature



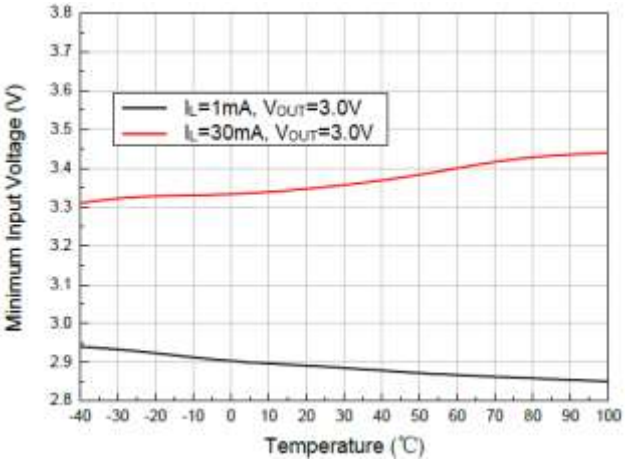

9. Output Current vs. Temperature



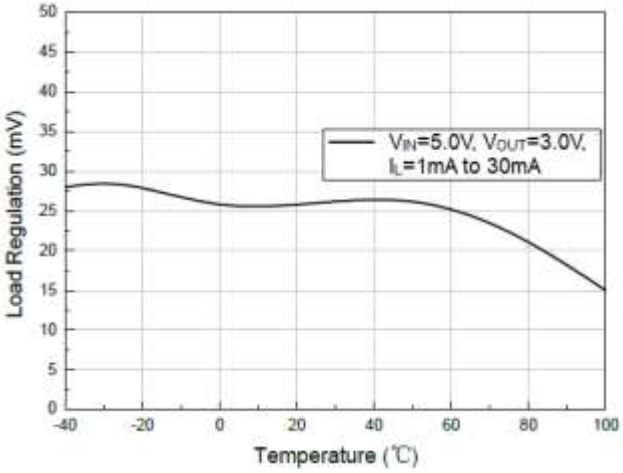

10. Reverse Output Current vs. Temperature



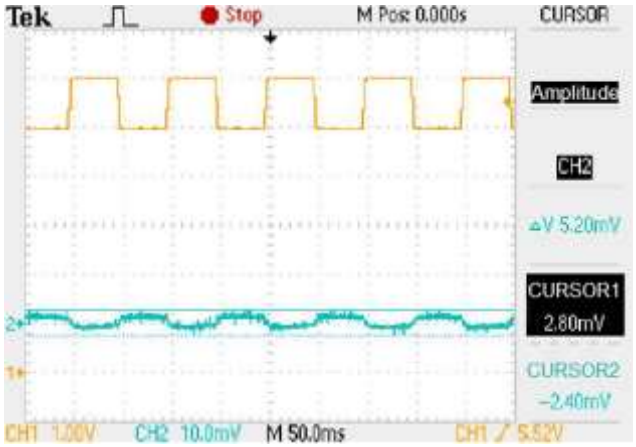

11. Minimum Input Voltage vs. Temperature



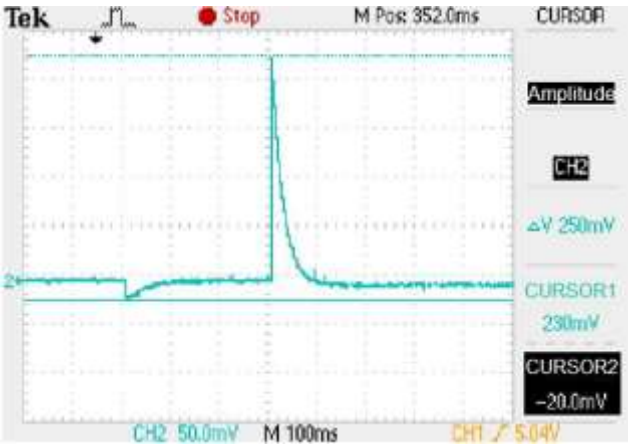

12. Load Regulation vs. Temperature



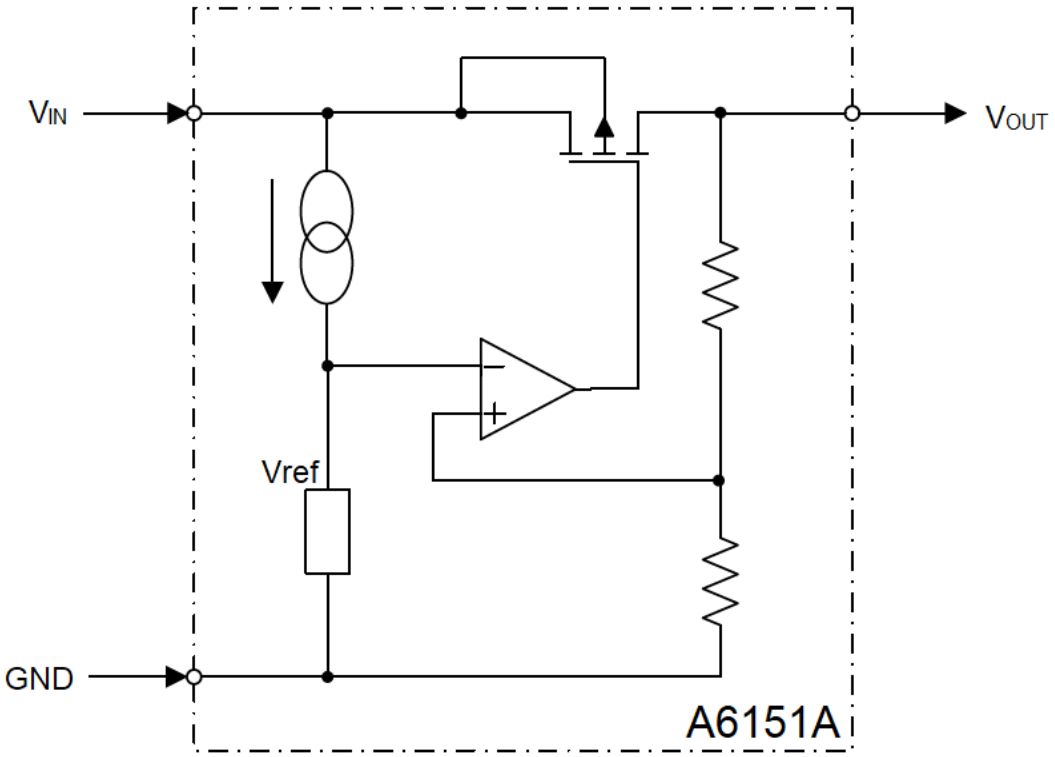
13. Input voltage transient response ($I_L$=10mA)




14. Load transient response ($V_{IN}$=4.3V, $I_L$=0-70-0mA)

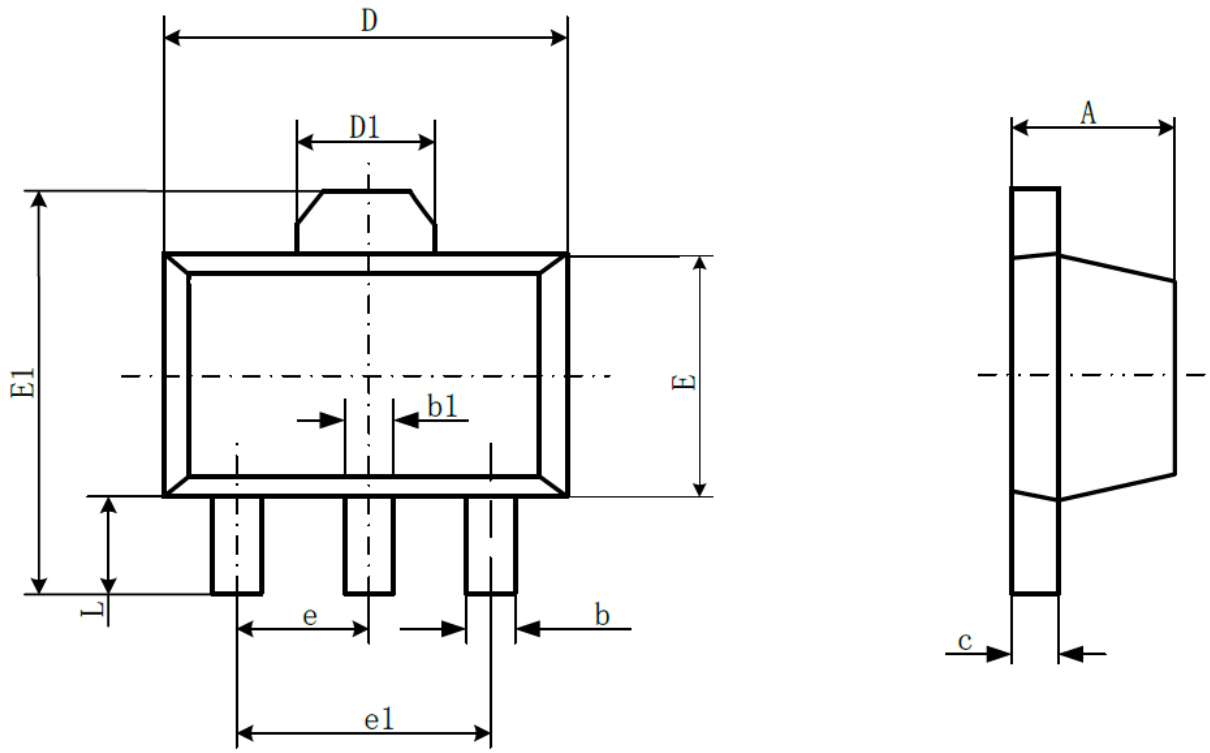


## BLOCK DIAGRAM



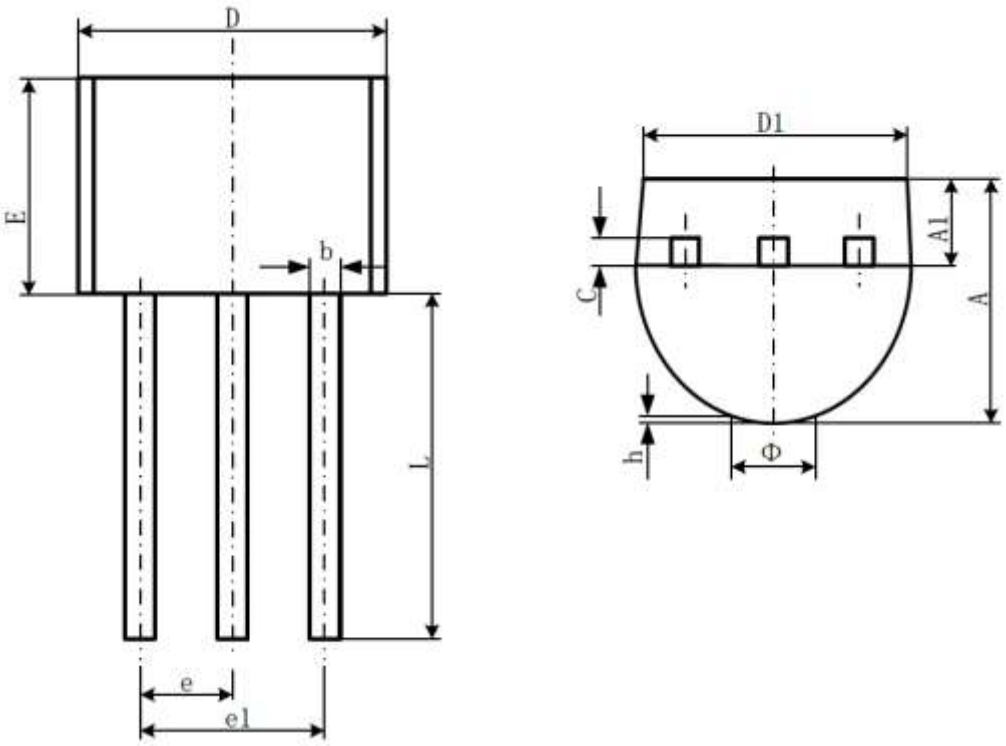
## PACKAGE INFORMATION

Dimension in SOT89-3 (Unit: mm)




| Symbol | Millimeters | | 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 |

Dimension in TO-92 (Unit: mm)




| Symbol | Millimeters | | 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 | 1.270 TYP | | 0.050 TYP | |
| e1 | 2.440 | 2.640 | 0.096 | 0.104 |
| L | 14.100 | 14.500 | 0.555 | 0.571 |
| Φ | - | 1.600 | - | 0.063 |
| h | 0.000 | 0.380 | 0.000 | 0.015 |

## IMPORTANT NOTICE

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