## 1.Description

The KIA 78L15 is monolithic fixed voltage regulator integrated circuit. Tt is suitable for applications that required supply current up to 100mA.

## 2.Features

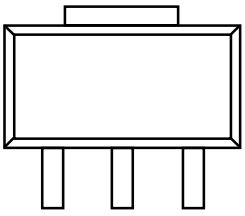
- Output current up to 100mA
- No external part needed
- Thermal overload shutdown protection
- Short circuit current limiting
- SOT89 package

## 3.Applications

- Battery-powered circuitry
- Post regulator for switching power supply

## 4.Pinning information

Table1: Pinning-SOT89,simplified outline

| Pin | Description | Simplified outline |
|---|---|---|
| 1 | $V_{OUT}$ |  |
| 2 | GND | |
| 3 | $V_{IN}$ | |

1 2 3

(SOT89 Front View)

## 5.Marking information

KIA 78L15 Marking 8I

## 6.Package information

1K/Reel 8K/Box 40K/CTN

## 7.Maximum ratings(Ta=25℃)

Table2: Maximum ratings

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Input voltage | $V_{IN}$ | 35 | V |
| Power dissipation | $P_D$ | 500 | mW |
| Junction temperature | $T_J$ | -20~+125 | ℃ |
| Operating temperature | $T_{OPR}$ | -20~+85 | ℃ |
| Storage temperature | $T_{STG}$ | -65~+150 | ℃ |

## 8.Electrical characteristics

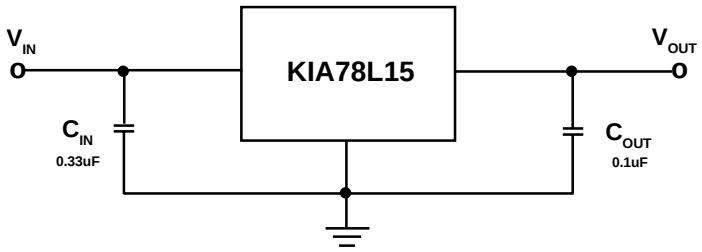
Table3: Electrical characteristics

( $V_{IN}$=23V,$I_{OUT}$=40mA,$C_{IN}$=0.33uF, $C_{OUT}$=0.1uF,$T_J$=25℃ ,Unless otherwise noted)

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Output voltage | $V_{OUT}$ | | 14.40 | 15 | 15.60 | V |
| | | 17.5V≤$V_{IN}$≤30V<br>1.0mA≤$I_{OUT}$≤40mA | 14.25 | 15 | 15.75 | V |
| | | 1.0mA≤$I_{OUT}$≤70mA | 13.95 | 15 | 16.05 | V |
| Line regulation | Reg line | 17.5V≤$V_{IN}$≤30V | | 130 | 300 | mV |
| | | 20V≤$V_{IN}$≤30V | | 110 | 250 | mV |
| Load regulation | Reg load | 1.0mA≤$I_{OUT}$≤100mA | | 25 | 150 | mV |
| | | 1.0mA≤$I_{OUT}$≤40mA | | 12 | 75 | mV |
| Quiescent current | $I_Q$ | | | 3.1 | 6.5 | mA |
| Quiescent current change | $\triangle I_Q$ | 20V≤$V_{IN}$≤30V | | 0.15 | 1.5 | mA |
| | | 1.0mA≤$I_{OUT}$≤40mA | | 0.08 | 0.1 | mA |
| Output noise voltage | $V_{ON}$ | 10Hz≤f≤100KHz | | 90 | | uVrm |
| Ripple rejection ratio | RR | 18.5V≤$V_{IN}$≤28.5V f=120Hz | 34 | 40 | | dB |
| Dropout voltage | $V_D$ | | | 1.7 | | V |

Note1: The maximum steady state usable output current is dependent on input voltage,heat sinking,lead length of the package and copper pattern of PCB.

## 9.Application circuit

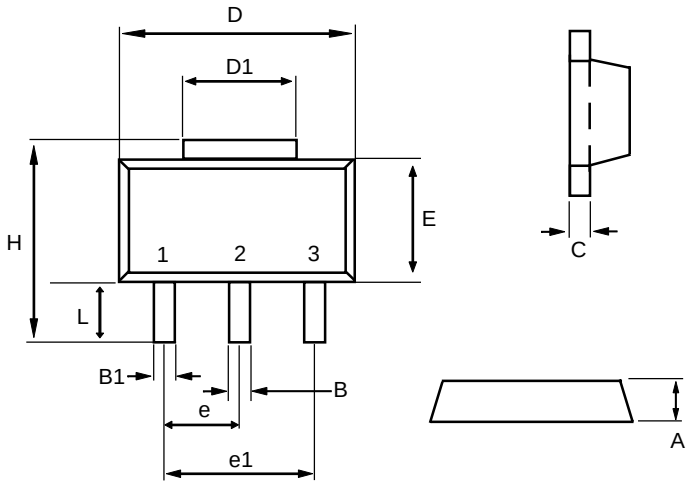



**Note1: The input voltage must remain typically 1.7V above the output voltage.**
**Note2: Bypass capacitors are recommended for optimum stability and transient reponse and should be located as close as possible to the regulators**

## 10.SOT89 package outline

**Table4: SOT89 package outline**

**DIMENSIONS(mm are the original dimensions)**




| Dim | Min | Max | Dim | Min | Max |
|---|---|---|---|---|---|
| A | 1.40 | 1.60 | e | 1.50BSC | |
| B | 0.40 | 0.56 | e1 | 3.00BSC | |
| B1 | 0.35 | 0.48 | E | 2.29 | 2.60 |
| C | 0.35 | 0.44 | H | 3.75 | 4.25 |
| D | 4.40 | 4.60 | L | 0.80 | 1.20 |
| D1 | 1.35 | 1.83 | | | |