



1. Description

The KIA78L05 is monolithic fixed voltage regulator integrated circuit. It is suitable for applications that require supply current up to 100mA.

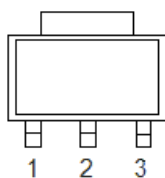
2. Features

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

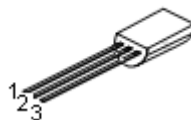
3. Applications

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

4. Pinning information



SOT-89



TO-92

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



5. Maximum ratings

(Ta=25°C, unless otherwise notes)

| Parameter | Symbol | Rating | Units |
|-----------------------|------------------|----------|-------|
| Input voltage | V _{IN} | 30 | V |
| Power dissipation | P _D | 500 | mW |
| Junction temperature | T _J | -20~+125 | °C |
| Operating temperature | T _{OPR} | -20~+85 | °C |
| Storage temperature | T _{STG} | -65~+150 | °C |

6. Electrical characteristics

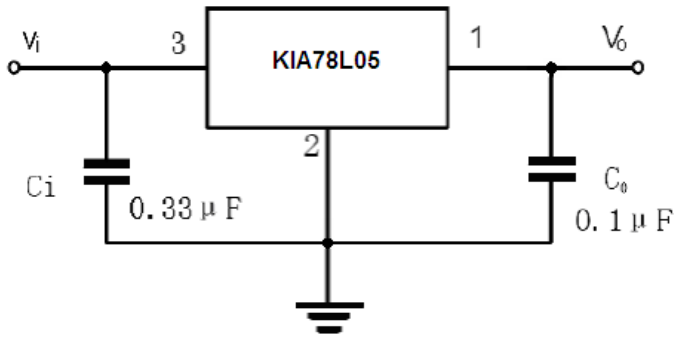
(V_{IN}=10V, I_{OUT}=40mA, C_{IN}=0.33uF, C_{OUT}=0.1uF, T_J=25°C, unless otherwise notes)

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|--------------------------|------------------|---|------|------|------|------------------|
| Output voltage | V _{OUT} | | 4.8 | 5.0 | 5.2 | V |
| | | 7.0V ≤ V _{IN} ≤ 20V 1.0mA ≤ I _{OUT} ≤ 40mA | 4.75 | 5.0 | 5.25 | V |
| | | 1.0mA ≤ I _{OUT} ≤ 70mA | 4.65 | 5.0 | 5.30 | V |
| Line regulation | Reg line | 7.0V ≤ V _{IN} ≤ 20V | - | 29 | 150 | mV |
| | | 8.0V ≤ V _{IN} ≤ 20V | - | 26 | 100 | mV |
| Load regulation | Reg load | 1.0mA ≤ I _{OUT} ≤ 100mA | - | 9.0 | 60 | mV |
| | | 1.0mA ≤ I _{OUT} ≤ 40mA | - | 5.0 | 30 | mV |
| Quiescent current | I _Q | | - | 2.8 | 6.0 | mA |
| Quiescent current change | ΔI _Q | 8.0V ≤ V _{IN} ≤ 20V | - | 0.15 | 1.5 | mA |
| | | 1.0mA ≤ I _{OUT} ≤ 40mA | - | 0.08 | 0.1 | mA |
| Output noise voltage | V _{ON} | 10Hz ≤ f ≤ 100KHz | - | 40 | - | uV _{rm} |
| Ripple rejection ratio | RR | 10V ≤ V _{IN} ≤ 20V, f=120Hz | 40 | 49 | - | 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 patten of PCB.

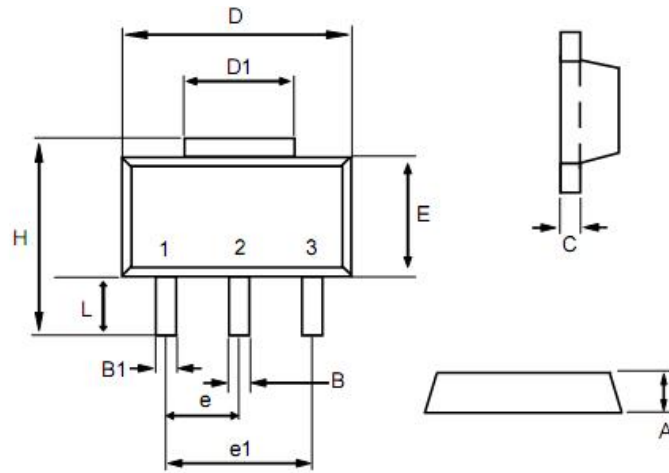


7. Applcation circuits



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.

8. Package outline



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