

KA78RH33

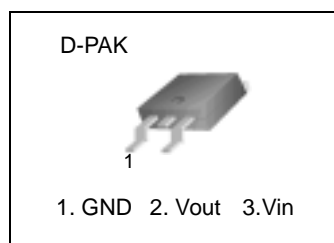
Semi Low Dropout Voltage Regulator

Features

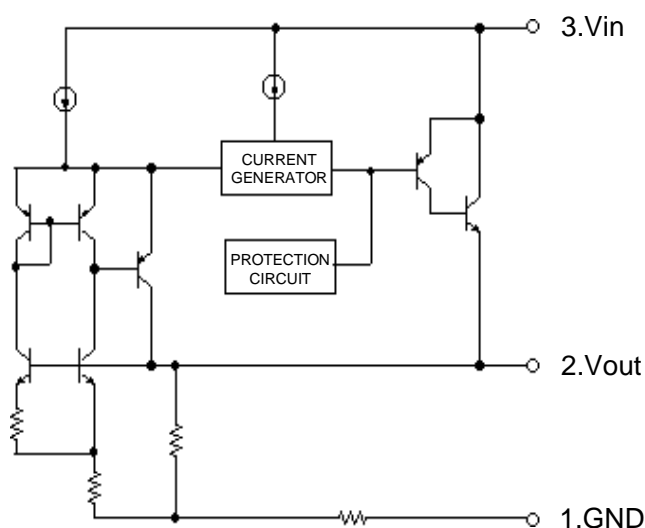
- Fixed Output Voltage of +3.3V
- Space Saving SMD types of DPAK
- 1V(Typ) Dropout at $I_o=800\text{mA}$
- Output Current of 800mA
- Thermal Shutdown Protection
- Over Current Protection
- Output trimmed to $\pm 1\%$ Tolerance
- No minimum Load Requirement

Description

The KA78RH33 is a +3.3V fixed Low Dropout Voltage Regulator specifically designed for use in low voltage operation. The maximum load current is 0.8A and the dropout voltage is guaranteed to be 1V(Typ). The Dropout Voltage varies with load current. The regulator consists of composite PNP-NPN pass transistors.



Internal Block Diagram



Absolute Maximum Ratings

| Parameter | Symbol | Value | Unit |
|--------------------------------|--------|-----------|------|
| Power Supply Input Voltage | Vin | 15 | V |
| Output Load Current | Io | 800 | mA |
| Junction Temperature | Tj | 150 | °C |
| Operating Junction Temperature | Topr | -25 ~ 125 | °C |
| Storage Temperature | Tstg | -55 ~ 150 | °C |

Temperature Characteristics

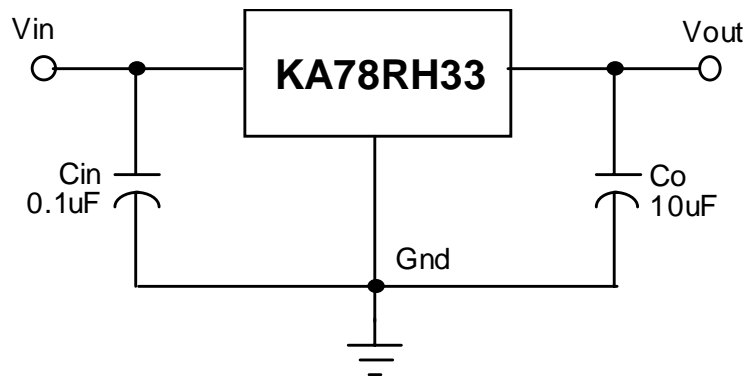
| Parameter | Symbol | Value | Unit |
|---|-------------------------|-----------|--------|
| Temperature Coefficient of Output Voltage | $\Delta V_o / \Delta T$ | + / -0.02 | % / °C |

Electrical Characteristics

(Refer to the test circuit. Vin= 5V, Co=10uF, Ta = 25°C, unless otherwise specified.)

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|-------------------------|--|-------------|------------------|--------------------|-------|
| Output Voltage | Vout | Io=10mA, Tj=25°C | 3.27 | 3.3 | 3.33 | V |
| Output Voltage | Vout | Vin = 4.8V to 12V Io = 10mA to 800mA Tj = -25°C to 125°C | 3.23 | 3.3 | 3.37 | V |
| Line Regulation | Rline | Vin=4.8V to 12V, Io=10mA | - | 1 | 10 | mV |
| Load Regulation | Rload | Io = 10mA to 800mA | - | 1 | 20 | mV |
| Ripple Rejection | RR | f=120Hz, Io=500mA Vin = 6.3 +/- 1Vrms | 55 | - | - | dB |
| Dropout Voltage | Vdrop | Io = 100mA Io = 500mA Io = 800mA | - - - | 1 1.05 1.1 | 1.2 1.25 1.4 | V |
| Quiescent Current | Iq | Vin <= 12V | - | 5 | 10 | mA |
| Temperature Coefficient of Output Voltage | $\Delta V_o / \Delta T$ | Tj = -25°C to 125°C Io = 10mA | - | 0.2 | - | mV/°C |
| Peak Output Current | Ipk | Vin = 6.3V | 800 | - | - | mA |
| Output Noise Voltage | Vn | f = 10Hz to 10KHz | - | 100 | - | μVrms |

Typical Application



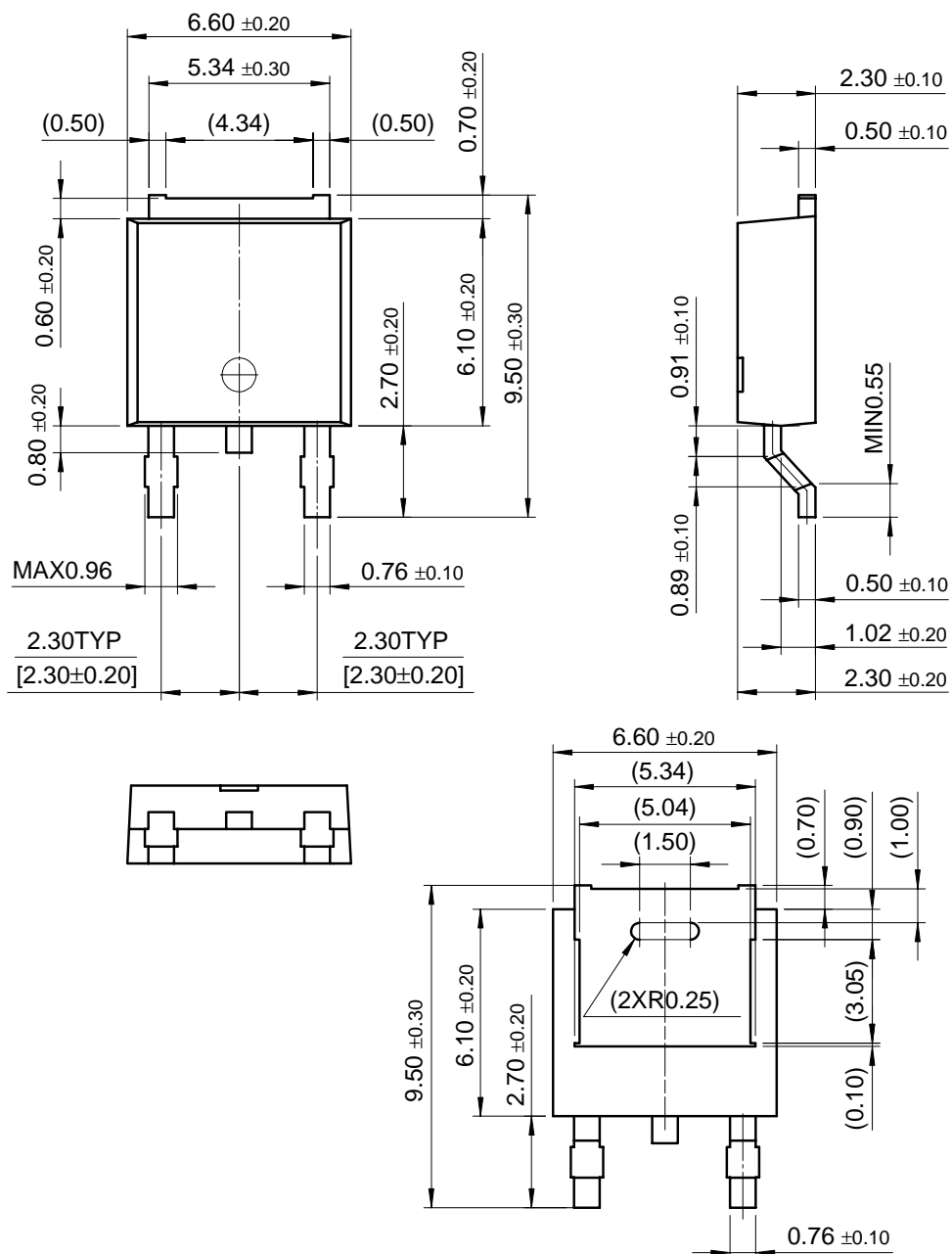
An input capacitor, C_{in} is not necessary for stability, but it will improve the overall performance

Mechanical Dimensions

Package

Dimensions in millimeters

D-PAK



Ordering Information

| Product Number | Package | Operating Temperature |
|----------------|---------|-----------------------|
| KA78RH33D | D-PAK | -25°C to + 125°C |

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