

KA337

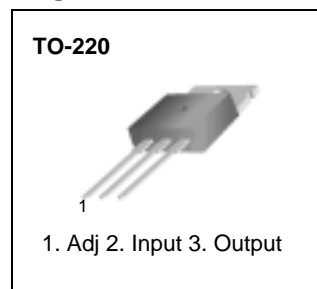
3-Terminal 1.5A Negative Adjustable Regulator

Features

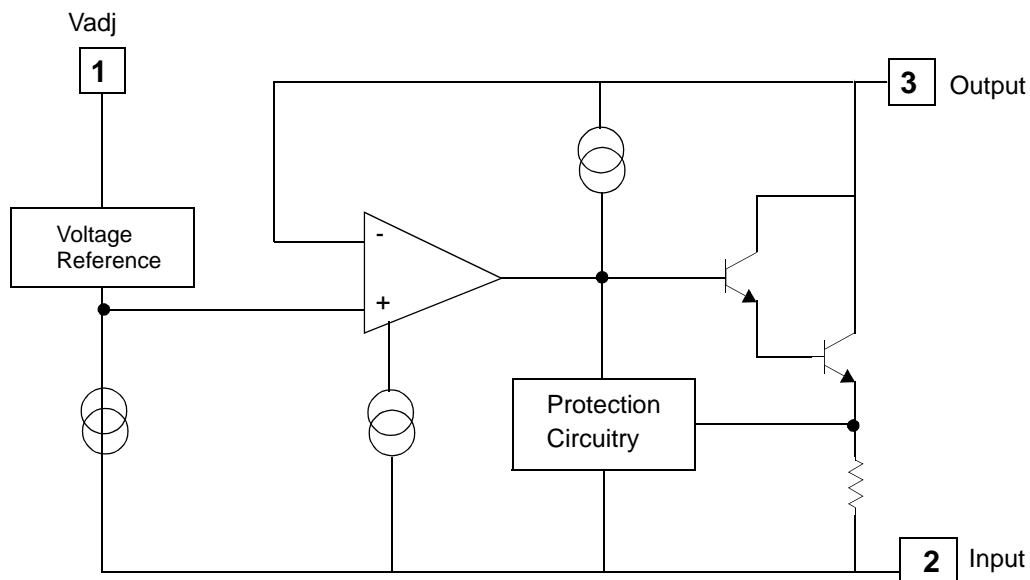
- Output current in excess of 1.5A
- Output voltage adjustable between -1.2V and -37V
- Internal thermal overload protection
- Internal short circuit current limiting
- Output transistor safe area compensation
- Floating operation for high voltage applications
- Standard 3-pin TO-220 package

Description

The KA337 is a 3-terminal negative adjustable regulator. It supply in excess of 1.5A over an output voltage range of -1.2V to -37V. This regulator requires only two external resistor to set the output voltage. Included on the chip are current limiting, thermal overload protection and safe area compensation.



Internal Block Diagram



Absolute Maximum Ratings

| Parameter | Symbol | Value | Unit |
|-----------------------------------|---------------|--------------------|------|
| Input-Output Voltage Differential | $ V_I - V_O $ | 40 | V |
| Power Dissipation | P_D | Internally limited | W |
| Operating Temperature Range | T_{OPR} | 0 ~ +125 | °C |
| Storage Temperature Range | T_{STG} | -65 ~ +125 | °C |

Electrical Characteristics

($V_I - V_O = 5V$, $I_O = 40mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $P_{DMAX} = 20W$, unless otherwise specified)

| Parameter | Symbol | Conditions | Min | Typ. | Max. | Unit |
|---|------------------|--|--------|--------------------|--------|----------|
| Line Regulation (Note1) | R_{line} | $T_A = +25^\circ C$ $3V \leq V_I - V_O \leq 40V$ | - | 0.01 | 0.04 | % / V |
| | | $3V \leq V_I - V_O \leq 40V$ | - | 0.02 | 0.07 | |
| Load Regulation (Note1) | R_{load} | $T_A = +25^\circ C$ $10mA \leq I_O \leq 0.5A$ | - | 15 | 50 | mV |
| | | $10mA \leq I_O \leq 1.5A$ | - | 15 | 150 | |
| Adjustable Pin Current | I_{ADJ} | - | - | 50 | 100 | μA |
| Adjustable Pin Current | ΔI_{ADJ} | $T_A = +25^\circ C$ $10mA \leq I_O \leq 1.5A$ $3V \leq V_I - V_O \leq 40V$ | - | 2 | 5 | μA |
| Reference Voltage | V_{REF} | $T_A = +25^\circ C$ | -1.213 | -1.250 | -1.287 | V |
| | | $3V \leq V_I - V_O \leq 40V$ $10mA \leq I_O \leq 1.5A$ | -1.200 | -1.250 | -1.300 | |
| Temperature Stability | ST_T | $0^\circ C \leq T_J \leq +125^\circ C$ | - | 0.6 | - | % |
| Minimum Load Current to Maintain Regulation | $I_{L(MIN)}$ | $3V \leq V_I - V_O \leq 40V$ | - | 2.5 | 10 | mA |
| | | $3V \leq V_I - V_O \leq 10V$ | - | 1.5 | 6 | |
| Output Noise | e_N | $T_A = +25^\circ C$ $10Hz \leq f \leq 10KHz$ | - | $3 \times V_{OUT}$ | - | $V/10^6$ |
| Ripple Rejection Ratio | RR | $V_O = -10V$, $f = 120Hz$ | - | 60 | - | dB |
| | | CADJ = $10\mu F$ (Note2) | 66 | 77 | - | |
| Long Term Stability | ST | $T_J = 125^\circ C$, 1000Hours | - | 0.3 | 1 | % |
| Thermal Resistance Junction to Case | $R_{\theta JC}$ | - | - | 4 | - | °C / W |

Note:

1. Load and line regulation are specified at constant junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.
2. CADJ, when used, is connected between the adjustment pin and ground.

Typical Application

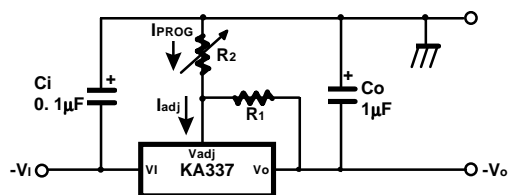


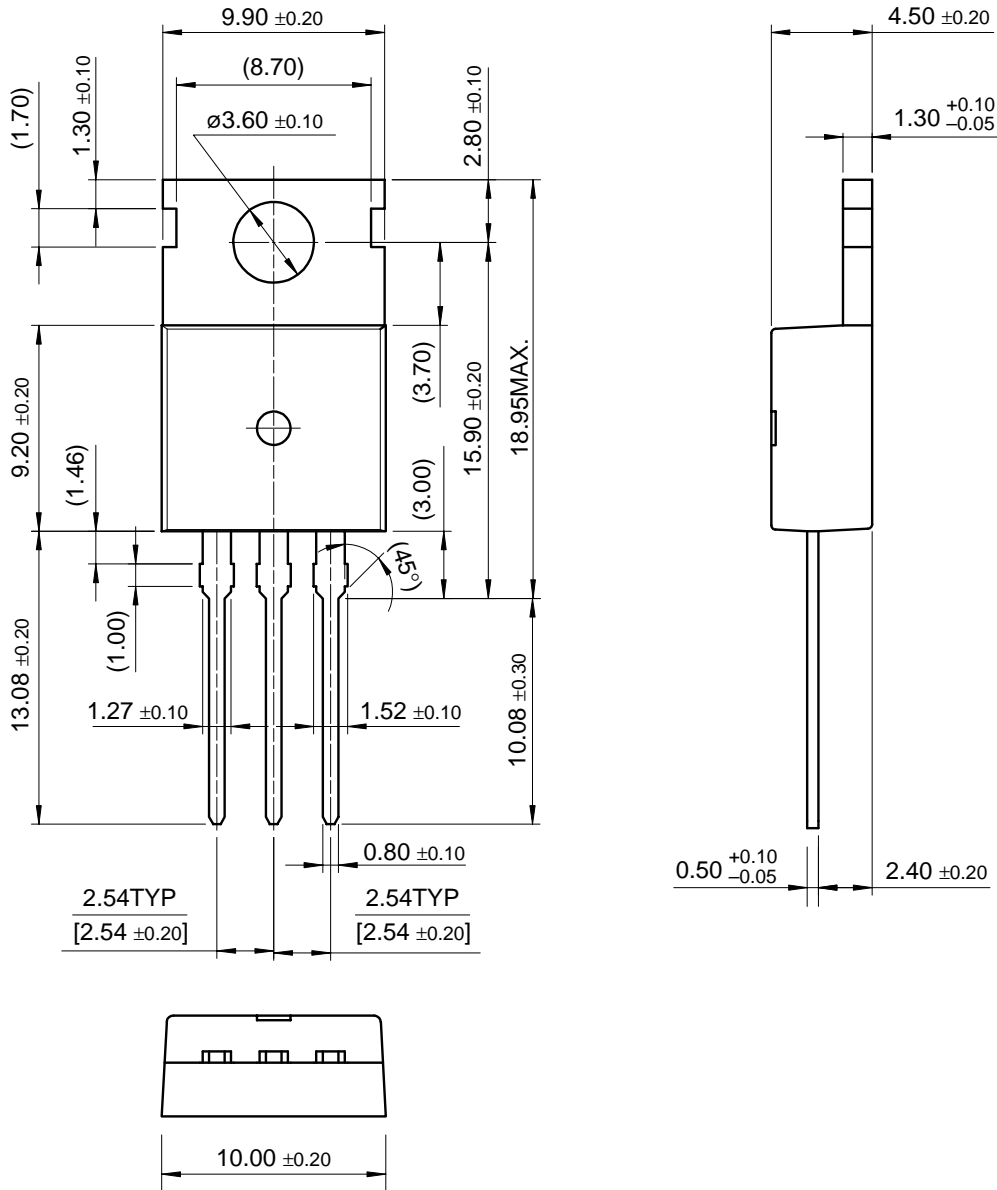
Figure 1. Programmable Regulator

- C_i is required if regulator is located more than 4 inches from power supply filter. A $1.0\mu\text{F}$ solid tantalum or $10\mu\text{F}$ aluminum electrolytic is recommended.
- C_o is necessary for stability. A $1.0\mu\text{F}$ solid tantalum or $10\mu\text{F}$ aluminum electrolytic is recommended.
- $V_O = -1.25\text{V} (1 + R_2/R_1)$

Mechanical Dimensions

Package

TO-220



Ordering Information

| Product Number | Package | Operating Temperature |
|----------------|---------|-----------------------|
| KA337 | TO-220 | 0°C to + 125°C |

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