

### / Descriptions

TO-220 Voltage Regulator in a TO-220 Plastic Package.

### / Features

1.5A, 1.2 37V  
3-Terminal regulators ,output current in excess of 1.5 A, output voltage adjustable over a 1.2-37V.

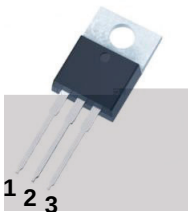
### / Applications

Voltage Regulator.

### / Equivalent Circuit or Application Circuit



### / Pinning



PIN1 ADJ      PIN 2 OUT      PIN 3 IN

### / Marking

See Marking Instructions

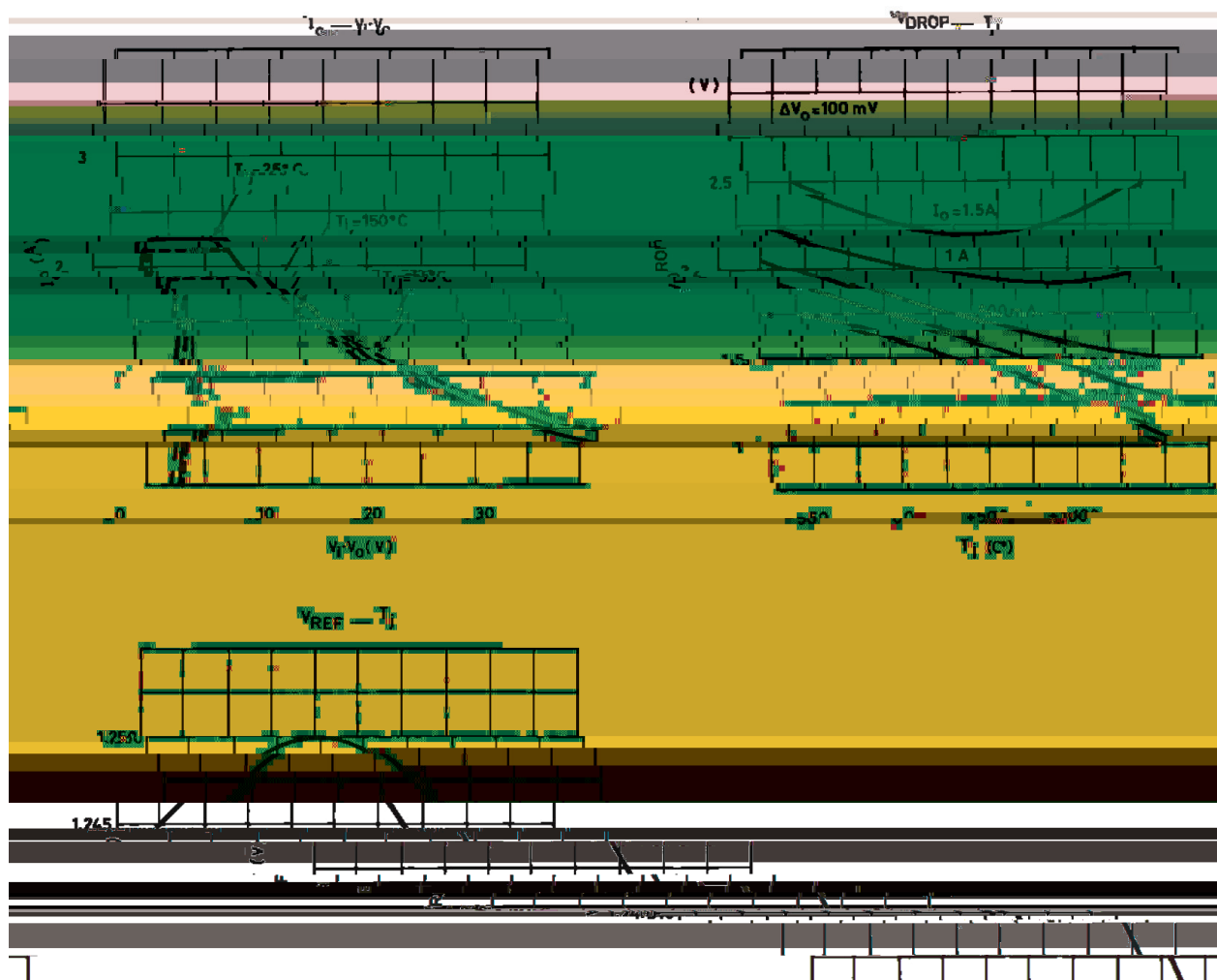
**/ Absolute Maximum Ratings(Ta=25 )**

| Parameter                            | Symbol    | Rating             | Unit |
|--------------------------------------|-----------|--------------------|------|
| Input - Output Voltage Difference    | $V_{i-o}$ | 40                 | V    |
| Output Current                       | $I_o$     | Internally Limited | A    |
| Operating Junction Temperature Range | $T_J$     | 0 125              |      |
| Power Dissipation                    | $P_{tot}$ | Internally Limited | W    |
| Storage temperature range            | $T_{stg}$ | -55 150            |      |

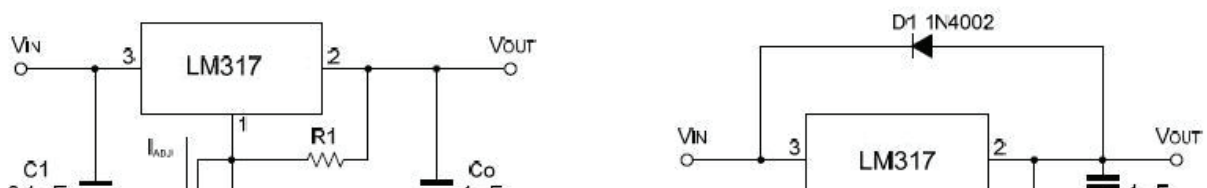
**/ Electrical Characteristics(Ta=25 )**

| Parameter                           | Symbol                   | Test Conditions                                                                        | Min | Typ   | Max  | Unit          |
|-------------------------------------|--------------------------|----------------------------------------------------------------------------------------|-----|-------|------|---------------|
| Line regulation                     | $V_o$                    | $V_i-V_o=3\text{to}40\text{V}$ $T_J=25$                                                |     | 0.01  | 0.04 | %/V           |
|                                     |                          | $V_i-V_o=3\text{to}40\text{V}$                                                         |     | 0.02  | 0.07 | %/V           |
| Load Regulation                     | $V_o$                    | $V_o \leq 5\text{V}$<br>$I_o=10\text{mA}$ to $I_{oMAX}$ $T_J=25$                       |     | 5     | 25   | mV            |
|                                     |                          | $V_o \leq 5\text{V}$<br>$I_o=10\text{mA}$ to $I_{oMAX}$                                |     | 20    | 70   | mV            |
|                                     |                          | $V_o \geq 5\text{V}$<br>$I_o=10\text{mA}$ to $I_{oMAX}$ $T_J=25$                       |     | 0.1   | 0.5  | %             |
|                                     |                          | $V_o \geq 5\text{V}$<br>$I_o=10\text{mA}$ to $I_{oMAX}$                                |     | 0.3   | 1.5  | %             |
| Adjustable Pin Current              | $I_{ADJ}$                |                                                                                        |     | 50    | 100  | $\mu\text{A}$ |
| Adjustable Pin Current Change       | $I_{ADJ}$                | $V_i-V_o=2.5\text{to}40\text{V}$<br>$I_o=10\text{mA}$ to $I_{oMAX}$                    |     | 0.2   | 5    | $\mu\text{A}$ |
| Reference Voltage                   | $V_{REF}$                | $V_i-V_o=2.5\text{to}40\text{V}$<br>$I_o=10\text{mA}$ to $I_{oMAX}$ $P_D \leq P_{MAX}$ | 1.2 | 1.25  | 1.3  | V             |
| Line Regulation                     | $\frac{\Delta V_o}{V_o}$ |                                                                                        |     | 1     |      | %             |
| Minimum Load Current for Regulation | $I_{o(min)}$             | $V_i-V_o=40\text{V}$                                                                   |     | 3.5   | 10   | mA            |
| Maximum Output Current              | $I_{o(max)}$             | $V_i-V_o \leq 15\text{V}$ $P_D$ $P_{MAX}$                                              | 1.5 | 2.2   |      | A             |
|                                     |                          | $V_i-V_o=40\text{V}$ $P_D$ $P_{MAX}$<br>$T_J=25$                                       |     | 0.4   |      | A             |
| RMS Noise vs. %of VOUT              | $e_N$                    | $B=10\text{Hz}$ to $10\text{KHz}$ $T_J=25$                                             |     | 0.003 |      | %             |
| Ripple Rejection                    | SVR                      | $T_J=25$ $f=120\text{Hz}$<br>$C_{ADJ}=0$ $C_{ADJ}=10\mu\text{F}$                       |     | 65    |      | dB            |
|                                     |                          |                                                                                        | 66  | 80    |      | dB            |

/ Electrical Characteristic Curve



/ Internal circuit diagram



**LM317**

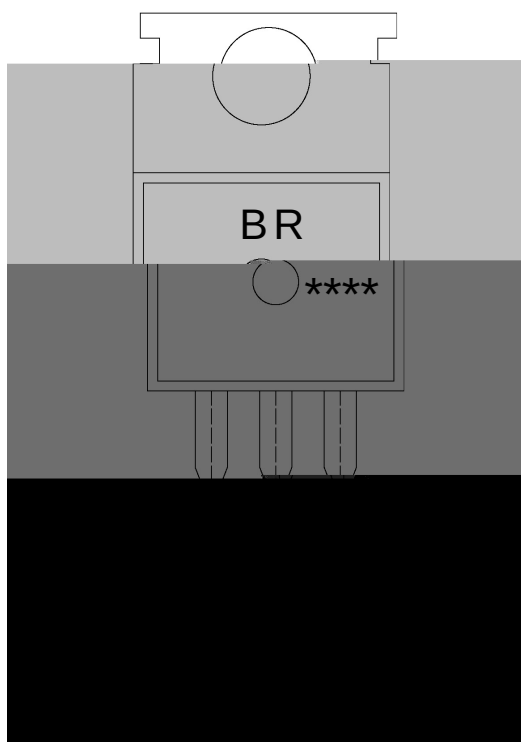
Rev.H Oct.-2018

Rev.H-ts58 2.6 735.92 485.352158.6 ref57.66 735.92 474.66 158.6 refBT/T106 1 Tf10.5 0 0 10.5 7.66 740.4803 T



**DATA SHEET**

/ Marking Instructions



BR

LM317

\*\*\*\*

Note:

BR:            Company    o

LM317:    Type.

\*\*\*\*:    e, code change with Lot No.

**LM317**  
Rev.H Oct.-2018  
7



**DATA SHEET**