

**/ Descriptions**

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

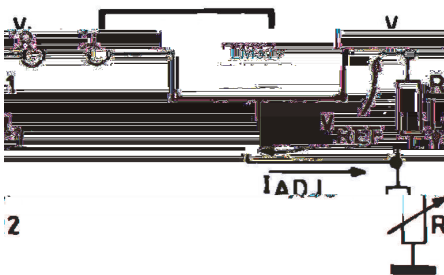
**/ Features**

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

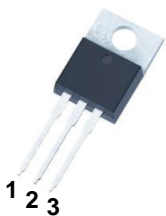
**/ Applications**

Voltage Regulator.

**/ Equivalent Circuit or Application Circuit**



**/ Pinning**



PIN1 ADJ      PIN 2 OUT      PIN 3 IN

**/ Marking**

See Marking Instructions

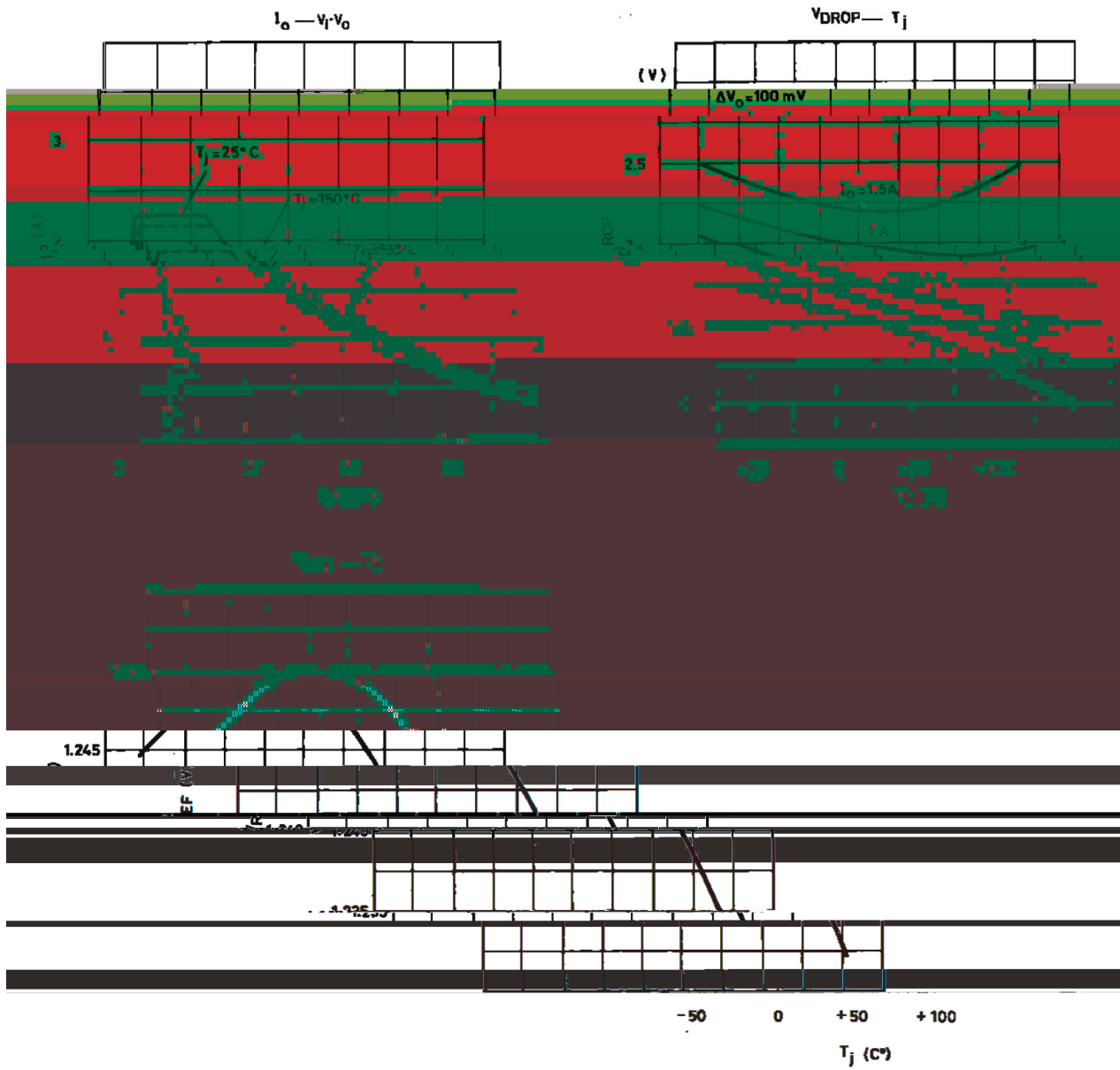
/ Absolute Maximum Ratings(Ta=25 )

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	

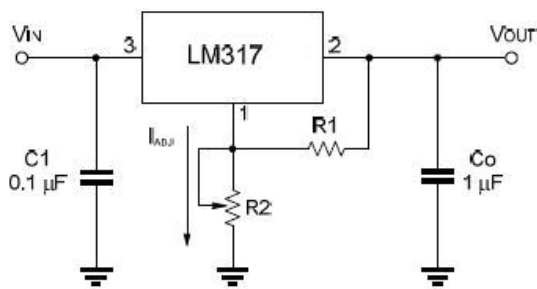
/ Electrical Characteristics(Ta=25 )

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Line regulation	$V_o$	$V_i-V_o=3to40V$ $T_J=25$		0.01	0.04	%/V
		$V_i-V_o=3to40V$		0.02	0.07	%/V
Load Regulation	$V_o$	$V_o$ 5V $I_o=10mA$ tol <sub>MAX</sub> $T_J=25$		5	25	mV
		$V_o$ 5V $I_o=10mA$ tol <sub>MAX</sub>		20	70	mV
		$V_o$ 5V $I_o=10mA$ tol <sub>MAX</sub> $T_J=25$		0.1	0.5	%
		$V_o$ 5V $I_o=10mA$ tol <sub>MAX</sub>		0.3	1.5	%
Adjustable Pin Current	$I_{ADJ}$			50	100	$\mu A$
Adjustable Pin Current Change	$I_{ADJ}$	$V_i-V_o=2.5to40V$ $I_o=10mA$ tol <sub>MAX</sub>		0.2	5	$\mu A$
Reference Voltage	$V_{REF}$	$V_i-V_o=2.5to40V$ $I_o=10mA$ tol <sub>MAX</sub> $P_D$ $P_{MAX}$	1.2	1.25	1.3	V
Line Regulation	$\frac{\Delta V_o}{V_o}$			1		%
Minimum Load Current for Regulation	$I_{o(min)}$	$V_i-V_o=40V$		3.5	10	mA
Maximum Output Current	$I_{o(max)}$	$V_i-V_o$ 15V $P_D$ $P_{MAX}$	1.5	2.2		A
		$V_i-V_o=40V$ $P_D$ $P_{MAX}$ $T_J=25$		0.4		A
RMS Noise vs. %of VOUT	$e_N$	B=10Hzto10KHz $T_J=25$		0.003		%
Ripple Rejection	SVR	$T_J=25$ $f=120Hz$ $C_{ADJ}=0$ $C_{ADJ}=10\mu F$		65		dB
			66	80		dB

/ Electrical Characteristic Curve



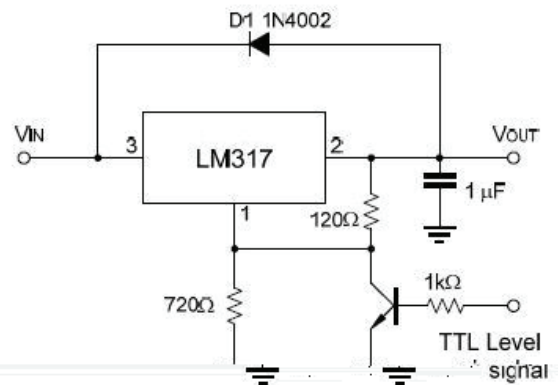
**/ Internal circuit diagram**



**Fig.1 Programmable voltage regulator**

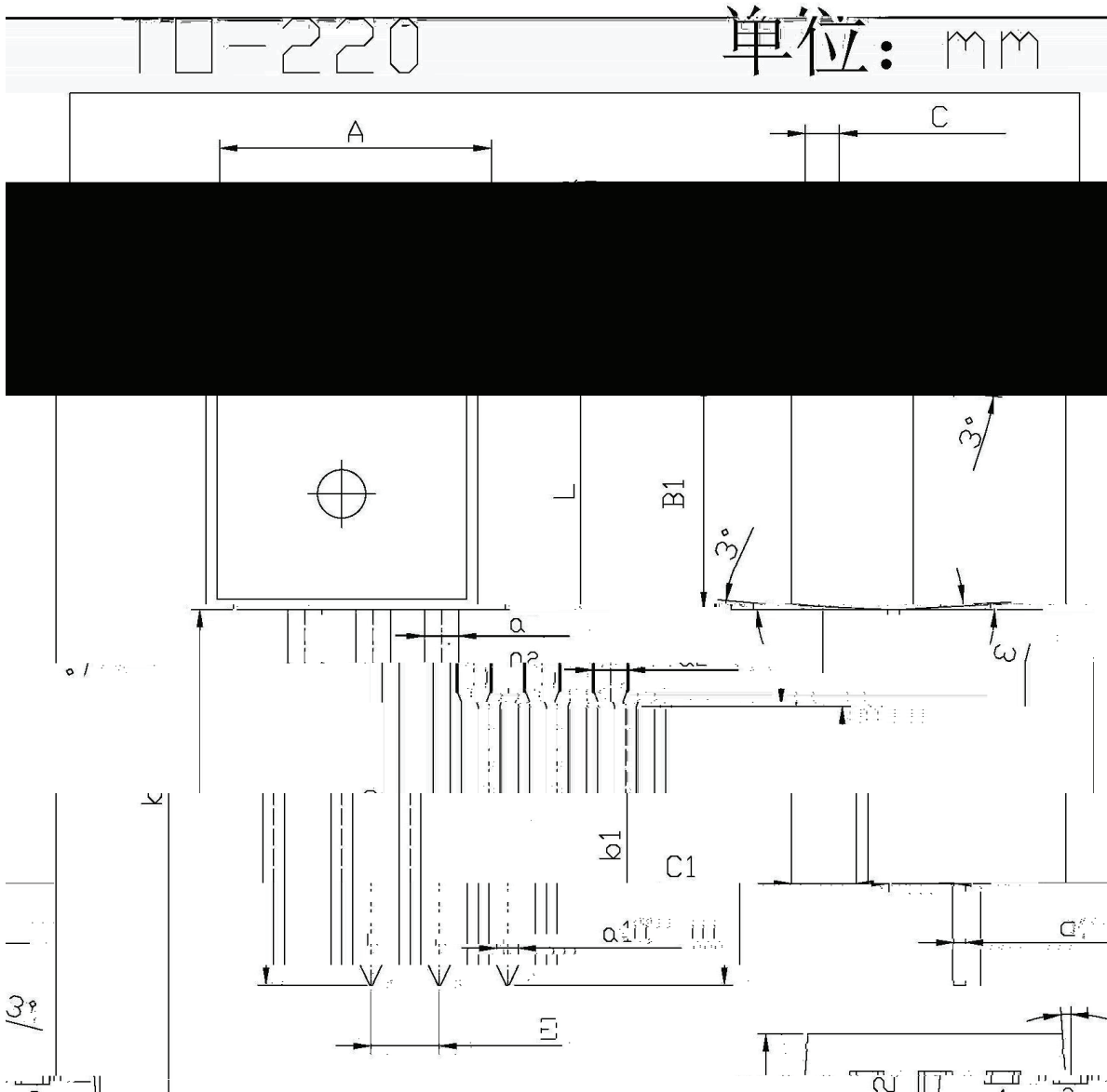
$$V_{OUT} \approx 1.25V \cdot \left(1 + \frac{R2}{R1}\right) + I_{ADJ} \cdot R2$$

C1 is required when regulator is located an appreciated distance from power



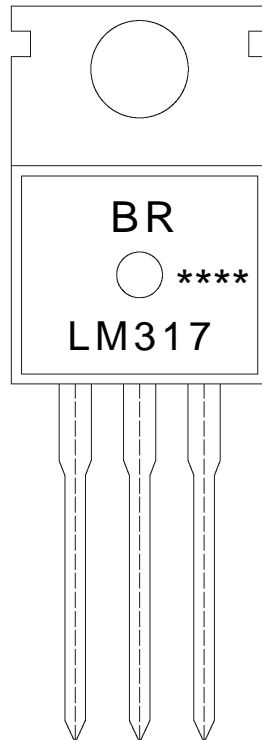
**Fig.2 Regulator with On-off control**

/ Package Dimensions



Symbol	Dimensions in milimeters		Symbol	Dimensions in millimeters	
	Min	Max		Min	Max
A	9.8	10.2	C	1.2	1.4
R	3.56	3.64	B	6.3	6.7
B1	9.0	9.4	b	12.6	16
C1	2.2	2.6	b1	9.6	10.0
C	0.4	0.6	a	1.22	1.32
α	1.45°	1.75°	h1	0.2	1.25

/ Marking Instructions



BR

LM317

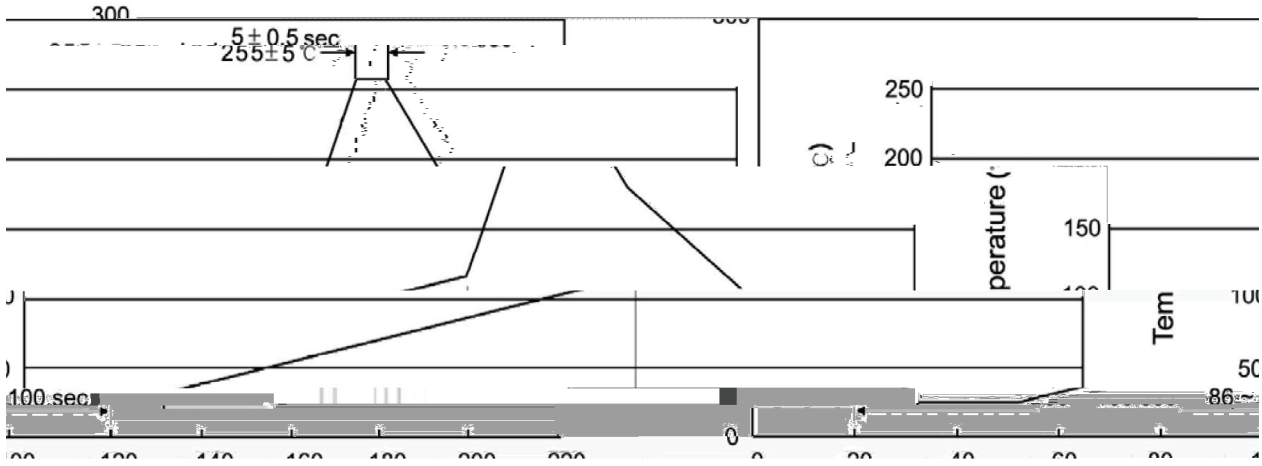
Note:

BR: Company Code.

LM317: Product Type.

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

( ) / Temperature Profile for Dip Soldering(Pb-Free)



Note:

- |   |     |     |    |          |   |
|---|-----|-----|----|----------|---|
| 1 | 25  | 150 | 60 | 90sec;   | 1.Preheating:25~150 , Time:60~90sec.    |
| 2 | 255 | 5   | 5  | 0.5sec;  | 2.Peak Temp.:255 5 , Duration:5 0.5sec. |
| 3 |     |     | 2  | 10 /sec. | 3. Cooling Speed: 2~10 /sec.            |

/ Resistance to Soldering Heat Test Conditions

270 ± 5                      10 ± 1 sec.                      Temp:270±5                      Time:10±1 sec

/ Packaging SPEC.

/ BULK

Package Type	Units				Dimension (unit mm3)		

/ TUBE

Package Type	Units	Dimension (unit mm3)	5308 221.66540017