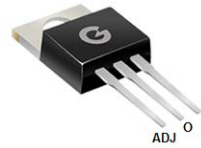


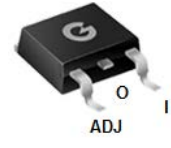
### Features

- Output voltage adjustable from 1.3V ~ 37V
- Output current in excess of 1A
- Internal short circuit protection
- Internal over temperature protection
- Output transistor safe area compensation

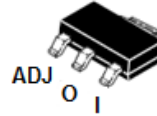
HF



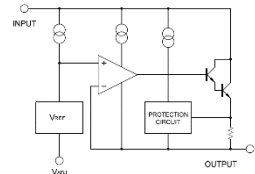
LM317  
TO-220AB



LM317D  
TO-252



LM317R  
SOT-223



### Mechanical Data

- Case: TO-220AB, TO-252, SOT-223
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

### Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
LM317	TO-220AB	50 pcs / Tube	LM317
LM317D	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	LM317
LM317R	SOT-223	4000 pcs / Tape & Reel	LM317

### Maximum Ratings (@ T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Input - Output Voltage Difference	V <sub>IN</sub> - V <sub>OUT</sub>	40	V

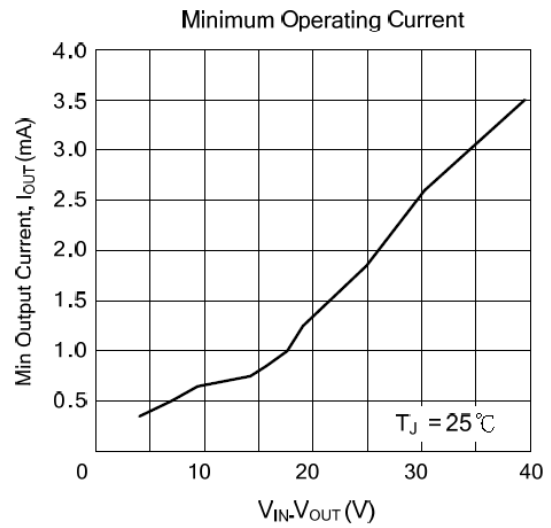
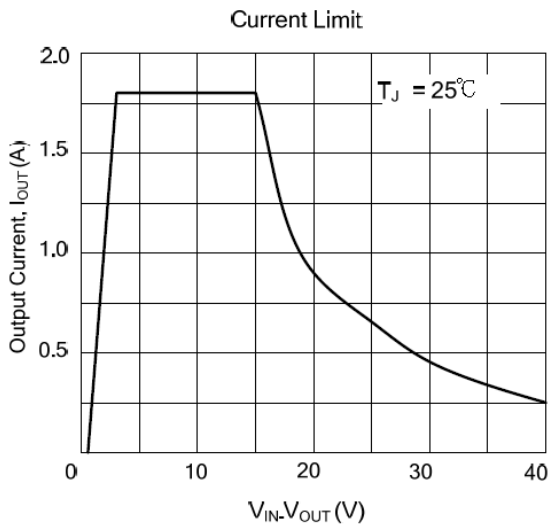
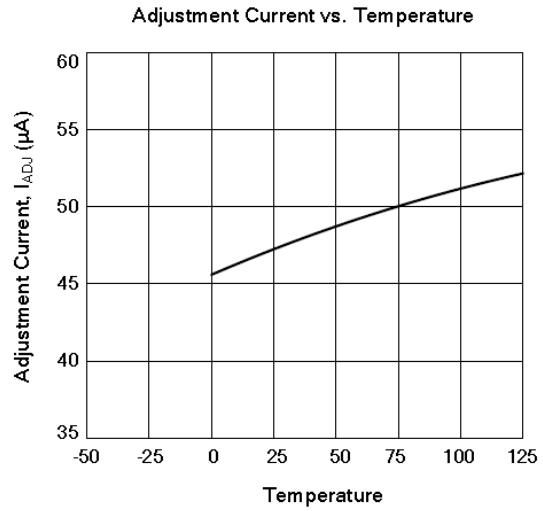
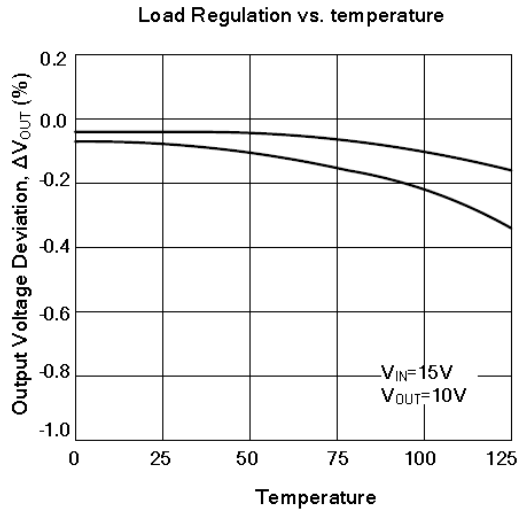
### Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-to-Air	R <sub>θJA</sub>	54	°C/W
		112	°C/W
		165	°C/W
Thermal Resistance Junction-to-Case	R <sub>θJC</sub>	5	°C/W
		12	°C/W
		23	°C/W
Junction Temperature	T <sub>J</sub>	125	°C
Operating Temperature Range	T <sub>OPR</sub>	-40 ~ +85	°C
Storage Temperature Range	T <sub>STG</sub>	-40 ~ +150	°C

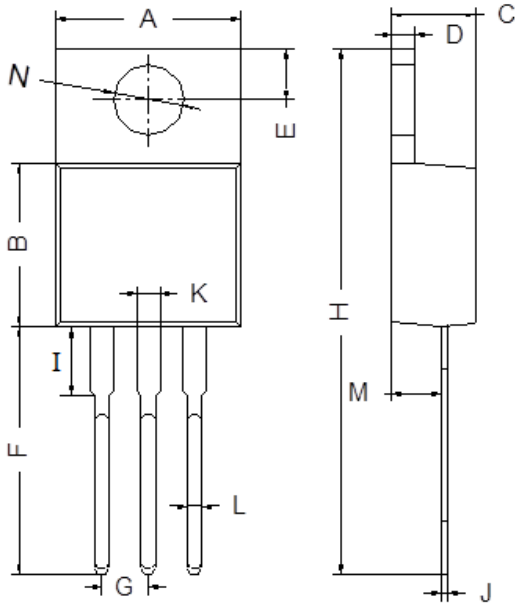
### Electrical Characteristics (V<sub>IN</sub>-V<sub>OUT</sub> = 5V, I<sub>OUT</sub> = 10mA @ T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Line Regulation	$\Delta V_{OUT}/V_{OUT}$	$3V \leq V_{IN}-V_{OUT} \leq 40V$	-	-	0.04	%/V
Load Regulation	$\Delta V_{OUT}$	$10mA \leq I_{OUT} \leq 1A, V_{OUT} \leq 5V$	-	-	25	mV
		$10mA \leq I_{OUT} \leq 1A, V_{OUT} \geq 5V$	-	-	0.5	%
Adjustable Pin Current	I <sub>ADJ</sub>		-	-	100	μA
Adjustable Pin Current Change	$\Delta I_{ADJ}$	$3V \leq V_{IN}-V_{OUT} \leq 40V$ $10mA \leq I_{OUT} \leq 1A, P_D \leq 20W$	-	-	5	μA
Reference Voltage	V <sub>REF</sub>	$3V \leq V_{IN}-V_{OUT} \leq 40V$ $10mA \leq I_{OUT} \leq 1A, P_D \leq 20W$	1.20	1.25	1.30	V
Temperature Stability		T <sub>MIN</sub> ≤ T <sub>J</sub> ≤ T <sub>MAX</sub>	-	0.7	-	%/V <sub>OUT</sub>
Minimum Load Current for Regulation	I <sub>L(MIN)</sub>	V <sub>IN</sub> -V <sub>OUT</sub> = 40V	-	-	10	mA
Maximum Output Current	I <sub>O(MAX)</sub>	V <sub>IN</sub> -V <sub>OUT</sub> = 40V, P <sub>D</sub> ≤ 20W	0.2	-	-	A

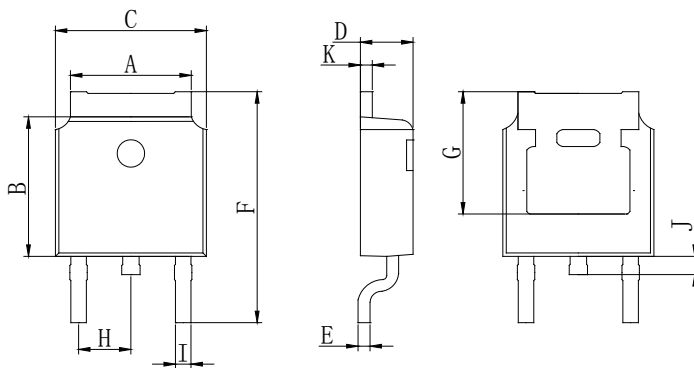
Ratings and Characteristics Curves (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)



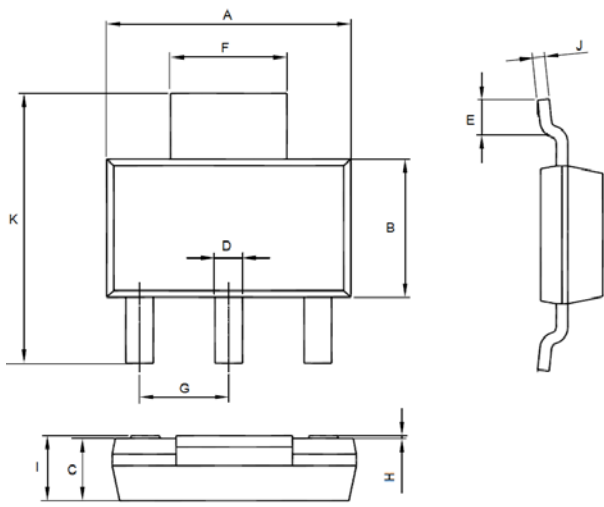
### Package Outline Dimensions (Unit: mm)



TO-220AB		
Dimension	Min.	Max.
A	9.80	10.30
B	8.70	9.10
C	4.37	4.77
D	1.07	1.47
E	2.64	2.84
F	13.14	13.74
G	2.44	2.64
H	28.03	28.83
I	3.50	4.00
J	0.28	0.48
K	1.22	1.32
L	0.71	0.91
M	2.40	2.60
N	3.76	3.96



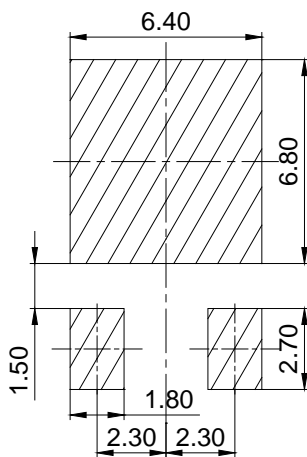
TO-252		
Dimension	Min.	Max.
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	9.71	10.31
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	0.50	0.70
K	0.40	0.60



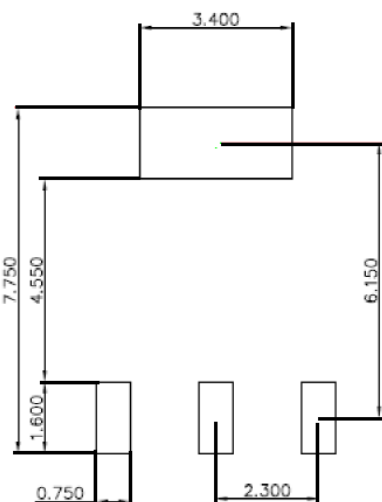
SOT-223		
Dimension	Min.	Max.
A	6.10	6.50
B	3.30	3.70
C	1.50	1.70
D	0.66	0.82
E	0.90	1.15
F	2.90	3.10
G	2.20	2.40
H	0.02	0.10
I	1.52	1.80
J	0.20	0.40
K	6.70	7.30

### Mounting Pad Layout (Unit: mm)

#### TO-252



#### SOT-223



### IMPORTANT NOTICE

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