



# TS1537A/B

## Dual 1A Low Dropout Positive Voltage Regulator

TO-263-5L



Pin assignment:

1. Input 2
2. Input 1
3. Ground
4. Output 1 (3.3V)
5. Output 2 (2.5V/1.8V)

**Dual Output 3.3 with 2.5V or 1.8V  
Low Dropout Voltage 1.3V max.**

### General Description

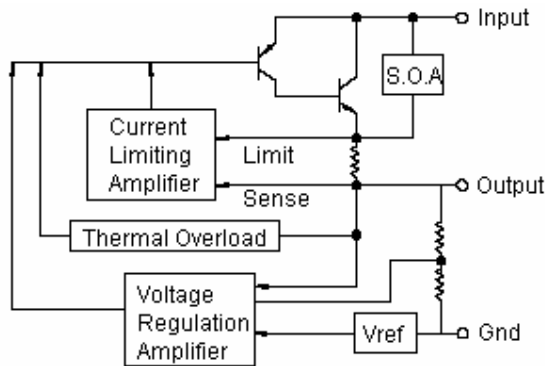
The TS1537A & TS1537B are low dropout positive voltage regulators with minimum of 1A output current capability. The product is specifically designed to provide well-regulated supply for low voltage IC applications such as high-speed bus termination and low current 3.3V/2.5V (TS1537A) or 3.3V/1.8V(TS1537B) logic supply. This series are guaranteed to have less 1.4V dropout at full load current making it ideal to provide well regulated outputs dual channels with up to 12V input supply.

This series is offered in 5-pin TO-263-5L package.

### Features

- ◇ Low dropout performance 1.3V max.
- ◇ Full current rating over line and temperature.
- ◇ Fast transient response
- ◇ ±2% Total output regulation over line, load and temperature
- ◇ Build-in thermal shutdown each channel
- ◇ Output current limiting for each channel
- ◇ Good noise rejection
- ◇ Dual output channel 1=3.3V,  
Channel 2=2.5V (TS1537A) or 1.8V (TS1537B)

### Block Diagram (each channel)



### Ordering Information

Part No.	Operating Temp. (Ambient)	Package
TS1537ACM5	-0 ~ +85 °C	TO-263-5L
TS1537BCM5		

Note: TS1537A is ch1=3.3V, ch2=2.5V,  
TS1537B is ch1=3.3V, ch2=1.8V.

### Absolute Maximum Rating

Input Supply Voltage	V <sub>in</sub>	12	V
Operation Input Supply Voltage	V <sub>in (operate)</sub>	10	V
Power Dissipation	P <sub>D</sub>	Internally Limited	W
Operating Junction Temperature Range	T <sub>J</sub>	0 ~ +150	°C
Storage Temperature Range	T <sub>STG</sub>	-65 ~ +150	°C
Lead Soldering Temperature (260 °C)		10	S



<b>Electrical Characteristics</b>						
Ta = 25 °C, unless otherwise specified.						
<b>Parameter</b>		<b>Conditions</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Unit</b>
Output Voltage	TS1537A/B-Vout 1	$4.8V \leq V_{in} \leq 7V, I_o=10mA$	3.267	3.3	3.366	V
	TS1537A-Vout 2	$4V \leq V_{in} \leq 7V, I_o=10mA$	2.475	2.5	2.550	V
	TS1537B-Vout 2	$4V \leq V_{in} \leq 7V, I_o=10mA$	1.782	1.8	1.836	V
Input Supply Voltage			--	--	10	V
Line Regulation		$V_{out}+1.5V \leq V_{in} \leq 7V, I_o=10mA$	--	0.015	0.2	%
Load Regulation (note 1,2)	Vout 1	$V_{in}=5V, 10mA \leq I_o \leq 1A$	--	0.5	1.0	%
	Vout 2	$V_{in}=4V, 10mA \leq I_o \leq 1A$				
Dropout Voltage		$I_o=1A, \Delta V_{out}=0.1\%V_{out}$	--	1.3	1.4	V
Minimum Load Current		$0^\circ C \leq T_j \leq 125^\circ C, (note\ 3)$	--	8	10	mA
Thermal Regulation		Ta=25 °C, 30mS pulse	--	0.008	0.04	uA
Current Limit		$V_{in} - V_{out}=3V$	1.1	--	--	A
Temperature Stability		$I_o=10mA$	--	0.5	--	%
Ripple Rejection		$F = 120Hz, I_o=1A\ C_{out}=25\mu F,$ $V_{in}=V_{out} + 3V$	--	60	70	dB

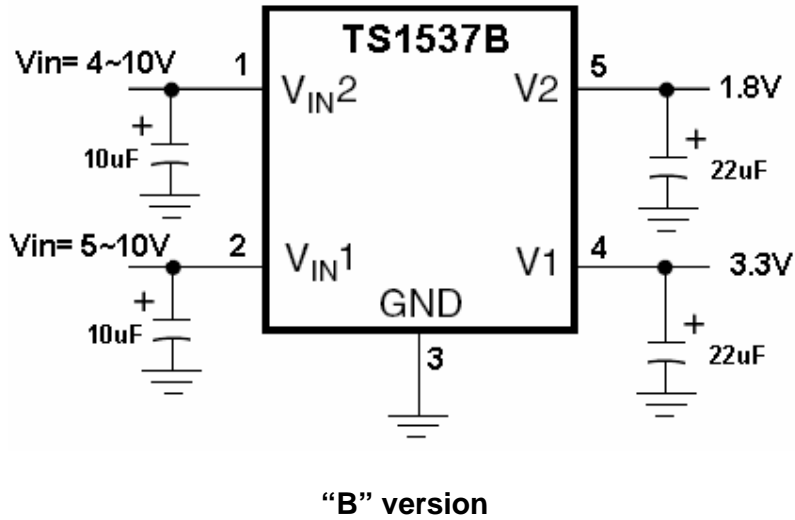
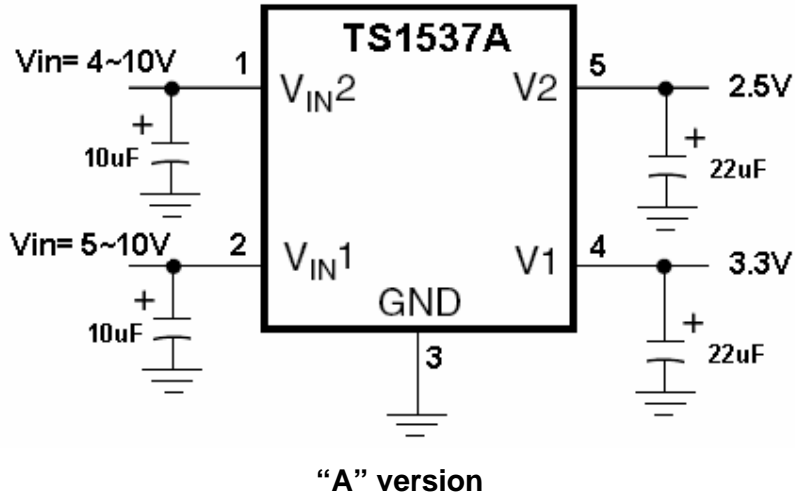
<b>Thermal Performance</b>			
<b>Condition</b>	<b>Package type</b>	<b>Typ</b>	<b>Unit</b>
Thermal Resistance Junction to Ambient	TO-263-5L	85	°C/W

Note 1: See thermal regulation specification for changes in output voltage due to heating effects. Line and load regulation are measured at a constant junction temperature by low duty cycle pulse testing. Load regulation is measured at the output lead = 1/18" from the package.

Note 2: Line and load regulation are guaranteed up to the maximum power dissipation of 15W. Power dissipation is determined by the input / output voltage difference and the output current. Guaranteed maximum power dissipation will not be available over the full input / output voltage range.

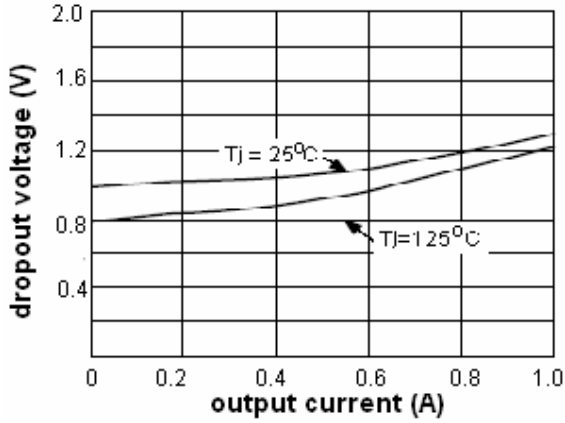
Note 3: Quiescent current is defined as the minimum output current required to maintain the regulation.

### Typical Application Circuit

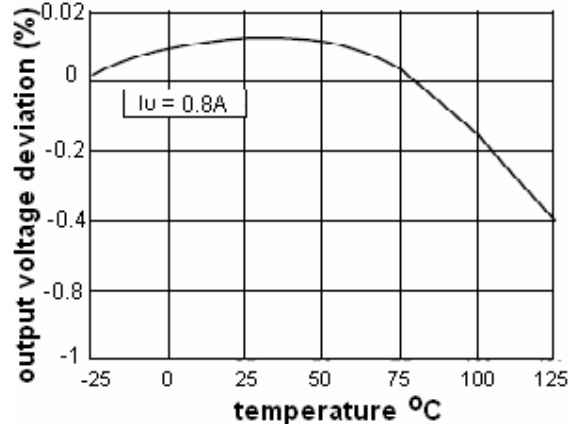


**Electrical Characteristics Curve (each channel)**

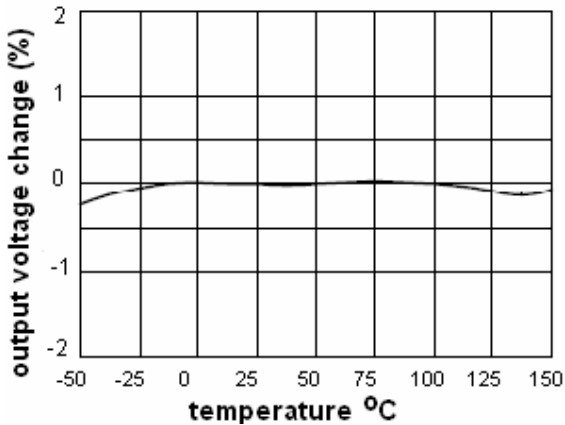
**Figure 1: dropout voltage v.s. output current**



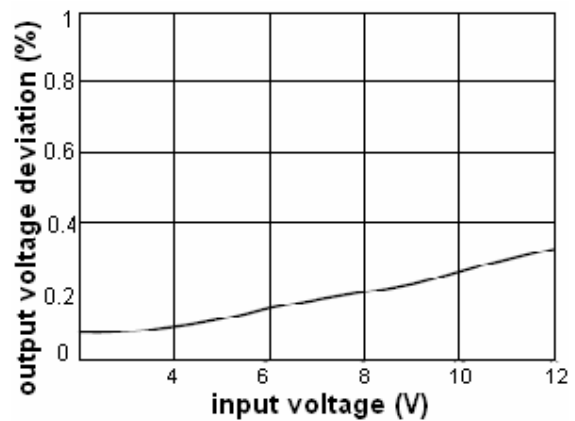
**Figure 2: load regulation v.s. temp.**



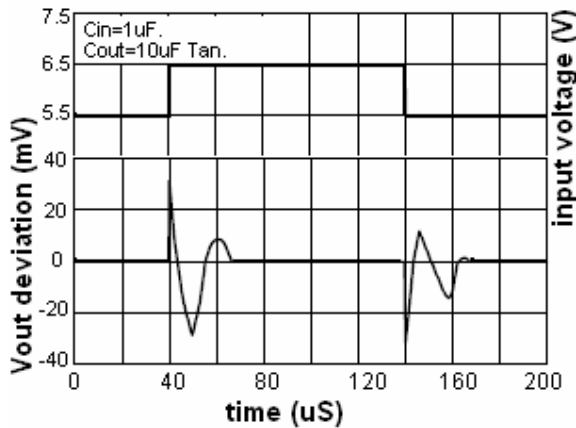
**Figure 3: output change v.s. temp.**



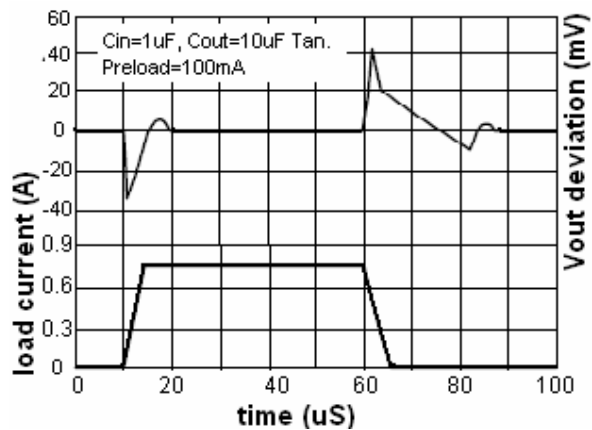
**Figure 4: line regulation**



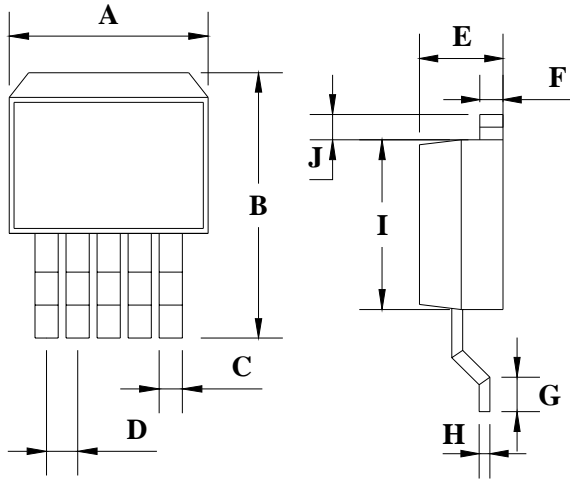
**Figure 5: line transient response**



**Figure 6: load transient response**



## TO-263-5L Mechanical Drawing



TO-263-5L DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.220	10.260	0.402	0.404
B	14.600	15.870	0.575	0.625
C	0.750	0.770	0.030	0.030
D	1.573	1.827	0.062	0.072
E	4.560	4.570	0.179	0.180
F	1.240	1.270	0.049	0.050
G	2.280	2.790	0.090	0.110
H	0.280	0.320	0.011	0.013
I	8.240	8.280	0.324	0.326
J	1.540	1.800	0.060	0.071