

ABSOLUTE MAXIMUM RATINGS			
PARAMETER	SYMBOL	LIMIT	UNIT
Input Supply Voltage	V_{IN}	15	V
Recommend Operation Input Supply Voltage	$V_{IN (Opf. Typ.)}$	12	V
Power Dissipation (Note 2)	P_D	Internal limited	
Operating Temperature Range	T_{OPER}	-40 ~ +125	°C
Junction Temperature Range	T_J	+150	°C
Storage Temperature Range	T_{STG}	-65 ~ +150	°C
Lead Soldering Temperature (260°C)	TO-252	5	s
	SOT-223		

THERMAL PERFORMANCE				
PARAMETER	SYMBOL	LIMIT		UNIT
		SOT-223	TO-252	
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	130	105	°C/W

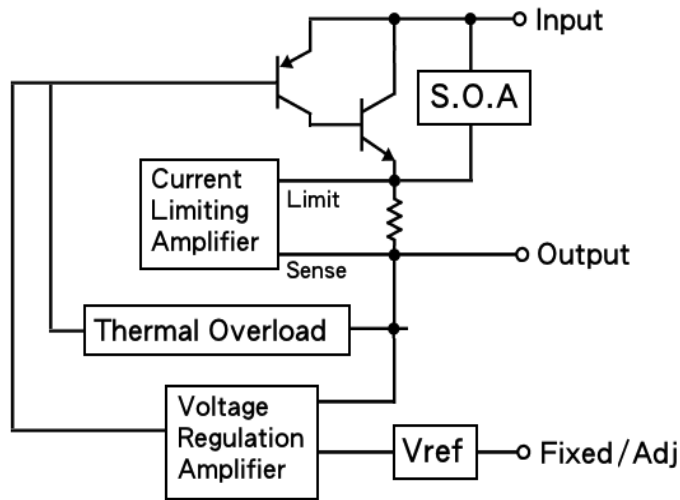
Notes: $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistances. The case thermal reference is defined at the solder mounting surface of the drain pins. $R_{\theta JA}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design. $R_{\theta JA}$ shown below for single device operation on FR-4 PCB in still air.

ELECTRICAL SPECIFICATIONS ($T_A=25^\circ\text{C}$, unless otherwise noted)						
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Reference Voltage	$V_{IN} = 2.75, I_O=1\text{A}$	V_{REF}	1.225	1.25	1.275	V
Output Voltage (Note 4)	$V_{IN} = 2.7\text{V}\sim 12\text{V}, I_O=1\text{A}$	V_{OUT}	1.176	1.2	1.224	V
	$V_{IN} = 3\text{V}\sim 12\text{V}, I_O=1\text{A}$		1.470	1.5	1.530	
	$V_{IN} = 4\text{V}\sim 12\text{V}, I_O=1\text{A}$		2.450	2.5	2.550	
	$V_{IN} = 4.8\text{V}\sim 12\text{V}, I_O=1\text{A}$		3.235	3.3	3.366	
	$V_{IN} = 6.5\text{V}\sim 12\text{V}, I_O=1\text{A}$		4.900	5.0	5.100	
Line Regulation	$V_O + 1.5\text{V} \leq V_{IN} \leq 12\text{V}, I_O = 10\text{mA}$	REG_{LINE}	--	0.2	0.5	%
Load Regulation (Note 1,2)	$V_{IN} = V_{OUT} + 1.5\text{V}, I_O = 10\text{mA}\sim 1\text{A}$	REG_{LOAD}	--	0.05	1.0	%
Dropout Voltage	$I_O = 1\text{A}, \Delta V_{OUT} = 1\% V_{OUT}$	V_{DROP}	--	1.3	1.5	V
Quiescent Current	$V_{IN} = 5\text{V}$	I_Q	--	5	10	mA
Adjustable Pin Current		I_{ADJ}	--	90	--	μA
Output Current Limit	$V_{IN} - V_{OUT} = 1.5\text{V}$	I_{LIMIT}	1.1	--	--	A
Temperature Stability	$I_O = 10\text{mA}$,		--	0.5	--	%
Ripple Rejection	$f = 120\text{Hz}, I_O = 1\text{A}, C_{OUT} = 25\mu\text{F},$ $V_{IN} = V_{OUT} + 3\text{V}$	RR	--	60	70	dB

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.
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.
3. Quiescent current is defined as the minimum output current required to maintain the regulation.
4. The Output Capacitor does not have a theoretical upper limit and increasing its value will increase stability. $C_{OUT}=100\mu\text{F}$ or more is typical for high current regulator design.

FUNCTION BLOCK



ORDERING INFORMATION

OUTPUT VOLTAGE	PART NO.	PACKAGE	PACKING
ADJ	TS1117BCP ROG	TO-252 (DPAK)	2,500pcs / 13" Reel
	TS1117BCW RPG	SOT-223	2,500pcs / 13" Reel
1.2V	TS1117BCW12 RPG	SOT-223	2,500pcs / 13" Reel
2.5V	TS1117BCW25 RPG	SOT-223	2,500pcs / 13" Reel
3.3V	TS1117BCP33 ROG	TO-252 (DPAK)	2,500pcs / 13" Reel
	TS1117BCW33 RPG	SOT-223	2,500pcs / 13" Reel
5V	TS1117BCP50 ROG	TO-252 (DPAK)	2,500pcs / 13" Reel
	TS1117BCW50 RPG	SOT-223	2,500pcs / 13" Reel

CHARACTERISTICS CURVES

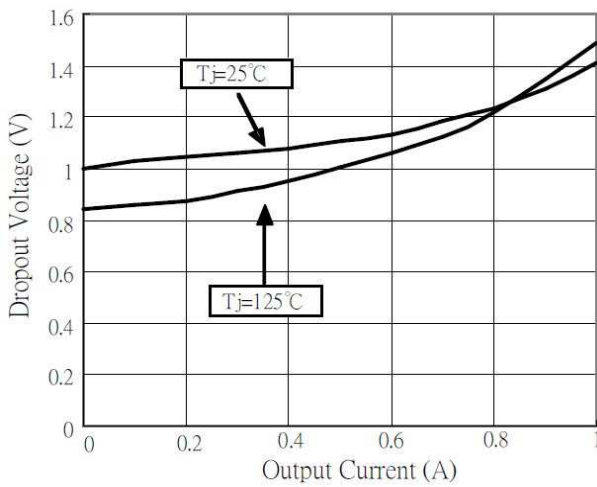


Figure 1. V_{DROP} vs. Output Current

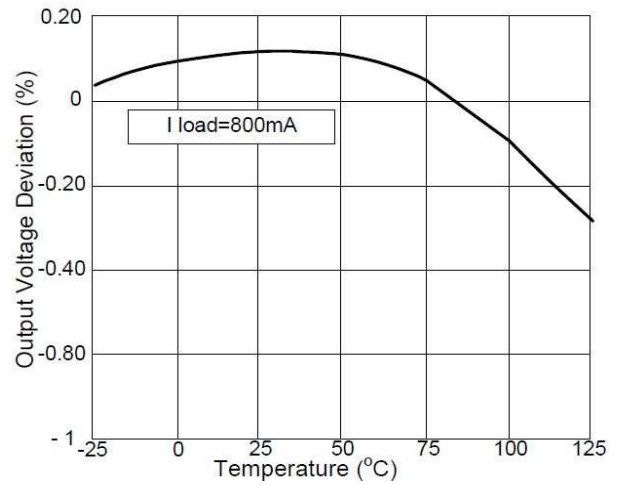


Figure 2. Load Regulation vs. Temperature

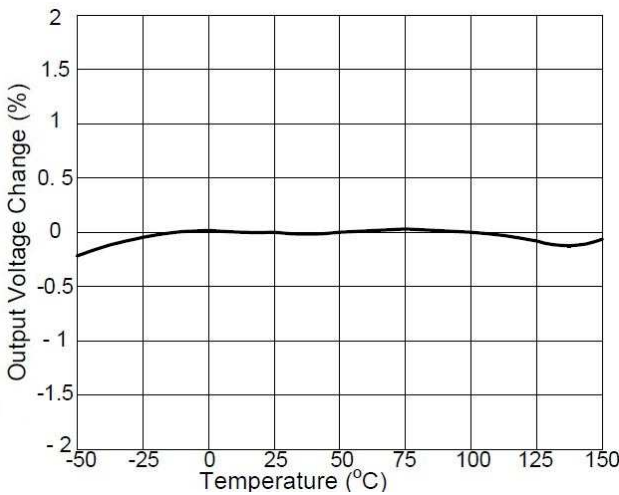


Figure 3. V_{OUT} Change vs. Temperature

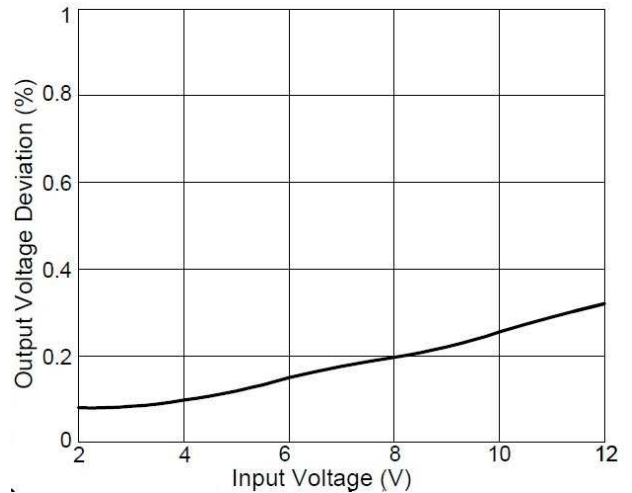


Figure 4. V_{OUT} Deviation vs. Temperature

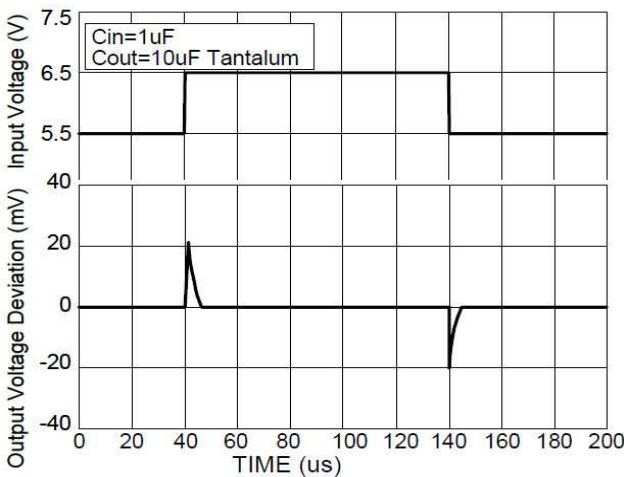


Figure 5. Line Transient Response

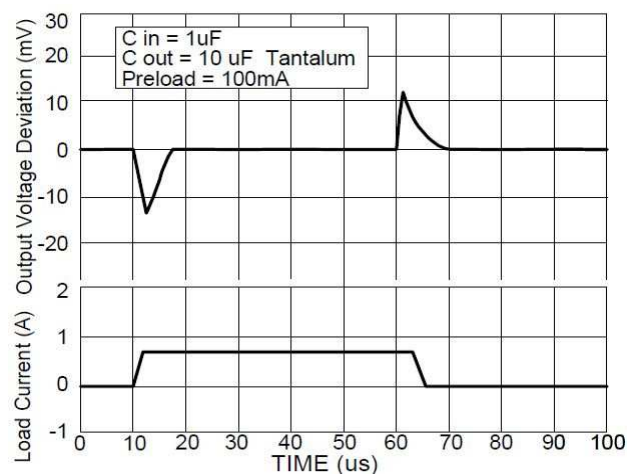
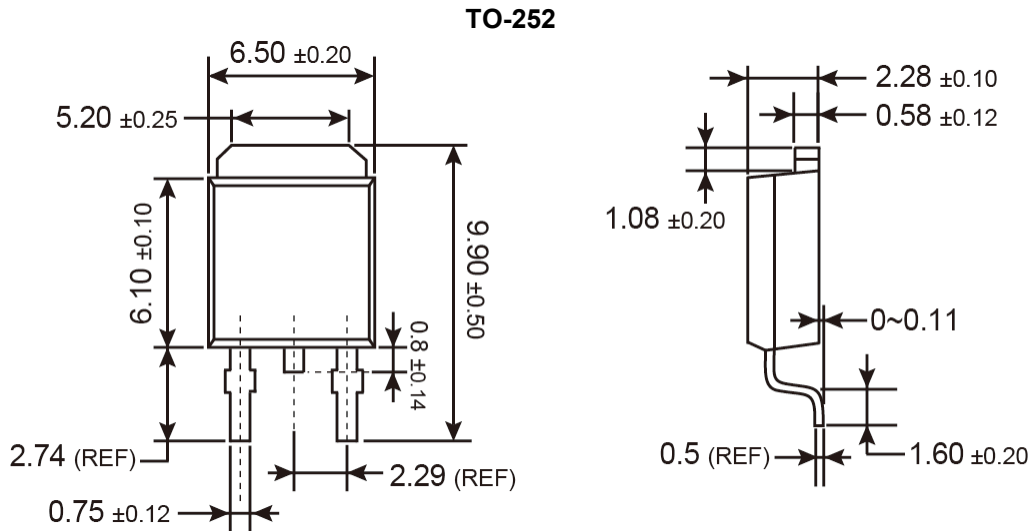
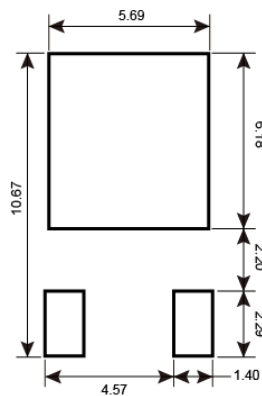


Figure 6. Load Transient Response

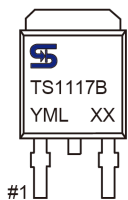
PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)



SUGGESTED PAD LAYOUT



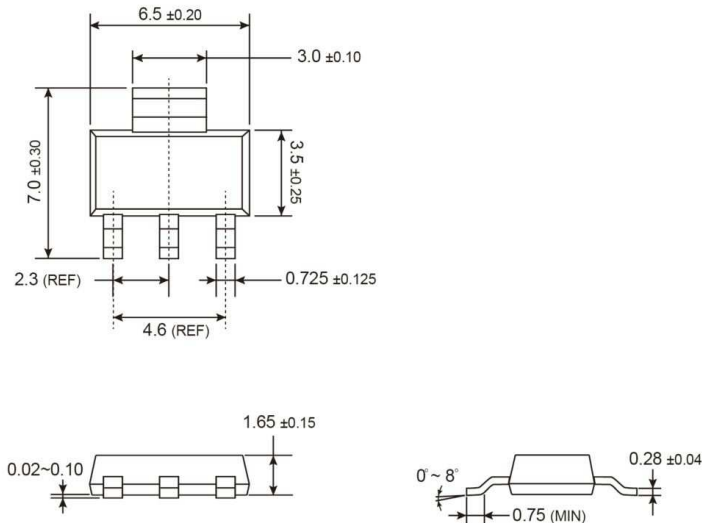
MARKING DIAGRAM



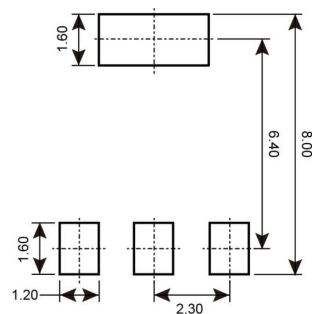
- Y** = Year Code
- M** = Month Code for Halogen Free Product
 - O** =Jan **P** =Feb **Q** =Mar **R** =Apr
 - S** =May **T** =Jun **U** =Jul **V** =Aug
 - W** =Sep **X** =Oct **Y** =Nov **Z** =Dec
- L** = Lot Code
- XX** = Output Voltage Code (**3.3**=3.3V, **5.0**=5V)
= CP for Adjustable output voltage version

PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

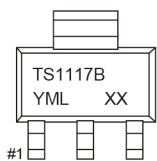
SOT-223



SUGGESTED PAD LAYOUT (Unit: Millimeters)



MARKING DIAGRAM



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 - W** =Sep **X** =Oct **Y** =Nov **Z** =Dec
- L** = Lot Code
- XX** = Output Voltage Code (**1.2**=1.2V, **2.5**=2.5V, **3.3**=3.3V, **5.0**=5V)
= CW for Adjustable output voltage version

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[TS1117BCW50](#) [TS1117BCW RPG](#) [TS1117BCW33 RPG](#) [TS1117BCP ROG](#) [TS1117BCP33 ROG](#) [TS1117BCW25](#)
[RPG](#) [TS1117BCW50 RPG](#) [TS1117BCP50 ROG](#) [TS1117BCW12 RPG](#)