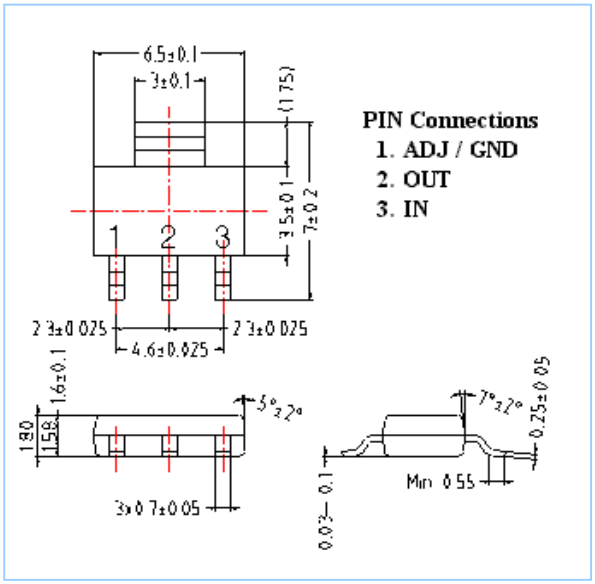
Features

- Low dropout voltage
- Load regulation: 0.05% typical
- Trimmed current limit
- On-chip thermal limiting
- Three-terminal adjustable or fixed 2.5V, 2.85V, 3.3V, 5V
- Surface mount package SOT-223

Outline Dimension



Applications

- Active SCSI terminators
- High efficiency linear regulators
- Portable Top/Notebook computers
- Post regulators for switching supplies
- Battery chargers
- 5V to 3.3V linear regulators
- Motherboard clock supplies

Description

The AV1117 and AV1117-2.5, -2.85, -3.3 and -5 are low dropout three-terminal regulators with 1A output current capability. These devices have been optimized for low voltage where transient response and minimum input voltage are critical. The 2.85V version is designed specifically to be used in Active Terminators for SCSI bus.

Current limit is trimmed to ensure specified output current and controlled short-circuit current. On-chip thermal limiting provides protection against any combination of overload and ambient temperatures that would create excessive junction temperatures.

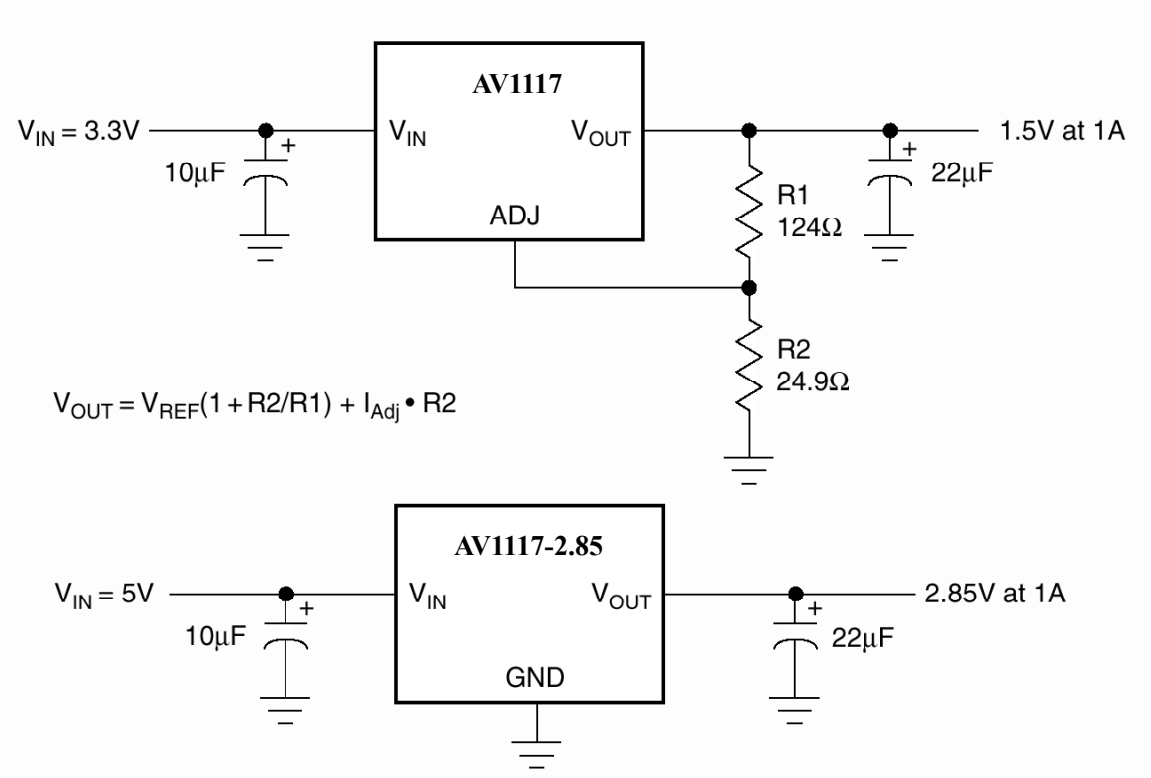
Unlike PNP type regulators where up to 10% of the output current is wasted as quiescent current, the quiescent current of the AV1117 flows into the load, increasing efficiency. The AV1117 series regulators are offered in three-pin surface mount package SOT-223.

Ordering Information

Device	Marking	Package
AV1117	AV1117	SOT-223
AV1117-xx	AV1117-xx	SOT-223

* XX(Output Voltage)= 2.5V, 2.85V, 3.0V, 5.0V

Typical Applications



Absolute Maximum Rating

(Ta=25℃)

Characteristic	Symbol	Ratings	Unit
DC Input Voltage	V_{IN}	7.5	V
Lead Temperature (Soldering, 10sec)	T_{sol}	260	℃
Storage Temperature Range	T_{stg}	-65℃ +150	℃
Operating Junction Temperature Range	T_{opr}	0 ~ 125	℃

Electrical Characteristics

Operating Conditions: VIN ≤ 7V , TJ=25℃ unless otherwise specified

The • denotes specifications which apply over the specified operating temperature range.

Parameter	Symbol	Conditions		Ratings			Units
				Min	Typ	Max	
Reference voltage [3]	V_{REF}	1.5V (VIN-VOUT) 5.75V 10mA IOUT 1A		1.225 (-2%)	1.25	1.275 (2%)	V
Output Voltage	V_O	10mA IOUT 1A AV1117-2.5, 4V VIN 7V AV1117-2.85, 4.35V VIN 7V AV1117-3.3, 4.8V VIN 7V AV1117-5, 6.5V VIN 7V		 2.450 2.793 3.234 4.900	 2.5 2.85 3.3 5.0	 2.550 2.907 3.366 5.100	V
Line Regulation [1,2]	ΔV_O	(VOUT+1.5V) VIN 7V IOUT=10mA			0.005	0.2	%
Load Regulation [1,2]	ΔV_O	(VIN - VOUT)=2V 10mA IOUT 1A		-	0.05	0.5	%
Dropout Voltage	V_D	ΔVREF=1%, IOUT=1A		-	1.1	1.2	V
Current Limit		(VIN - VOUT)=2V		1.1	1.5		A
Adjust Pin Current [3]	I_{Adj}				35	120	µA
Adjust Pin Current Change [3]	ΔI_{Adj}	1.5V (VIN-VOUT) 5.75V 10mA IOUT 1A			0.2	5	µA
Minimum Load Current	$I_{O(MIN)}$	1.5V (VIN-VOUT) 5.75V		10			mA
Quiescent Current	I_D	VIN = VOUT + 1.25V			4	13	mA
Supply Voltage Rejection	SVR	f=120Hz, COUT=22µF Tantalum (VIN-VOUT)=3V, IOUT=1A		60	72		dB
Thermal Regulation		TA=25 , 30ms pulse			0.004	0.02	%/W
Temperature Stability	ΔV_O				0.5		%
Long-Term Stability	ΔV_O	TA=125 , 1000hrs			0.03	1.0	%
RMS Output Noise (% of VOUT)	EN	TA=25 , 10Hz f 10kHz			0.003		%
Thermal Resistance, Junction to Case					15		/W

Note :

1. See thermal regulation specifications for changes in output voltage due to heating effects. Load and line
2. Line and load regulation are guaranteed up to the maximum power dissipation. (18W).

   Power dissipation is determined by input/output differential and the output current.

   Guaranteed maximum output power will not be available over the full input/output voltage range.

3. AV1117 only.

Electrical Characteristics Curves

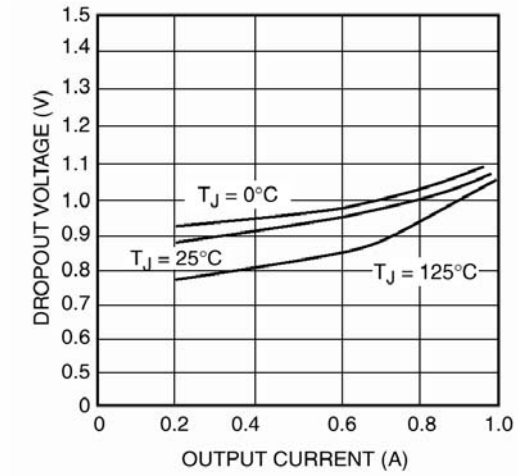


Figure 1. Dropout Voltage vs. Output Current

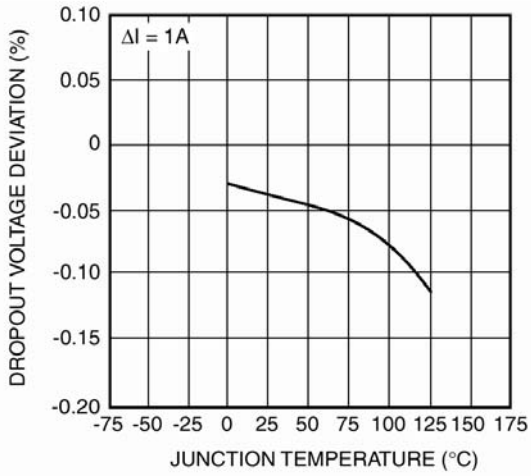


Figure 2. Load Regulation vs. Temperature

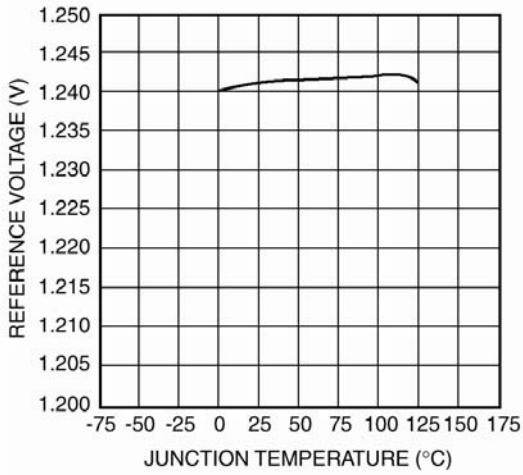


Figure 3. Reference Voltage vs. Temperature

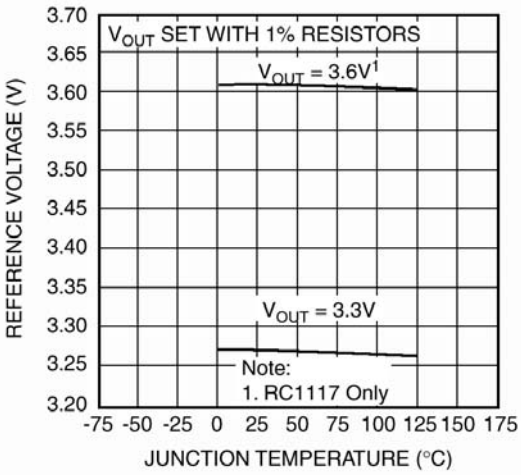


Figure 4. Output Voltage vs. Temperature

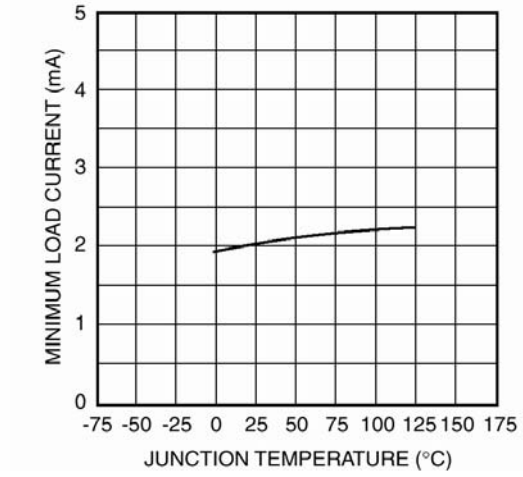


Figure 5. Minimum Load Current vs. Temperature

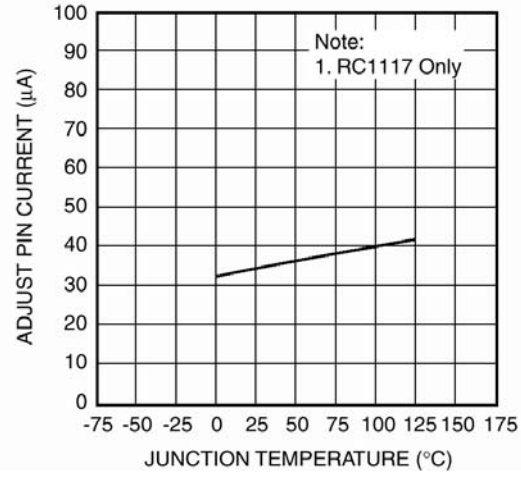


Figure 6. Adjust Pin Current vs. Temperature

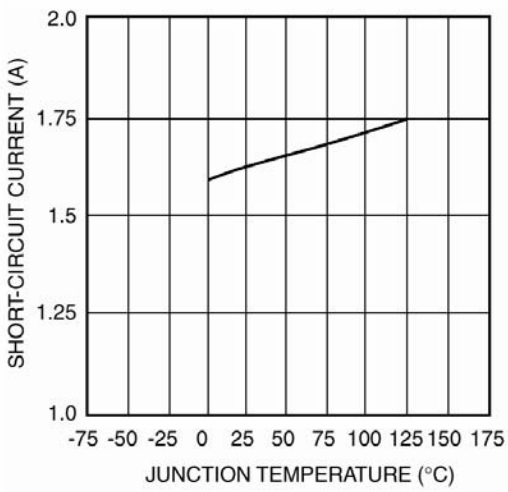


Figure 7. Short-Circuit Current vs. Temperature

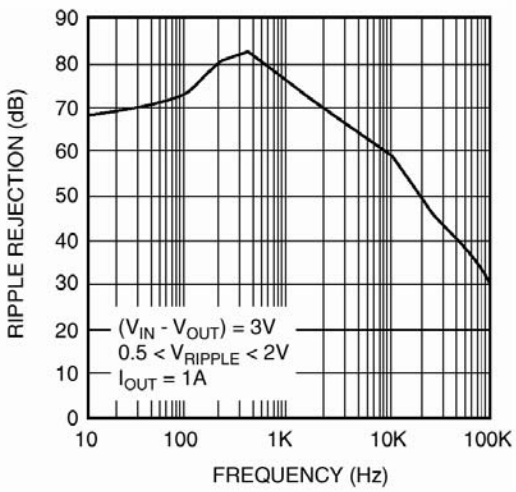


Figure 8. Ripple Rejection vs. Frequency

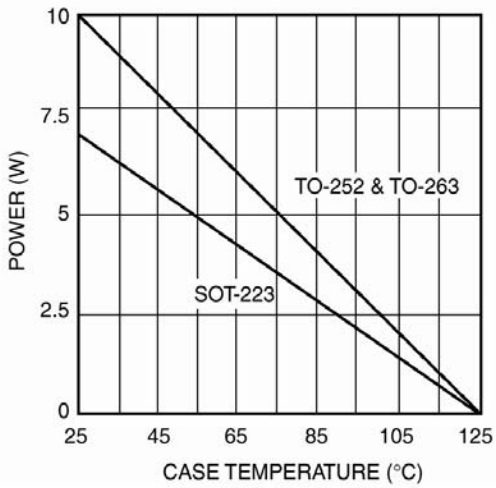


Figure 9. Maximum Power Dissipation