

LOW DROP LINEAR VOLTAGE REGULATORS

FEATURES

- Low Dropout Voltage: 1.15V at 1A Output Current
- Three-Terminal Adjustable or Fixed :
1.2V, 1.5V, 1.8V, 2.5V, 2.85V, 3.0V, 3.3V, 3.6V, 5V, ADJ
- Trimmed Current Limit
- On-Chip Thermal Shutdown
- Operation Junction Temperature: -25 °C to 125 °C
- Surface Mount device

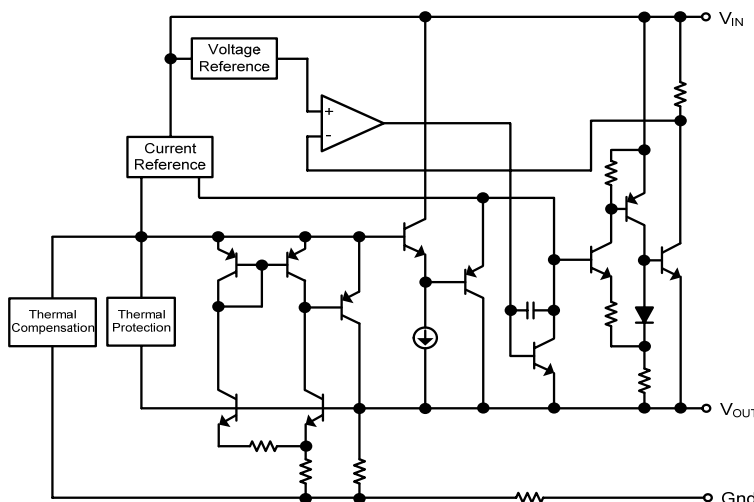
APPLICATIONS

- PC Motherboard
- LCD Monitor
- Graphic Card
- DVD-Video Player
- NIC/Switch
- Telecom Modem
- ADSL Modem
- Printer and other peripheral Equipment

MECHANICAL DATA

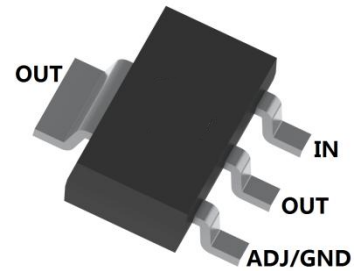
- Case: SOT-223
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.04 grams (approximate)

SCHEMATIC DIAGRAM

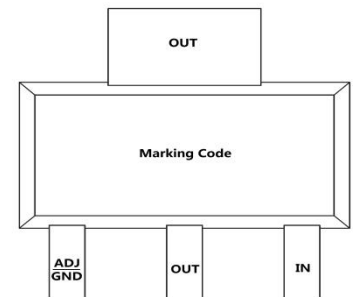


MARKING INFORMATION

Marking	1117-12	1117-15	1117-18	1117-25	1117-2J	1117-30	1117-33	1117-36	1117-50	1117-AD
V _O Voltage	1.2V	1.5V	1.8V	2.5V	2.85V	3.0V	3.3V	3.6V	5.0V	ADJ.



SOT-223



LOW DROP LINEAR VOLTAGE REGULATORS

ABOSLUTE MAXIMUM RATINGS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Input Voltage	V_i	20	V
Maximum Junction Temperature	T_J	150	$^{\circ}\text{C}$
Power Dissipation	P_D	Internally limited	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^{\circ}\text{C}/\text{W}$
Lead Temperature (Soldering, 10sec.)	T_L	260	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$
ESD Voltage (Machine Model)	V_{ESD}	400	V

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	15	V
Operating Junction Temperature Range	T_J	0~+125	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS OF 1117/A-1.2

($T_a=25^{\circ}\text{C}$, refer to the test circuits, $T_J=0$ to 125°C , $C_o=10\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions	
Output voltage	V _{OUT}	1.188	1.200	1.212	V	V _{IN} =3.2V, I _{OUT} =10mA, T _J =+25°C	
		1.176	1.200	1.224	V	V _{IN} =2.7~8V	1117: I _{OUT} =0~800mA
							1117A: I _{OUT} =0~1A
Line regulation	ΔV _{OUT}		1	6	mV	V _{IN} =2.7~8V, I _{OUT} =0mA	
Load Regulation	ΔV _{OUT}		1	10	mV	V _{IN} =2.7V	1117: I _{OUT} =0~800mA
							1117A: I _{OUT} =0~1A
Temperature stability	ΔV _{OUT}		0.5		%		
Long Term Stability	ΔV _{OUT}		0.3		%	1000hrs, T _J =+125°C	
Operating Input	V _{IN}			15	V	I _{OUT} =100mA	
Quiescent Current	I _q		5	10	mA	V _{IN} ≤10V	
Current Limit	I _{LIMIT}	0.8			A	1117	V _{IN} =6.2V, T _J =+25°C
		1			A	1117A	
Minimum Load Current	I _{O(MIN)}		2	5	mA	V _{IN} =15V	
Output Noise Voltage	eN		100		μV	B=10Hz~10kHz, T _J =+25°C	
Supply Voltage Rejection	SVR	60	75		dB	I _{OUT} =40mA, f=120Hz, T _J =+25°C V _{IN} =4.2V, V _{RIPPLE} =1V _{pp}	
Dropout Voltage	V _D		1.00	1.10	V	I _{OUT} =100mA	
			1.15	1.25	V	I _{OUT} =500mA	
			1.20	1.30	V	I _{OUT} =800mA	
			1.20	1.30	V	I _{OUT} =1000mA	
Thermal Regulation			0.01	0.10	%/w	T _A =+25°C, 30ms Pulse	

LOW DROP LINEAR VOLTAGE REGULATORS

ELECTRICAL CHARACTERISTICS OF 1117/A-1.5

($T_a=25^{\circ}\text{C}$, refer to the test circuits, $T_J=0$ to 125°C , $C_o=10\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_{OUT}	1.485	1.500	1.515	V	$V_{IN}=3.5\text{V}, I_{OUT}=10\text{mA}, T_J=+25^{\circ}\text{C}$
		1.470	1.500	1.530	V	$V_{IN}=3\sim 8\text{V}$ 1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Line regulation	ΔV_{OUT}		1	6	mV	$V_{IN}=3\sim 8\text{V}, I_{OUT}=0\text{mA}$
Load Regulation	ΔV_{OUT}		1	10	mV	$V_{IN}=3\text{V}$ 1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Temperature stability	ΔV_{OUT}		0.5		%	
Long Term Stability	ΔV_{OUT}		0.3		%	1000hrs, $T_J=+125^{\circ}\text{C}$
Operating Input Voltage	V_{IN}			15	V	$I_{OUT}=100\text{mA}$
Quiescent Current	I_q		5	10	mA	$V_{IN}\leq 10\text{V}$
Current Limit	I_{LIMIT}	0.8			A	1117
		1			A	1117A
Output Noise Voltage	eN		100		μV	$B=10\text{Hz}\sim 10\text{kHz}, T_J=+25^{\circ}\text{C}$
Supply Voltage Rejection	SVR	60	75		dB	$I_{OUT}=40\text{mA}, f=120\text{Hz}, T_J=+25^{\circ}\text{C}$ $V_{IN}=4.5\text{V}, V_{RIPPLE}=1V_{pp}$
Dropout Voltage	V_D		1.00	1.10	V	$I_{OUT}=100\text{mA}$
			1.15	1.25	V	$I_{OUT}=500\text{mA}$
			1.20	1.30	V	$I_{OUT}=800\text{mA}$
			1.20	1.30	V	$I_{OUT}=1000\text{mA}$
Thermal Regulation			0.01	0.10	%/w	$T_A=+25^{\circ}\text{C}, 30\text{ms Pulse}$

ELECTRICAL CHARACTERISTICS OF 1117/A-1.8

($T_a=25^{\circ}\text{C}$, refer to the test circuits, $T_J=0$ to 125°C , $C_o=10\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_{OUT}	1.780	1.800	1.820	V	$V_{IN}=3.8\text{V}, I_{OUT}=10\text{mA}, T_J=+25^{\circ}\text{C}$
		1.760	1.800	1.840	V	$V_{IN}=3.3\sim 8\text{V}$ 1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Line regulation	ΔV_{OUT}		1	6	mV	$V_{IN}=3.3\sim 8\text{V}, I_{OUT}=0\text{mA}$
Load Regulation	ΔV_{OUT}		1	10	mV	$V_{IN}=3.3\text{V}$ 1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Temperature stability	ΔV_{OUT}		0.5		%	
Long Term Stability	ΔV_{OUT}		0.3		%	1000hrs, $T_J=+125^{\circ}\text{C}$
Operating Input Voltage	V_{IN}			10	V	$I_{OUT}=100\text{mA}$
Quiescent Current	I_q		5	10	mA	$V_{IN}\leq 8\text{V}$
Current Limit	I_{LIMIT}	0.8			A	1117
		1			A	1117A
Output Noise Voltage	eN		100		μV	$B=10\text{Hz}\sim 10\text{kHz}, T_J=+25^{\circ}\text{C}$
Supply Voltage Rejection	SVR	60	75		dB	$I_{OUT}=40\text{mA}, f=120\text{Hz}, T_J=+25^{\circ}\text{C}$ $V_{IN}=5.5\text{V}, V_{RIPPLE}=1V_{pp}$
Dropout Voltage	V_D		1.00	1.10	V	$I_{OUT}=100\text{mA}$
			1.15	1.25	V	$I_{OUT}=500\text{mA}$
			1.20	1.30	V	$I_{OUT}=800\text{mA}$
			1.20	1.30	V	$I_{OUT}=1000\text{mA}$
Thermal Regulation			0.01	0.10	%/w	$T_A=+25^{\circ}\text{C}, 30\text{ms Pulse}$

LOW DROP LINEAR VOLTAGE REGULATORS

ELECTRICAL CHARACTERISTICS OF 1117/A-2.5

($T_a=25^{\circ}\text{C}$, refer to the test circuits, $T_J=0$ to 125°C , $C_o=10\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	1%	2.475	2.500	2.525	V	$V_{IN}=4.5\text{V}, I_{OUT}=10\text{mA}, T_J=+25^{\circ}\text{C}$
	2%	2.450	2.500	2.550		
	2%	2.450	2.500	2.550	V	$V_{IN}=3.9\sim 10\text{V}$
	4%	2.400	2.500	2.600		1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Line regulation	ΔV_{OUT}		1	6	mV	$V_{IN}=3.9\sim 10\text{V}, I_{OUT}=0\text{mA}$
Load Regulation	ΔV_{OUT}		1	10	mV	$V_{IN}=3.9\text{V}$
Temperature stability	ΔV_{OUT}		0.5		%	1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Long Term Stability	ΔV_{OUT}		0.3		%	1000hrs, $T_J=+125^{\circ}\text{C}$
Operating Input Voltage	V_{IN}			15	V	$I_{OUT}=100\text{mA}$
Quiescent Current	I_q		5	10	mA	$V_{IN}\leq 10\text{V}$
Current Limit	I_{LIMIT}	0.8			A	1117
		1			A	1117A
Output Noise Voltage	eN		100		μV	$B=10\text{Hz}\sim 10\text{kHz}, T_J=+25^{\circ}\text{C}$
Supply Voltage Rejection	SVR	60	75		dB	$I_{OUT}=40\text{mA}, f=120\text{Hz}, T_J=+25^{\circ}\text{C}$ $V_{IN}=5.5\text{V}, V_{RIPPLE}=1V_{pp}$
Dropout Voltage	V_D		1.00	1.10	V	$I_{OUT}=100\text{mA}$
			1.15	1.25	V	$I_{OUT}=500\text{mA}$
			1.20	1.30	V	$I_{OUT}=800\text{mA}$
			1.20	1.30	V	$I_{OUT}=1000\text{mA}$
Thermal Regulation			0.01	0.10	%/w	$T_A=+25^{\circ}\text{C}, 30\text{ms Pulse}$

ELECTRICAL CHARACTERISTICS OF 1117/A-2.85

($T_a=25^{\circ}\text{C}$, refer to the test circuits, $T_J=0$ to 125°C , $C_o=10\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_{OUT}	2.828	2.850	2.880	V	$V_{IN}=4.85\text{V}, I_{OUT}=10\text{mA}, T_J=+25^{\circ}\text{C}$
		2.790	2.850	2.910	V	$V_{IN}=4.25\sim 10\text{V}$
Line regulation	ΔV_{OUT}		1	6	mV	1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Load Regulation	ΔV_{OUT}		1	10	mV	$V_{IN}=4.25\text{V}$
Temperature stability	ΔV_{OUT}		0.5		%	1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Long Term Stability	ΔV_{OUT}		0.3		%	1000hrs, $T_J=+125^{\circ}\text{C}$
Operating Input Voltage	V_{IN}			15	V	$I_{OUT}=100\text{mA}$
Quiescent Current	I_q		5	10	mA	$V_{IN}\leq 10\text{V}$
Current Limit	I_{LIMIT}	0.8			A	1117
		1			A	1117A
Output Noise Voltage	eN		100		μV	$V_{IN}=7.85\text{V}, T_J=+25^{\circ}\text{C}$
Supply Voltage Rejection	SVR	60	75		dB	$B=10\text{Hz}\sim 10\text{kHz}, T_J=+25^{\circ}\text{C}$
Dropout Voltage	V_D		1.00	1.10	V	$I_{OUT}=40\text{mA}, f=120\text{Hz}, T_J=+25^{\circ}\text{C}$ $V_{IN}=5.85\text{V}, V_{RIPPLE}=1V_{pp}$
			1.15	1.25	V	$I_{OUT}=100\text{mA}$
			1.20	1.30	V	$I_{OUT}=500\text{mA}$
			1.20	1.30	V	$I_{OUT}=800\text{mA}$
Thermal Regulation			0.01	0.10	%/w	$I_{OUT}=1000\text{mA}$ $T_A=+25^{\circ}\text{C}, 30\text{ms Pulse}$

LOW DROP LINEAR VOLTAGE REGULATORS

ELECTRICAL CHARACTERISTICS OF 1117/A-3.0

($T_a=25^{\circ}\text{C}$, refer to the test circuits, $T_J=0$ to 125°C , $C_o=10\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	1%	V_{OUT}	2.970	3.000	3.030	V, $V_{IN}=5\text{V}, I_{OUT}=10\text{mA}, T_J=+25^{\circ}\text{C}$
	2%		2.940	3.000	3.060	
	2%		2.940	3.000	3.060	V, $V_{IN}=4.5\sim 10\text{V}$
	4%		2.880	3.000	3.120	
Line regulation	ΔV_{OUT}		1	6	mV	$V_{IN}=4.5\sim 12\text{V}, I_{OUT}=0\text{mA}$
Load Regulation	ΔV_{OUT}		1	10	mV	$V_{IN}=4.5\text{V}$
Temperature stability	ΔV_{OUT}		0.5		%	$1117: I_{OUT}=0\sim 800\text{mA}$ $1117A: I_{OUT}=0\sim 1\text{A}$
Long Term Stability	ΔV_{OUT}		0.3		%	$1000\text{hrs}, T_J=+125^{\circ}\text{C}$
Operating Input Voltage	V_{IN}			15	V	$I_{OUT}=100\text{mA}$
Quiescent Current	I_q		5	10	mA	$V_{IN}\leq 10\text{V}$
Current Limit	I_{LIMIT}	0.8			A	1117
		1			A	1117A
Output Noise Voltage	eN		100		μV	$B=10\text{Hz}\sim 10\text{kHz}, T_J=+25^{\circ}\text{C}$
Supply Voltage Rejection	SVR	60	75		dB	$I_{OUT}=40\text{mA}, f=120\text{Hz}, T_J=+25^{\circ}\text{C}$ $V_{IN}=6\text{V}, V_{RIPPLE}=1V_{pp}$
Dropout Voltage	V_D		1.00	1.10	V	$I_{OUT}=100\text{mA}$
			1.15	1.25	V	$I_{OUT}=500\text{mA}$
			1.20	1.30	V	$I_{OUT}=800\text{mA}$
			1.20	1.30	V	$I_{OUT}=1000\text{mA}$
Thermal Regulation			0.01	0.10	%/w	$T_A=+25^{\circ}\text{C}, 30\text{ms Pulse}$

ELECTRICAL CHARACTERISTICS OF 1117/A-3.3

($T_a=25^{\circ}\text{C}$, refer to the test circuits, $T_J=0$ to 125°C , $C_o=10\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	1%	V_{OUT}	3.267	3.300	3.333	V, $V_{IN}=5.3\text{V}, I_{OUT}=10\text{mA}, T_J=+25^{\circ}\text{C}$
	2%		3.235	3.300	3.365	
	2%		3.235	3.300	3.365	V, $V_{IN}=4.75\sim 10\text{V}$
	4%		3.160	3.300	3.440	
Line regulation	ΔV_{OUT}		1	6	mV	$V_{IN}=4.75\sim 15\text{V}, I_{OUT}=0\text{mA}$
Load Regulation	ΔV_{OUT}		1	10	mV	$V_{IN}=4.75\text{V}$
Temperature stability	ΔV_{OUT}		0.5		%	$1117: I_{OUT}=0\sim 800\text{mA}$ $1117A: I_{OUT}=0\sim 1\text{A}$
Long Term Stability	ΔV_{OUT}		0.3		%	$1000\text{hrs}, T_J=+125^{\circ}\text{C}$
Operating Input Voltage	V_{IN}			15	V	$I_{OUT}=100\text{mA}$
Quiescent Current	I_q		5	10	mA	$V_{IN}\leq 15\text{V}$
Current Limit	I_{LIMIT}	0.8			A	1117
		1			A	1117A
Output Noise Voltage	eN		100		μV	$B=10\text{Hz}\sim 10\text{kHz}, T_J=+25^{\circ}\text{C}$
Supply Voltage Rejection	SVR	60	75		dB	$I_{OUT}=40\text{mA}, f=120\text{Hz}, T_J=+25^{\circ}\text{C}$ $V_{IN}=6.3\text{V}, V_{RIPPLE}=1V_{pp}$
Dropout Voltage	V_D		1.00	1.10	V	$I_{OUT}=100\text{mA}$
			1.15	1.25	V	$I_{OUT}=500\text{mA}$
			1.20	1.30	V	$I_{OUT}=800\text{mA}$
			1.20	1.30	V	$I_{OUT}=1000\text{mA}$
Thermal Regulation			0.01	0.10	%/w	$T_A=+25^{\circ}\text{C}, 30\text{ms Pulse}$

LOW DROP LINEAR VOLTAGE REGULATORS

ELECTRICAL CHARACTERISTICS OF 1117/A-3.6

($T_a=25^{\circ}\text{C}$, refer to the test circuits, $T_J=0$ to 125°C , $C_o=10\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_{OUT}	3.564	3.600	3.636	V	$V_{IN}=5.6\text{V}, I_{OUT}=10\text{mA}, T_J=+25^{\circ}\text{C}$
		3.528	3.600	3.672	V	$V_{IN}=5\sim 10\text{V}$ 1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Line regulation	ΔV_{OUT}		1	6	mV	$V_{IN}=5\sim 15\text{V}, I_{OUT}=0\text{mA}$
Load Regulation	ΔV_{OUT}		1	10	mV	$V_{IN}=5\text{V}$ 1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Temperature stability	ΔV_{OUT}		0.5		%	
Long Term Stability	ΔV_{OUT}		0.3		%	1000hrs, $T_J=+125^{\circ}\text{C}$
Operating Input Voltage	V_{IN}			15	V	$I_{OUT}=100\text{mA}$
Quiescent Current	I_q		5	10	mA	$V_{IN}\leq 15\text{V}$
Current Limit	I_{LIMIT}	0.8			A	1117
		1			A	1117A
Output Noise Voltage	eN		100		μV	$B=10\text{Hz}\sim 10\text{kHz}, T_J=+25^{\circ}\text{C}$
Supply Voltage Rejection	SVR	60	75		dB	$I_{OUT}=40\text{mA}, f=120\text{Hz}, T_J=+25^{\circ}\text{C}$ $V_{IN}=6.6\text{V}, V_{RIPPLE}=1V_{pp}$
Dropout Voltage	V_D		1.00	1.10	V	$I_{OUT}=100\text{mA}$
			1.15	1.25	V	$I_{OUT}=500\text{mA}$
			1.20	1.30	V	$I_{OUT}=800\text{mA}$
			1.20	1.30	V	$I_{OUT}=1000\text{mA}$
Thermal Regulation			0.01	0.10	%/w	$T_A=+25^{\circ}\text{C}, 30\text{ms Pulse}$

ELECTRICAL CHARACTERISTICS OF 1117/A-5.0

($T_a=25^{\circ}\text{C}$, refer to the test circuits, $T_J=0$ to 125°C , $C_o=10\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_{OUT}	4.950	5.000	5.050	V	$V_{IN}=7\text{V}, I_{OUT}=10\text{mA}, T_J=+25^{\circ}\text{C}$
		4.900	5.000	5.100	V	$V_{IN}=6.5\sim 15\text{V}$ 1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
		4.900	5.000	5.100	V	$V_{IN}=6.5\sim 15\text{V}, I_{OUT}=0\text{mA}$
		4.800	5.000	5.200	V	$V_{IN}=6.5\sim 15\text{V}, I_{OUT}=0\text{mA}$
Line regulation	ΔV_{OUT}		1	6	mV	$V_{IN}=6.5\sim 15\text{V}, I_{OUT}=0\text{mA}$
Load Regulation	ΔV_{OUT}		1	10	mV	$V_{IN}=6.5\text{V}$ 1117: $I_{OUT}=0\sim 800\text{mA}$ 1117A: $I_{OUT}=0\sim 1\text{A}$
Temperature stability	ΔV_{OUT}		0.5		%	
Long Term Stability	ΔV_{OUT}		0.3		%	1000hrs, $T_J=+125^{\circ}\text{C}$
Operating Input Voltage	V_{IN}			15	V	$I_{OUT}=100\text{mA}$
Quiescent Current	I_q		5	10	mA	$V_{IN}\leq 15\text{V}$
Current Limit	I_{LIMIT}	0.8			A	1117
		1			A	1117A
Output Noise Voltage	eN		100		μV	$B=10\text{Hz}\sim 10\text{kHz}, T_J=+25^{\circ}\text{C}$
Supply Voltage Rejection	SVR	60	75		dB	$I_{OUT}=40\text{mA}, f=120\text{Hz}, T_J=+25^{\circ}\text{C}$ $V_{IN}=8\text{V}, V_{RIPPLE}=1V_{pp}$
Dropout Voltage	V_D		1.00	1.10	V	$I_{OUT}=100\text{mA}$
			1.15	1.25	V	$I_{OUT}=500\text{mA}$
			1.20	1.30	V	$I_{OUT}=800\text{mA}$
			1.20	1.30	V	$I_{OUT}=1000\text{mA}$
Thermal Regulation			0.01	0.10	%/w	$T_A=+25^{\circ}\text{C}, 30\text{ms Pulse}$

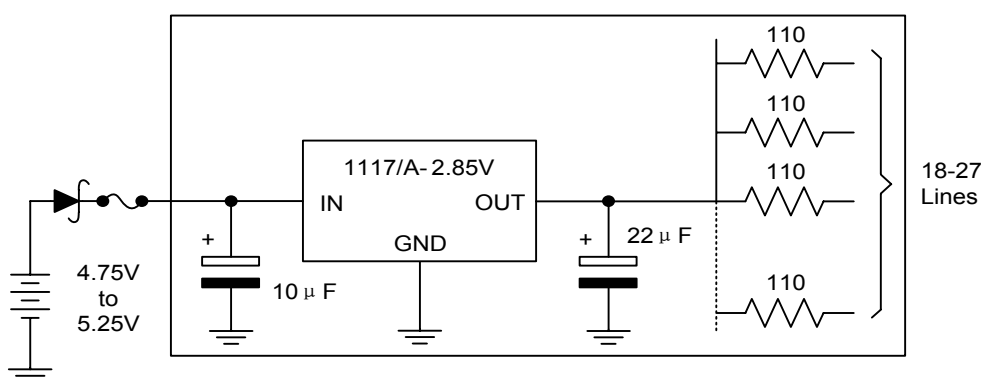
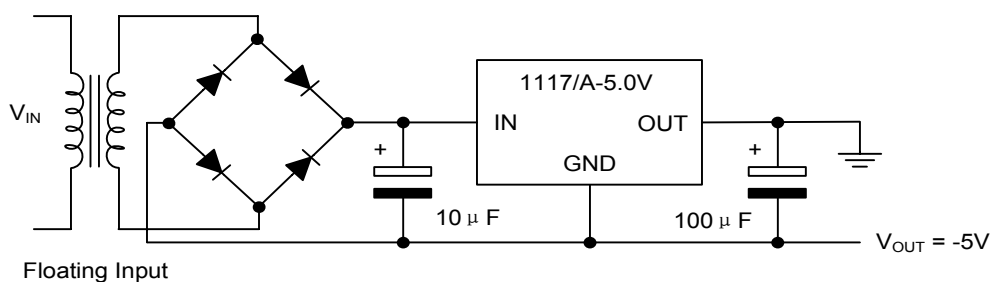
LOW DROP LINEAR VOLTAGE REGULATORS

ELECTRICAL CHARACTERISTICS OF 1117/A-ADJ

($T_a=25^{\circ}\text{C}$, refer to the test circuits, $T_J=0$ to 125°C , $C_o=10\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Reference Voltage	V_{REF}	1.188	1.200	1.212	V	$V_{\text{IN}}-V_{\text{OUT}}=2\text{V}, I_{\text{OUT}}=10\text{mA}, T_J=+25^{\circ}\text{C}$
		1.176	1.200	1.224	V	$V_{\text{IN}}-V_{\text{OUT}}=1.4\sim 10\text{V}$ 1117: $I_{\text{OUT}}=0\sim 800\text{mA}$ 1117A: $I_{\text{OUT}}=0\sim 1\text{A}$
Line regulation	ΔV_{OUT}		1	6	mV	$V_{\text{IN}}-V_{\text{OUT}}=1.5\sim 13.75\text{V}, I_{\text{OUT}}=0\text{mA}$
Load Regulation	ΔV_{OUT}		1	10	mV	$V_{\text{IN}}-V_{\text{OUT}}=3\text{V}$ 1117: $I_{\text{OUT}}=0\sim 800\text{mA}$ 1117A: $I_{\text{OUT}}=0\sim 1\text{A}$
Temperature stability	ΔV_{OUT}		0.5		%	
Long Term Stability	ΔV_{OUT}		0.3		%	1000hrs, $T_J=+125^{\circ}\text{C}$
Operating Input Voltage	V_{IN}			15	V	$I_{\text{OUT}}=100\text{mA}$
Adjustment Pin Current	I_{ADJ}		60	120	μA	$V_{\text{IN}}\leq 15\text{V}$
Adjustment Pin Current Change	ΔI_{ADJ}		1	5	μA	$V_{\text{IN}}-V_{\text{OUT}}=1.4\sim 10\text{V}$ 1117: $I_{\text{OUT}}=0\sim 800\text{mA}$ 1117A: $I_{\text{OUT}}=0\sim 1\text{A}$
Current Limit	I_{LIMIT}	0.8			A	1117
		1			A	1117A
						$V_{\text{IN}}-V_{\text{OUT}}=5\text{V}, T_J=+25^{\circ}\text{C}$
Minimum Load Current	$I_{\text{O(MIN)}}$		2	5	mA	$V_{\text{IN}}=15\text{V}$
Output Noise Voltage	eN		0.003		%	$B=10\text{Hz}\sim 10\text{kHz}, T_J=+25^{\circ}\text{C}$
Supply Voltage Rejection	SVR	60	75		dB	$I_{\text{OUT}}=40\text{mA}, f=120\text{Hz}, T_J=+25^{\circ}\text{C}$ $V_{\text{IN}}-V_{\text{OUT}}=3\text{V}, V_{\text{RIPPLE}}=1\text{V}_{\text{pp}}$
Dropout Voltage	V_{D}		1.00	1.10	V	$I_{\text{OUT}}=100\text{mA}$
			1.15	1.25	V	$I_{\text{OUT}}=500\text{mA}$
			1.20	1.30	V	$I_{\text{OUT}}=800\text{mA}$
			1.20	1.30	V	$I_{\text{OUT}}=1000\text{mA}$
Thermal Regulation			0.01	0.10	%/w	$T_A=+25^{\circ}\text{C}, 30\text{ms Pulse}$

TYPICAL APPLICATION



LOW DROP LINEAR VOLTAGE REGULATORS

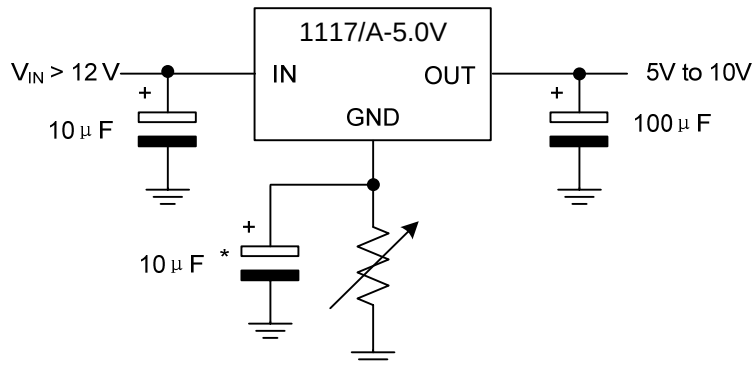


FIG.3 Circuit for Increasing Output Voltage

APPLICATION NOTE of 1117/A ADJUSTABLE

The 1117/A ADJUSTABLE has a reference voltage of between the OUT and ADJ pins. I_{ADJ} is 60µA typ. (120µA max.) and ΔI_{ADJ} is 1µA typ. (5µA max.).

R_1 is normally fixed to 120Ω.

From figure 4 we obtain:

$$V_{OUT} = V_{REF} + R_2(I_{ADJ} + I_{R1}) = V_{REF} + R_2(I_{ADJ} + V_{REF} / R_1) = V_{REF}(1 + R_2/R_1) + R_2 \times I_{ADJ}$$

Usually R_2 value is in the range of few KΩ, so the $R_2 \times I_{ADJ}$ product could be neglected; then the above expression becomes: $V_{OUT} = V_{REF}(1 + R_2/R_1)$

For better load regulation, realize a good Kelvin connection of R_1 and R_2 is important. Particularly R_1 connection must be realized very close to OUT and ADJ pin, while R_2 ground connection must be placed as near as possible to the negative Load pin. Ripple rejection can be improved by introducing a 10µF electrolytic capacitor placed in parallel to the R_2 resistor (See Fig. 5)

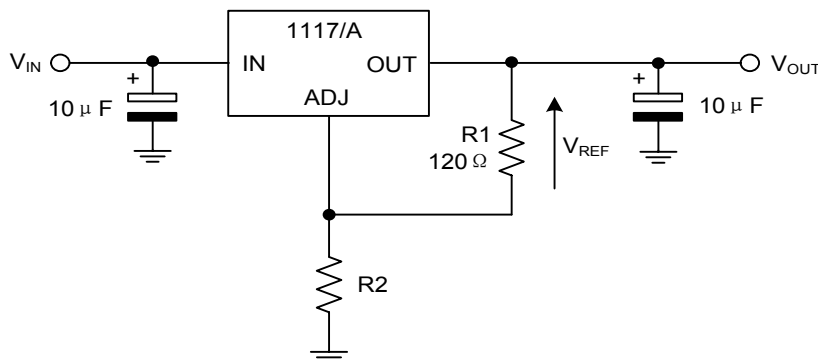


FIG.4 Adjustable Output Voltage Application Circuit

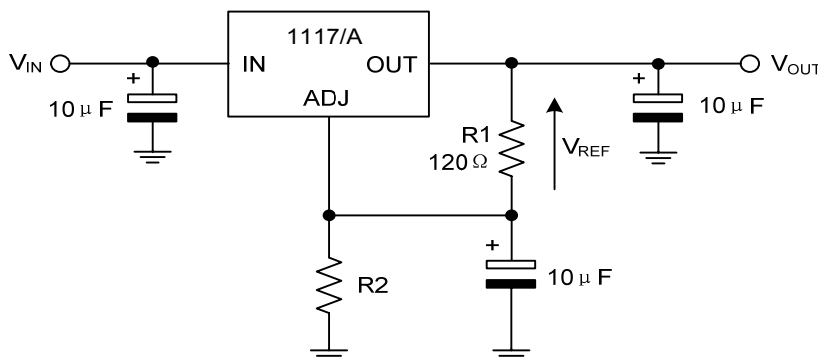
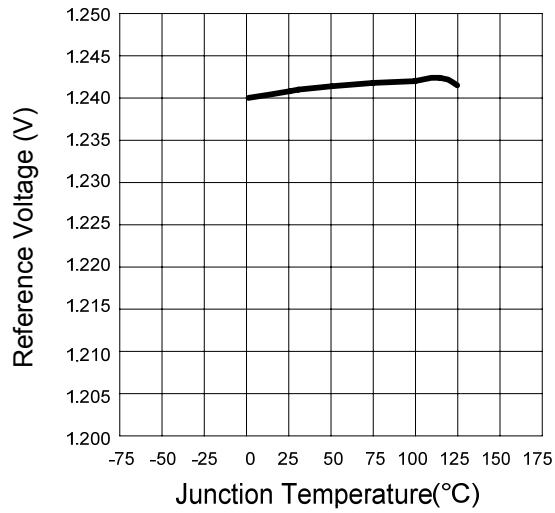


FIG.5 Adjustable Output Voltage Application with improved Ripple Rejection.

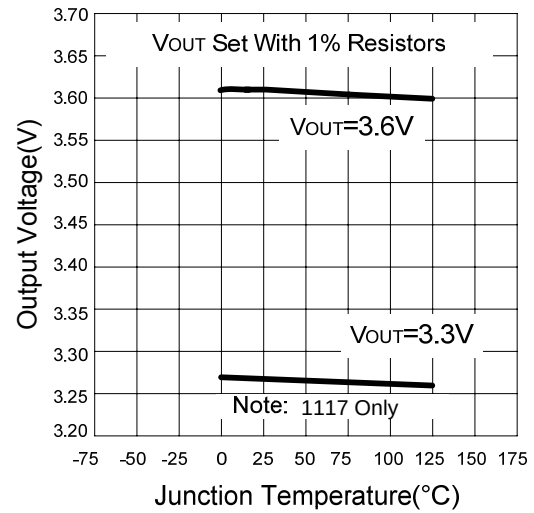
LOW DROP LINEAR VOLTAGE REGULATORS

Typical Characteristics

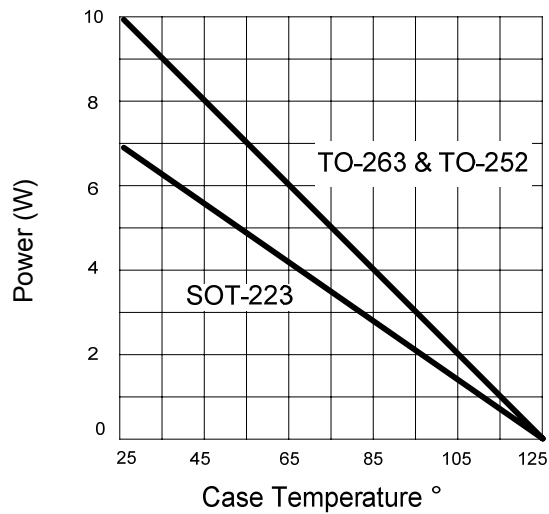
Reference Voltage vs. Temperature



Output Voltage vs. Temperature

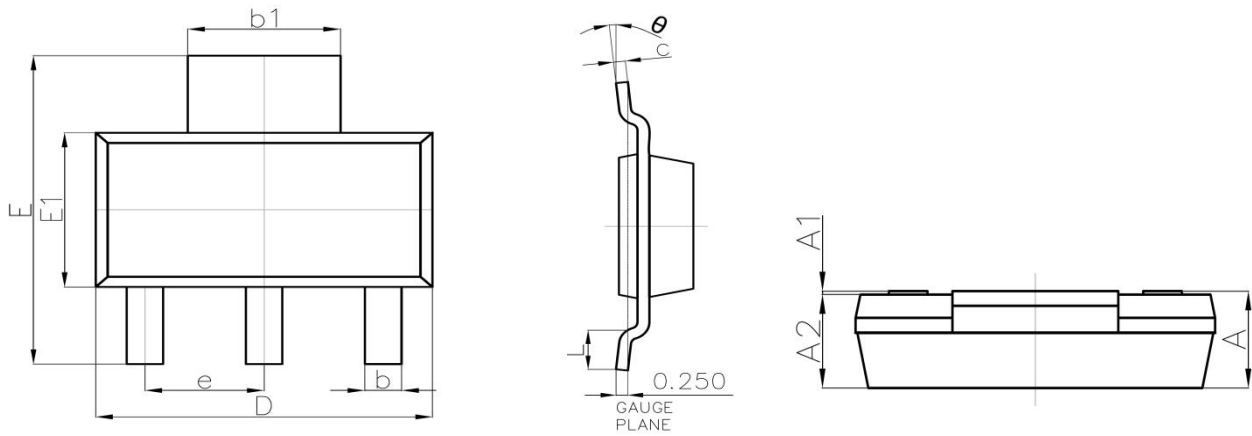


Maximum Power Dissipation



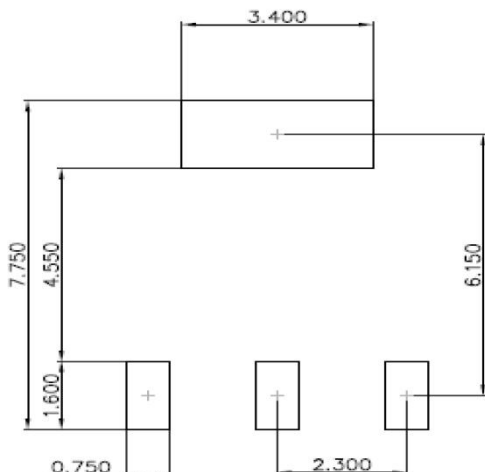
LOW DROP LINEAR VOLTAGE REGULATORS

SOT-223 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	—	1.800	-----	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300(BSC)		0.091(BSC)	
L	0.750	-----	0.030	-----
θ	0°	10°	0°	10°

SOT-223 Suggested Pad Layout



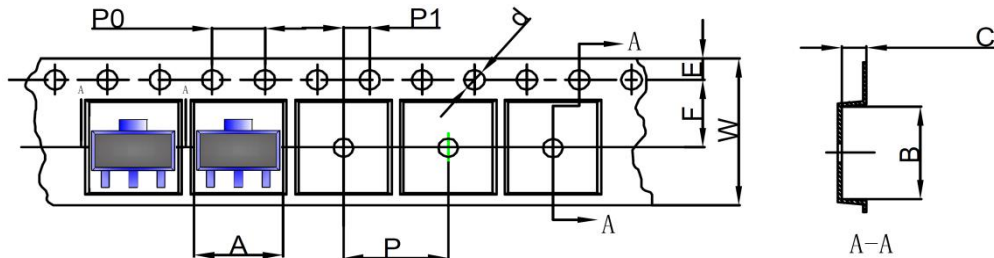
Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

LOW DROP LINEAR VOLTAGE REGULATORS

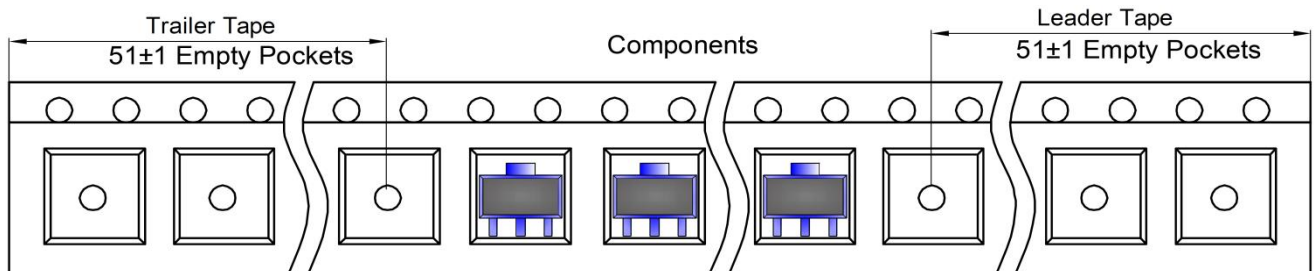
SOT-223 Tape and Reel

SOT-223 Embossed Carrier Tape

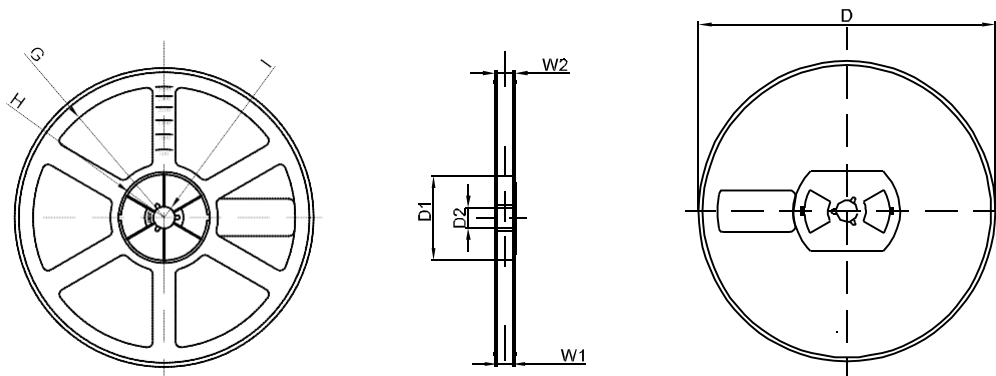


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-223	6.765	7.335	1.88	Ø1.50	1.75	5.50	4.00	4.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-223 Tape Leader and Trailer



SOT-223 Reel



DIMENSIONS ARE IN MILLIMETER								
REEL OPTION	D	D1	D2	G	H	I	W1	W2
13" DIA	Ø330.00	100.00	13.00	R151.00	R56.00	R6.50	12.40	17.60
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1