LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATORS—YD1117

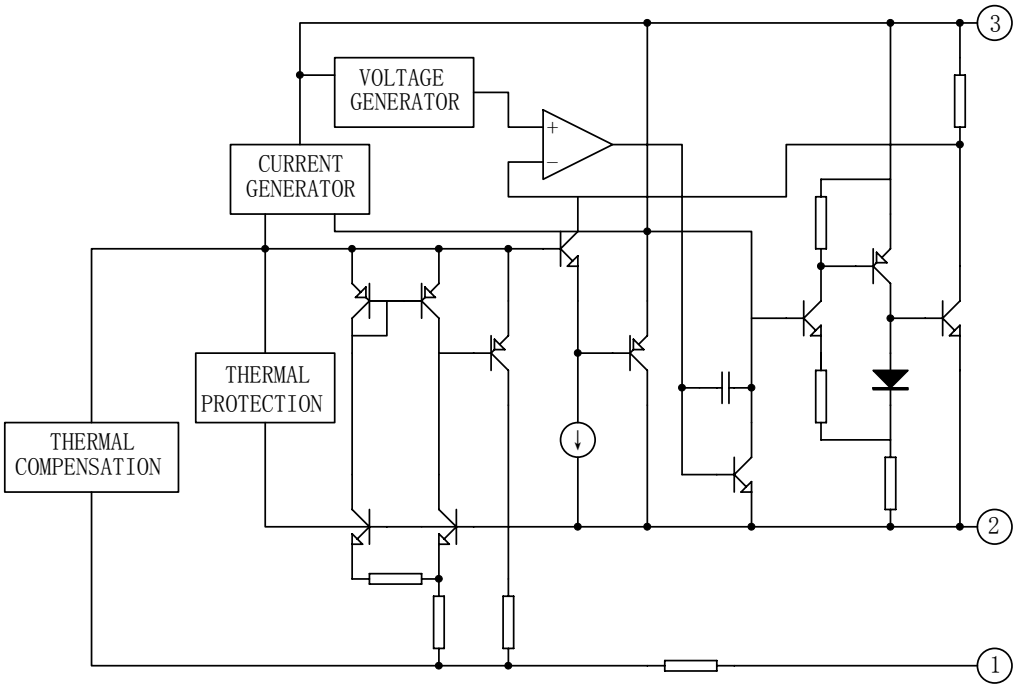
DESCRIPTION

The YD1117 is a LOW DROP Voltage Regulator able to provide up to 800mA of Output Current, available even in adjustable version(Vref=1.25V).

FEATURES

*Low dropout voltage (1V typ)
*2.85V Device performances are suitable for scsi-2 active termination
*Output current up to 800mA
*Fixed output voltage of :2.5V, 2.85V, 3.0V, 3.3V, 5.0V
*Adjustable version availability (V_{ref}=1.25V)
*Internal current and thermal limit
*Available in ±1%(at 25℃)and 2% in all temperature range
*Supply voltage rejection : 75dB(TYP)

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS (Tamb=25℃)

PARAMETER	SYMBOL	VALUE	UNIT
DC Input Voltage	V_{IN}	15	V
Power Dissipation	P_{tot}	12	W
Storage Temperature Range	T_{sty}	-40 to 150	℃
Operating Junction Temperature Range	T_{op}	0 to 125	℃

ELECTRICAL CHARACTERISTICS FOR YD1117#25

(refer to the test circuits, Tj=0 to 125℃, Co=10μF Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	Vo	Vin=4.5V, Io=10mA, Tj=25℃	2.475	2.5	2.525	V
Output Voltage	Vo	Io=0 to 800mA, Vin=3.9 to 10V	2.45		2.55	V
Line Regulation	△Vo	Vin=3.9 to 10V, Io=0mA		1	6	mV
Load Regulation	△Vo	Vin=3.9V, Io=0 to 800mA		1	10	mV
Temperature Stability	△Vo			0.5		%
Long Term Stability	△Vo	1000hrs Tj=125℃		0.3		%
Operating Input Voltage	Vin	Io=100mA			15	V
Quiescent Current	Id	Vin≤10V		5	10	mA
Output Current	Io	Vin=7.5V, Tj=25℃	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz to 10KHz, Tj=25℃		100		μV
Supply Voltage Rejection	SVR	Io=40mA, f=120Hz, Tj=25℃	60	75		dB
		Vin=5.85V, Vripple=1Vpp				
Dropout Voltage	Vd	Io=100mA		1	1.1	V
		Io=500mA		1.05	1.15	V
		Io=800mA		1.10	1.2	V
Thermal Regulation		Tamb=25℃ 30ms Pulse		0.01	0.1	%/W

ELECTRICAL CHARACTERISTICS FOR YD1117#28

(refer to the test circuits, Tj=0 to 125℃, Co=10μF Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	Vo	Vin=4.85V, Io=10mA, Tj=25℃	2.82	2.85	2.88	V
Output Voltage	Vo	Io=0 to 800mA, Vin=4.25 to 10V	2.79		2.91	V
Line Regulation	△Vo	Vin=4.25 to 10V, Io=0mA		1	6	mV
Load Regulation	△Vo	Vin=4.25V, Io=0 to 800mA		1	10	mV
Temperature Stability	△Vo			0.5		%
Long Term Stability	△Vo	1000hrs Tj=125℃		0.3		%

Operating Input Voltage	Vin	Io=100mA			15	V
Quiescent Current	Id	Vin≤10V		5	10	mA
Output Current	Io	Vin=7.85V, Tj=25℃	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz to 10KHz, Tj=25℃		100		μV
Supply Voltage Rejection	SVR	Io=40mA, f=120Hz, Tj=25℃ Vin=5.85V, Vripple=1Vpp	60	75		dB
Dropout Voltage	Vd	Io=100mA		1	1.1	V
		Io=500mA		1.05	1.15	V
		Io=800mA		1.10	1.2	V
Thermal Regulation		Tamb=25℃ 30ms Pulse		0.01	0.1	%/W

ELECTRICAL CHARACTERISTICS FOR YD1117#30

(refer to the test circuits, Tj=0 to 125℃, Co=10μF Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	Vo	Vin=5V, Io=10mA, Tj=25℃	2.97	3	3.03	V
Output Voltage	Vo	Io=0 to 800mA, Vin=4.5 to 10V	2.94		3.06	V
Line Regulation	△Vo	Vin=4.5 to 12V, Io=0mA		1	6	mV
Load Regulation	△Vo	Vin=4.5V, Io=0 to 800mA		1	10	mV
Temperature Stability	△Vo			0.5		%
Long Term Stability	△Vo	1000hrs Tj=125℃		0.3		%
Operating Input Voltage	Vin	Io=100mA			15	V
Quiescent Current	Id	Vin≤12V		5	10	mA
Output Current	Io	Vin=8V, Tj=25℃	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz to 10KHz, Tj=25℃		100		Mv
Supply Voltage Rejection	SVR	Io=40mA f=120Hz, Tj=25℃, Vin=6V, Vripple=1Vpp	60	75		dB
Dropout Voltage	Vd	Io=100mA		1	1.1	V
		Io=500mA		1.05	1.15	V
		Io=800mA		1.10	1.2	V
Thermal Regulation		Tamb=25℃ 30ms Pulse		0.01	0.1	%/W

ELECTRICAL CHARACTERISTICS FOR YD1117#33

(refer to the test circuits, Tj=0 to 125℃, Co=10μF Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	Vo	Vin=5.3V, Io=10mA, Tj=25℃	3.267	3.3	3.333	V

Output Voltage	Vo	Io=0 to 800mA, Vin=4.75 to 10V	3.235		3.365	V
Line Regulation	△Vo	Vin=4.75 to 15V, Io=0mA		1	6	mV
Load Regulation	△Vo	Vin=4.75V, Io=0 to 800mA		1	10	mV
Temperature Stability	△Vo			0.5		%
Long Term Stability	△Vo	1000hrs Tj=125℃		0.3		%
Operating Input Voltage	Vin	Io=100mA			15	V
Quiescent Current	Id	Vin≤15V		5	10	mA
Output Current	Io	Vin=8.3V, Tj=25℃	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz to 10KHz, Tj=25℃		100		μV
Supply Voltage Rejection	SVR	Io=40mA, f=120Hz, Tj=25℃	60	75		dB
		Vin=6.3V, Vripple=1Vpp				
Dropout Voltage	Vd	Io=100mA		1	1.1	V
		Io=500mA		1.05	1.15	V
		Io=800mA		1.10	1.2	V
Thermal Regulation		Tamb=25℃ 30ms Pulse		0.01	0.1	%/W

ELECTRICAL CHARACTERISTICS FOR YD1117#50

(refer to the test circuits, Tj=0 to 125℃, Co=10μF Unless otherwise specified)

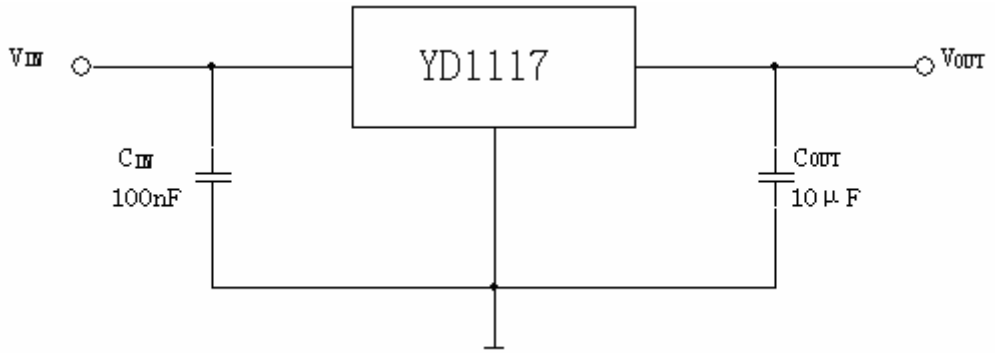
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	Vo	Vin=7V, Io=10mA, Tj=25℃	4.95	5	5.05	V
Output Voltage	Vo	Io=0 to 800mA , Vin=6.5 to 15V	4.9		5.1	V
Line Regulation	△Vo	Vin=6.5 to 15V, Io=0mA		1	10	mV
Load Regulation	△Vo	Vin=6.5V, Io=0 to 800mA		1	15	mV
Temperature Stability	△Vo			0.5		%
Long Term Stability	△Vo	1000hrs Tj=125℃		0.3		%
Operating Input Voltage	Vin	Io=100mA			15	V
Quiescent Current	Id	Vin≤15V		5	10	mA
Output Current	Io	Vin=10V, Tj=25℃	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz to 10kHz, Tj=25℃		100		μV
Supply Voltage Rejection	SVR	Io=40mA, f=120Hz, Tj=25℃	60	75		dB
		Vin=8V, Vripple=1Vpp				
Dropout Voltage	Vd	Io=100mA		1	1.1	V
		Io=500mA		1.05	1.15	V
		Io=800mA		1.10	1.2	V
Thermal Regulation		Tamb=25℃ 30ms Pulse		0.01	0.1	%/W

ELECTRICAL CHARACTERISTICS FOR YD1117(ADJUSTABLE)

(refer to the test circuits, Tj=0 to 125℃, Co=10μF Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reference Voltage	Vref	Vin-Vo=2V, b=10mA, Tj=25℃	1.238	1.25	1.262	V
Reference Voltage	Vref	Io=10 to 800mA, Vin-Vo=1.4 to 10V	1.225		1.275	V
Line Regulation	△Vo	Vin-Vo=1.5 to 13.75V, Io=10mA		0.035	0.2	%
Load Regulation	△Vo	Vin-Vo=3V, Io=10 to 800mA		0.1	0.4	%
Temperature Stability	△Vo			0.5		%
Long Term Stability	△Vo	1000hrs Tj=125℃		0.3		%
Operating Input Voltage	Vin				15	V
Adjustment Pin Current	Iadj	Vin≤15V		60	120	μV
Adjustment Pin Current Change	△Iadj	Vin-Vo=1.4to10V, Io=10 to 800mA		1	5	μV
Minimum Load Current	Io(min)	Vin=15V		2	5	mA
Output Current	Io	Vin-Vo=5V, Tj=25℃	800	950	1200	mA
Output Noise Voltage	eN	B=10Hz to 10KHz, Tj=25℃		0.003		%
Supply Voltage Rejection	SVR	Io=40mA, f=120Hz, Tj=25℃ Vin-Vo=3V, Vripple=1Vpp	60	75		dB
Dropout Voltage	Vd	Io=100mA		1	1.1	V
		Io=500mA		1.05	1.15	V
		Io=800mA		1.10	1.2	V
Thermal Regulation		Tamb=25℃ 30ms Pulse		0.01	0.1	%/W

APPLICATION CIRCUIT



OUTLINE DRAWING