



■ **Introduction**

CN1117 is a series of low dropout three-terminal regulators with a dropout of 1.4V at 1A load current. CN1117 features a low standby current 2mA.

Other than a fixed version (V_{OUT} = 1.2V, 1.5V, 1.8V, 2.5V, 2.85V, 3V, 3.3V, 3.5V, and 5.0V), CN1117 has an adjustable version, which can provide an output voltage from 1.25 to 5.0V with only two external resistors.

CN1117 offers thermal shut down and current limit functions, to assure stability of chip and power system. Trimming technique is used to guarantee output voltage accuracy within ±1%. Other output voltage accuracy such as ±1% can be customized on demand.

CN1117 is available in SOT-223 ,TO-220,TO-263 power packages.

■ **Order Information**

Code	Description
1	Temperature Rohs: C:-40~85°C ,Pb Free Rohs Std.
2	Package type:L:SOT-223,O:TO-220 ,TO-263
3	Packing type: TR: Tape Reel (Standard)
4	Output voltage: e.g. 1.2=1.2V 1.5=1.5V 1.8=1.8V 2.5=2.5V 3.0=3.0V 3.3=3.3V 5.0=5.0V 2.85=2.85V AD=Output adjustable
5	Voltage accuracy: (default) = ±1%

■ **Features**

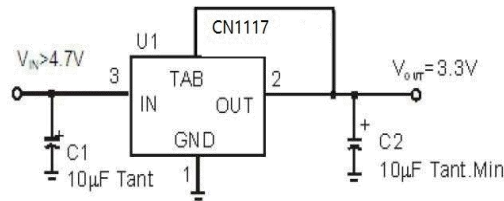
- Adjustable or fixed output .
- Output current is 1A
- Low dropout -1.3V typ.at 1A output current
- 100% thermal limit bum-in
- Line regulation: 0.04%/
- Load regulation: 0.2%
- Fast transient response
- Cn1117 can operate using MLCCs in the capacitance range of 2μF to 10μF.

■ **APPLICATIONS**

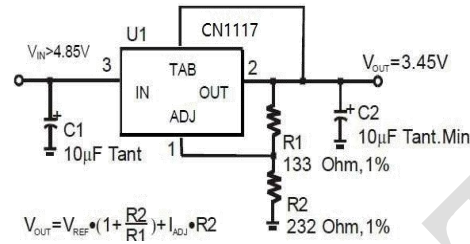
- Fast transient response
- High efficiency linear regulators
- Adjustable power supply
- Post Regulators for Switching Supplies



■ Typical Application



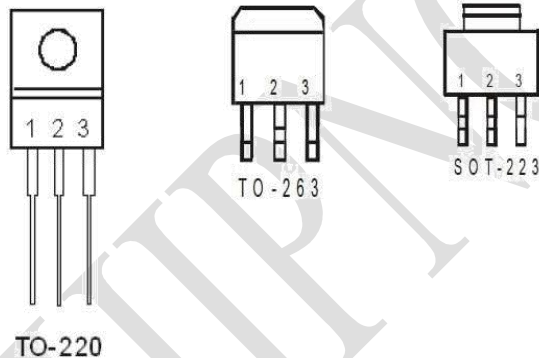
Adjustable Voltage Regulator



Notes:

1. C1 is needed if the device is far from filter capacitors
2. C2 minimum value required for the stability

PACKAGE INFORMATION



PIN	FUNCTION
1	ADJ/GND
2	OUTPUT
3	INPUT

The tab is the output.

■ Absolute Maximum Ratings

Note: Exceed these limits to damage to the device. Exposure to absolute maximum rating conditions may affect device reliability.

Parameter		Value
Max Input Voltage		20V
Max Operating Junction Temperature(TJ)		150°C
Ambient Temperature(Ta)		-40°C – 125°C
Package Thermal Resistance	SOT-223	20°C / W
	TO-220	12.5°C / W
Storage Temperature(TS)		-65°C - 150°C
Lead Temperature & Time		300°C, 10S
VESD Minimum ESD rating(HBM)		3000V



■ Electrical Characteristics

The electrical characteristics Iload=0 mA TJ=25°C ,unless otherwise specified.

Parameter	Device	Test Conditions	Min	Type	Max	Units
Reference voltage (note 1)	CN1117	Vin=5V,ILOAD=10mA	1.232	1.250	1.268	V
		1.5V≤VIN-VOUT≤10V ILOAD=10mA to 1A	# 1.225	1.250	1.275	
Output voltage (note 1)	All fixed versions	VIN=VOUT+1.5V Varied from nominal VOUT	-1.5		+1.5	%
		1.5V≤VIN-VOUT≤10V ILOAD=10mA to 1A Varied from nominal VOUT	# -2		+2	
	VOUT=1,2V	-3		+2		
Accuracy of output voltage at wafer testing	All	VIN=VOUT+1.5V ILOAD=10mA	-0.6%	0	+0.6 %	%
Line regulation	All	ILOAD=10mA, 1.5V≤ VIN-VOUT≤10V	#	0.04	0.20	%
Load regulation (note 1)	All	1.5V≤VIN-VOUT≤10V ILOAD=10mA to 1A	#	0.2	0.4	
Minimum load current	CN1117	VIN=5V, VDAJ=0V	#	2	7	mA
GND pin current	All fixed versions	1.5V≤VIN-VOUT≤10V ILOAD=10mA to 1A	#	3.5	10	mA
ADJ pin current	CN1117	1.5V≤VIN-VOUT≤10V ILOAD=10mA	#	35	60	μA
Current limit	All	VIN-VOUT=1.5V	# 1	1.5	2	A
Ripple rejection (note 2)	All	VIN-VOUT=2.5V ILOAD=1A	60			dB
Dropout voltage (note 1,3)	All	ILOAD=1A	#	1.20	1.40	V
Temperature coefficient	All	VIN-VOUT=1.5V, ILOAD=10mA	#		0.015	%/°C

Notes:

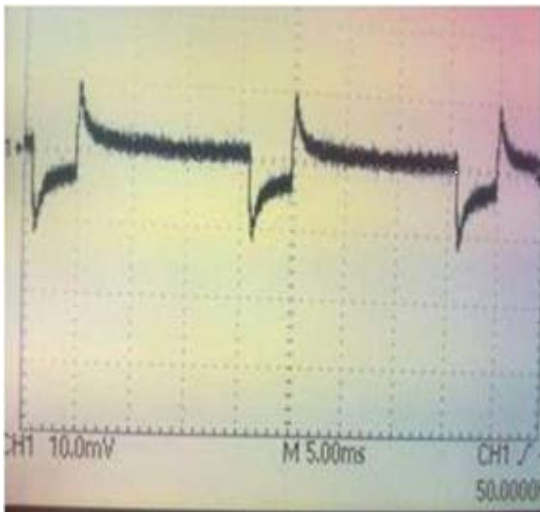
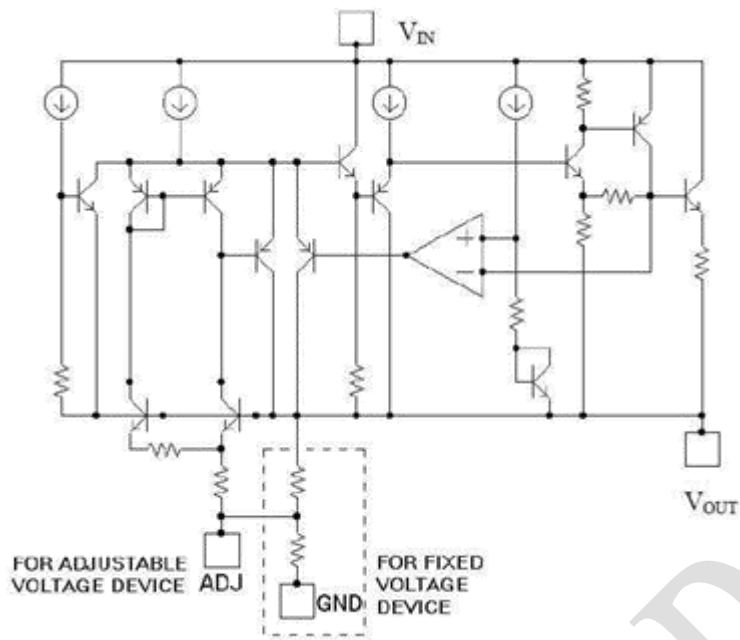
denotes "apply" over the full temperature range $-40^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$

1. low duty pulse testing with Kelvin connections is required

2. 120Hz input ripple (CADJ=25μF for the ADJ version)

3. ΔV_{OUT} , ΔV_{REF} =1%

■ BLOCK DIAGRAM



$C_{OUT}=10\mu F$ $V_{IN}=5V$ $V_{OUT}=3.3V$ $I_{OUT}=10mA$ to $1A$



$C_{OUT}=2.2\mu F$ $V_{IN}=5V$ $V_{OUT}=3.3V$ $I_{OUT}=10mA$ to $1A$



■ PACKAGE OUTLINE

Package	SOT-223	Devices per reel	2500	Unit	mm
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Package specification:

COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	-	-	1.80
A1	0.02	-	0.10
A2	1.50	1.60	1.70
A3	0.80	0.90	1.00
b	0.67	-	0.80
b1	0.66	0.71	0.76
b2	2.96	-	3.09
b3	2.95	3.00	3.05
c	0.30	-	0.35
c1	0.29	0.30	0.31
D	6.48	6.53	6.58
D1	6.55	6.60	6.65
D2	-	-	7.05
E	6.80	-	7.20
E1	3.40	3.50	3.60
E2	3.33	3.43	3.53
e	2.30BSC		
e1	4.60BSC		
L	0.80	1.00	1.20
L1	1.75REF		
L2	0.25BSC		
R	0.10	-	-
R1	0.10	-	-
θ	0°	-	8°
θ1	10°	12°	14°

NOTES:
ALL DIMENSIONS REFER TO JEDEC STANDARD TO261-AA

SECTION C-C

SECTION D-D



■ ORDER INFORMATION:

date	Version	Revision notes	Reviser
2018.5.25	V1.0	Initial data compilation	ZhangSongfeng

CHIPNORTH