

POWER MANAGEMENT

Description

The SC1117 series of high performance positive voltage regulators are designed for use in applications requiring low dropout performance at 800mA.

Additionally, the SC1117 series provides excellent regulation over variations in line, load and temperature. Outstanding features include low dropout performance at rated current, fast transient response, internal current limiting and thermal shutdown protection of the output device.

The SC1117 series of three terminal regulators offer fixed 5V output voltage options available in both space saving SOT-223 and TO-263 packages.

Features

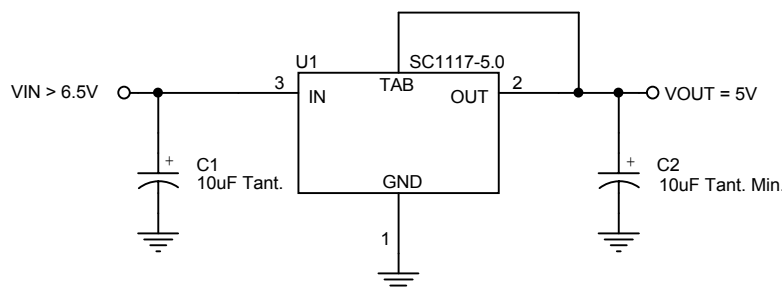
- ◆ 15V maximum input voltage
- ◆ Low dropout performance: 1.3V max.
- ◆ Full current rating over line and temperature
- ◆ Fast transient response
- ◆ $\pm 2\%$ total output regulation over line, load and temperature
- ◆ Adjust pin current max 120 μ A over temperature
- ◆ 5V Fixed output voltage
- ◆ Line regulation 0.2% max.
- ◆ Load regulation 0.4% max.
- ◆ SOT-223 and TO-263 packages

Applications

- ◆ Low voltage microcontroller supplies
- ◆ Switching power supply post-regulation

Typical Application Circuit

Fixed Voltage Regulator



Notes:

- (1) C1 needed if device is far from filter capacitors
- (2) C2 minimum value required for stability

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Absolute Maximum Ratings

Exceeding the specifications below may result in permanent damage to the device, or device malfunction. Operation outside of the parameters specified in the Electrical Characteristics section is not implied.

Parameter	Symbol	Maximum	Units
Input Voltage	V_{IN}	15	V
Power Dissipation	P_D	Internally Limited	W
Thermal Resistance Junction to Case SOT-223 TO-263	θ_{JC}	15 3	°C/W
Thermal Resistance Junction to Ambient SOT-223 TO-263	θ_{JA}	150 60	°C/W
Operating Junction Temperature Range	T_J	-40 to 125	°C
Storage Temperature Range	T_{STG}	-65 to 150	°C
Lead Temperature (Soldering) 10 Sec.	T_{LEAD}	300	°C

Electrical Characteristics

Unless otherwise specified: $V_{IN} = 6.5V$ to $15V$ and $I_o = 0mA$ to $800mA$.

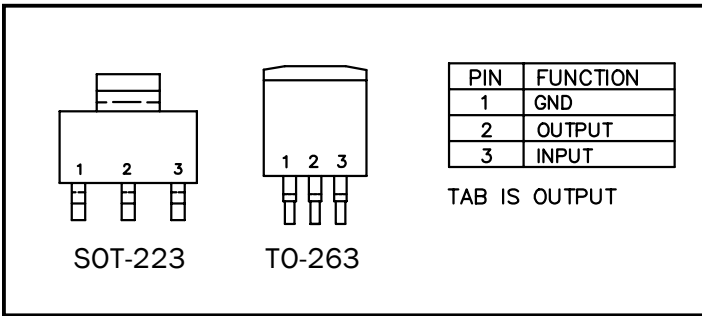
Parameter	Symbol	V_{IN}	I_o	$T_J^{(5)}$	Min	Typ	Max	Units
Output Voltage ⁽¹⁾	V_o	7V	10mA	25°C	4.95	5.00	5.05	V
		6.5V to 12V		O.T.	4.90		5.10	
Line Regulation ⁽¹⁾	$REG_{(LINE)}$		10mA	O.T.		0.035	0.2	%
Load Regulation ⁽¹⁾	$REG_{(LOAD)}$	6.5V		O.T.		0.2	0.4	%
Dropout Voltage ⁽²⁾	V_D		800mA	O.T.		1.2	1.3	V
Current Limit	I_{CL}			O.T.	0.8			A
Quiescent Current	I_Q	15V		O.T.		10	14	mA
Temperature Coefficient	T_C			O.T.		0.005		%/°C
Temperature Stability	T_S		0.5A	O.T.		0.5		%
RMS Output Noise ⁽³⁾	V_{IN}			25°C		0.003		% V_o
Ripple Rejection Ratio ⁽⁴⁾	R_A	$V_o + 1.5V$	0.8	O.T.	60	72		dB

NOTES:

- (1) Low duty cycle pulse testing with Kelvin connections required.
- (2) $\Delta V_{OUT} = 1\%$.
- (3) Bandwidth of 10 Hz to 10kHz.
- (4) 120Hz input ripple.
- (5) Over Temp. (O.T.) = over specified operating junction temperature range.

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Pin Configuration



PIN	FUNCTION
1	GND
2	OUTPUT
3	INPUT

TAB IS OUTPUT

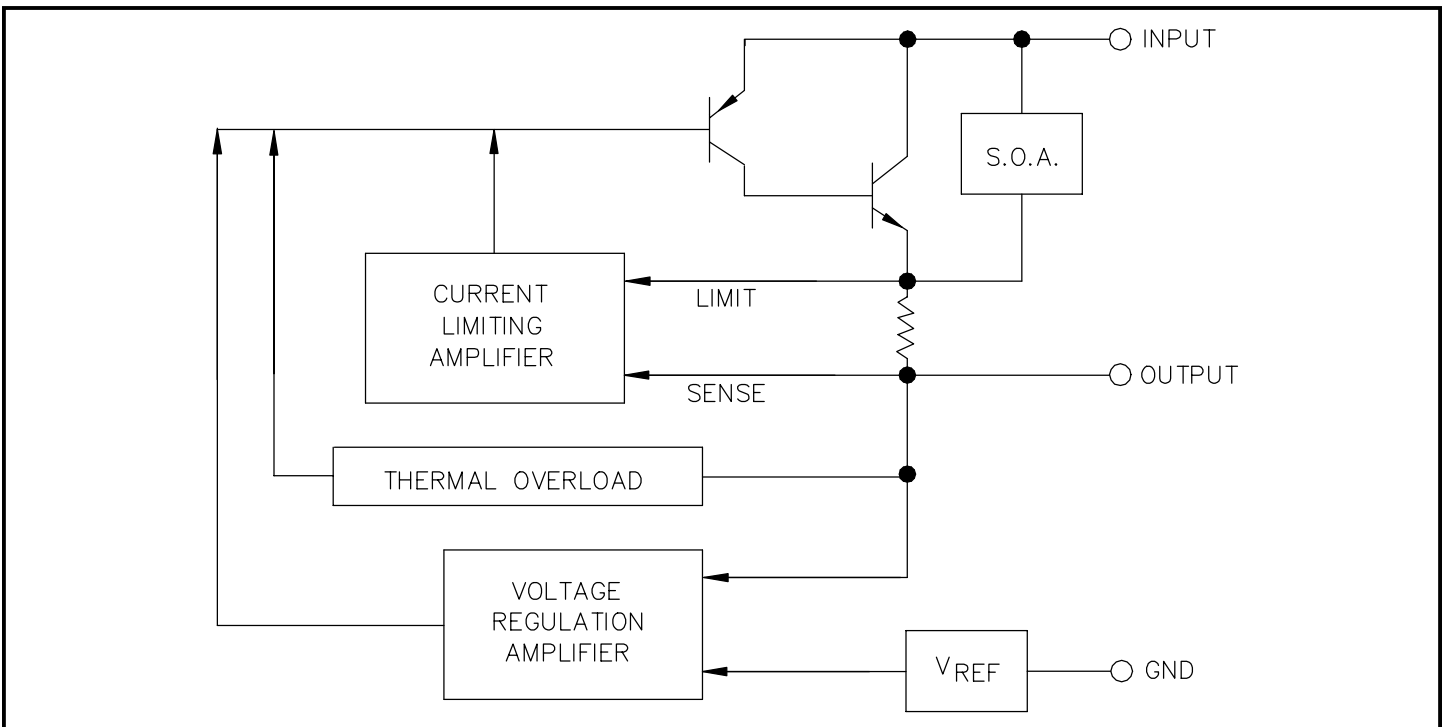
Ordering Information

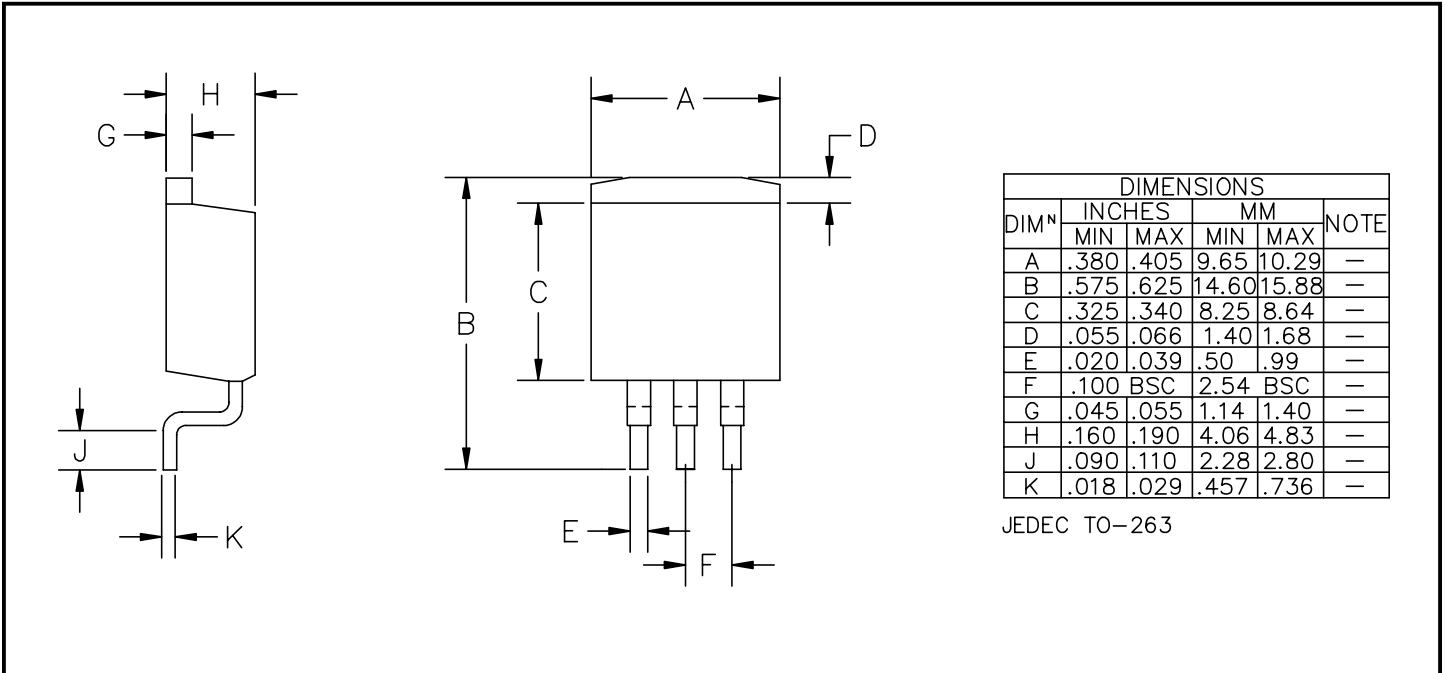
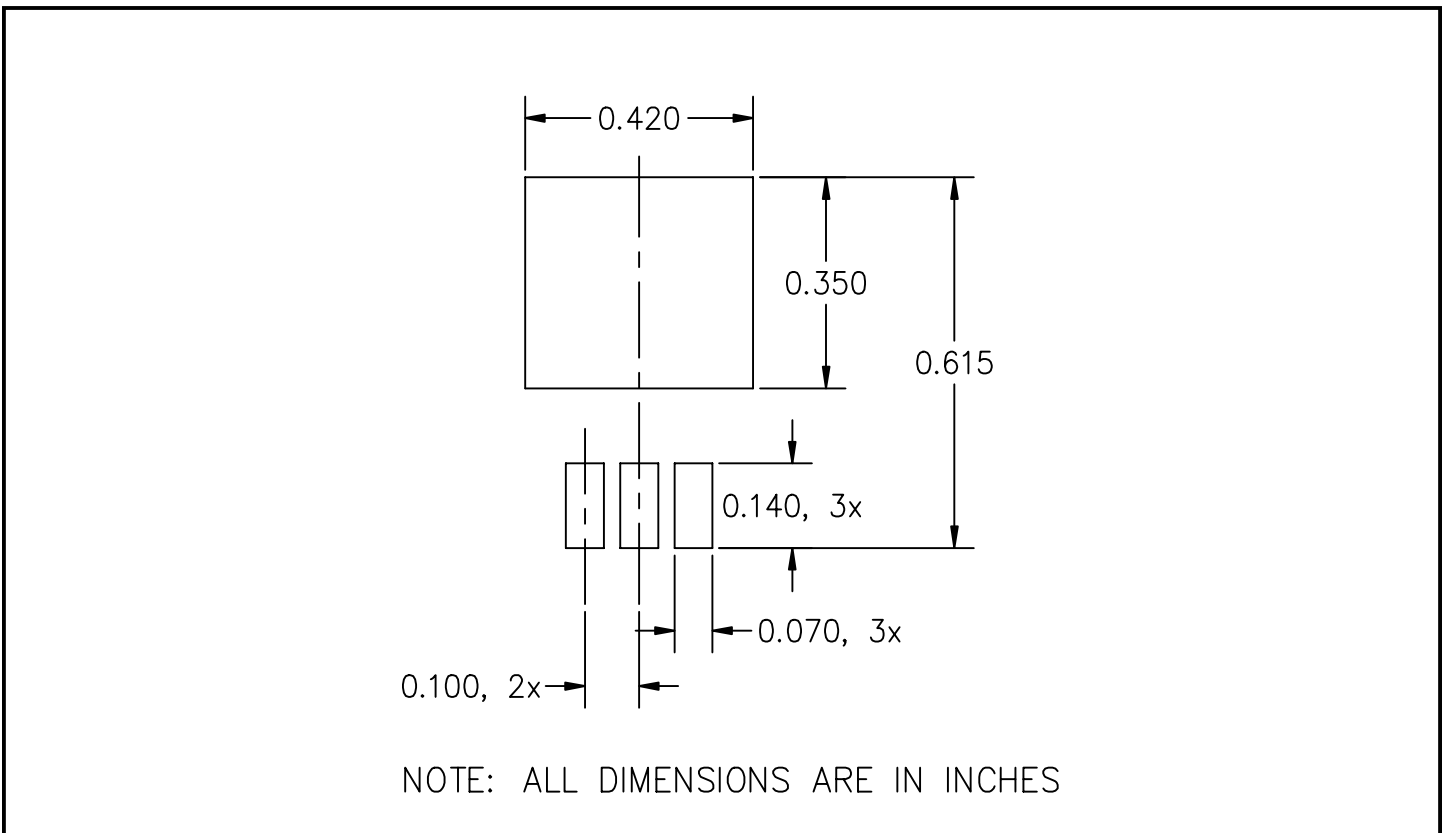
Device ⁽¹⁾⁽²⁾	Package
SC1117CM-5.0.TR	TO-263
SC1117CST-5.0.TR	SOT-223

Notes:

- (1) 5V option available only.
- (2) Only available in tape and reel packaging. A reel contains 800 (TO-263) or 2500 (SOT-223) devices.

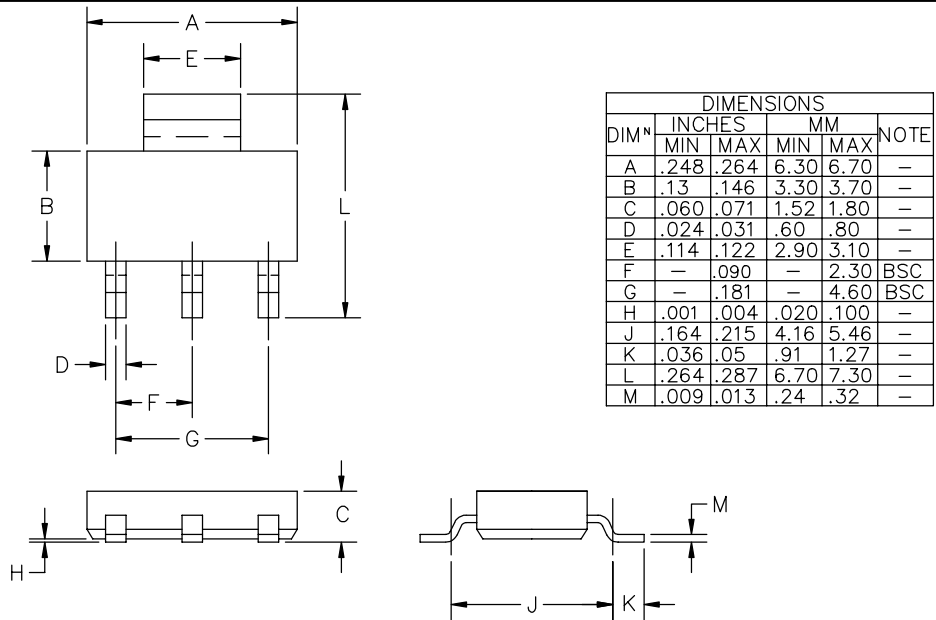
Block Diagram



POWER MANAGEMENT
Outline Drawing - TO-263

Land Pattern - TO-263


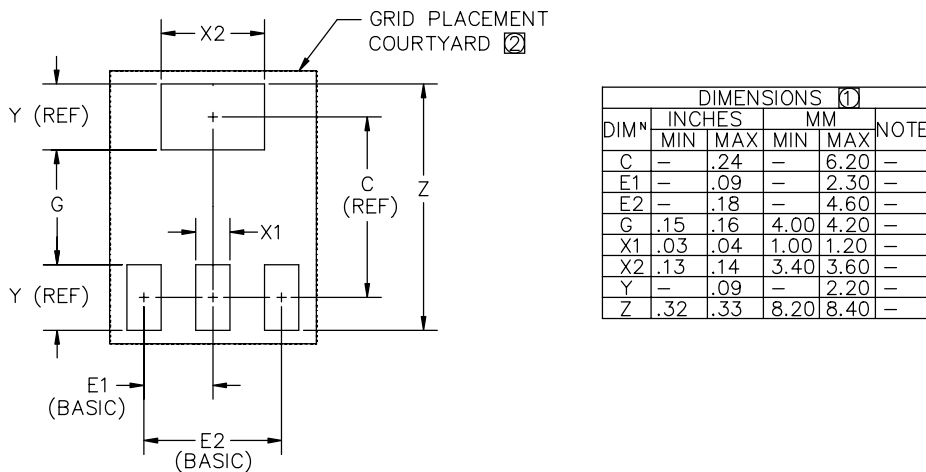
POWER MANAGEMENT

Outline Drawing - SOT-223



CONTROLLING DIMENSIONS: MILLIMETERS.

Land Pattern - SOT-223



② GRID PLACEMENT COURTYARD IS 18 x 14 ELEMENTS (9 mm X 7mm) IN ACCORDANCE WITH THE INTERNATIONAL GRID DETAILED IN IEC PUBLICATION 97.

① CONTROLLING DIMENSION: MILLIMETERS

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