



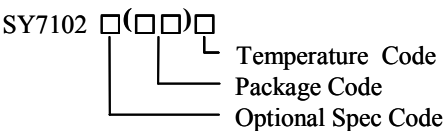
# SY7102

## High Efficiency 1MHz, 2.5A Step Up Regulator

### General Description

SY7102 is a high efficiency boost regulator targeted for general step-up applications. The device integrates a low  $R_{DS(ON)}$  switch to minimize the conduction loss. Low output voltage ripple and small external inductor and capacitor sizes are achieved with 1MHz switching frequency.

### Ordering Information



Temperature Range: -40°C to 85°C

Ordering Number	Package type	Note
SY7102ABC	SOT23-6	----

### Features

- Wide input range:2-6V
- 1MHz switching frequency
- Minimum on time: 100ns typical
- Minimum off time: 100ns typical
- Max output voltage: 6V
- Low  $R_{DS(ON)}$ : 120mΩ
- RoHS Compliant and Halogen Free
- Compact package: SOT23-6

### Applications

- Solar Battery Charger
- Backup Battery

### Typical Applications

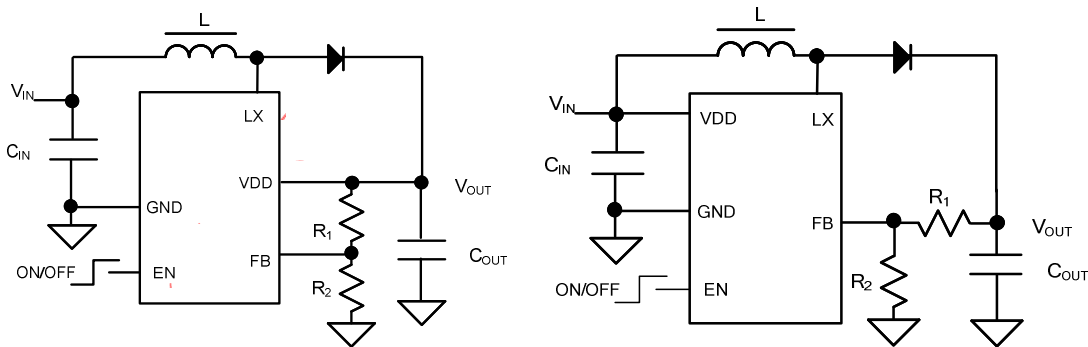
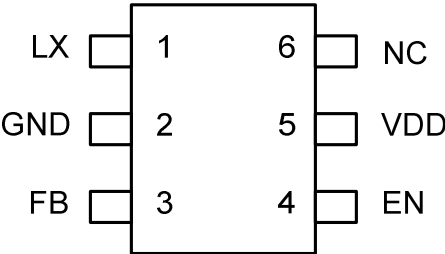


Fig. 1 Typical Schematic Diagram



SY7102

Pinout (top view)



SOT23-6

Top Mark:EXxyz (Device code: EX, x=year code, y=week code, z=lot number code)

Pin Name	Pin Number	Pin Description
GND	2	Ground pin
LX	1	Inductor node. Connect an inductor between power input and LX pin.
FB	3	Feedback pin. Connect a resistor R1 between V and FB, and a resistor R2 between FB and GND to program the output voltage: $V_{OUT}=0.6V*(R1/R2+1)$ .
EN	4	Enable control. Pull high to turn on. Do not float.
VDD	5	IC power supply input
NC	6	No connection.

Absolute Maximum Ratings

EN, VDD, LX	-----7V
FB	-----3.6V
Power Dissipation, Pd @ TA= 25°C, SOT23-6	-----0.6W
Package Thermal Resistance (Note 2)	
SOT23-6, θJA	-----200°C/W
SOT23-6, θJC	-----130°C/W
Junction Temperature Range	-----125°C
Lead Temperature (Soldering, 10 sec.)	-----260°C
Storage Temperature Range	----- -65°C to 150°C

Recommended Operating Conditions (Note 3)

VDD pin	-----2V to 6V
FB	-----0V to 1V
Junction Temperature Range	----- -40°C to 125°C
Ambient Temperature Range	----- -40°C to 85°C



## SY7102

### Electrical Characteristics

( $V_{IN} = 3.3V$ ,  $V_{OUT} = 5V$ ,  $I_{OUT} = 100mA$ ,  $T_A = 25^\circ C$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage Range	$V_{IN}$		2		6	V
Quiescent Current	$I_Q$	$V_{FB} = 0.66V$		200		$\mu A$
Low Side Main FET RON	$R_{DS(ON)1}$			120		$m\Omega$
Main FET Current Limit	$I_{LIM}$		3			A
Switching Frequency	$F_{SW}$			1		MHz
Feedback Reference Voltage	$V_{REF}$		0.588	0.6	0.612	V
IN UVLO Rising Threshold	$V_{IN,UVLO}$				1.9	V
Thermal Shutdown Temperature	$T_{SD}$			150		$^\circ C$

**Note 1:** Stresses listed as the above “Absolute Maximum Ratings” may cause permanent damage to the device. These are for stress ratings. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may remain possibility to affect device reliability.

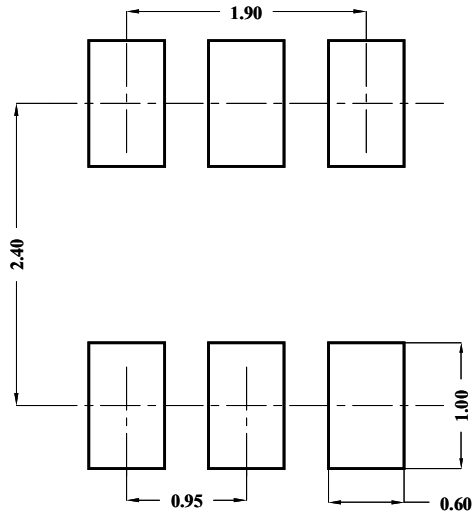
**Note 2:**  $\theta_{JA}$  is measured in the natural convection at  $T_A = 25^\circ C$  on a low effective single layer thermal conductivity test board of JEDEC 51-3 thermal measurement standard.

**Note 3:** The device is not guaranteed to function outside its operating conditions

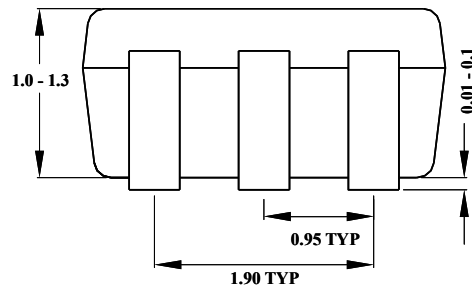
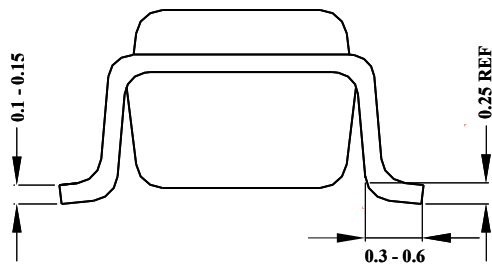
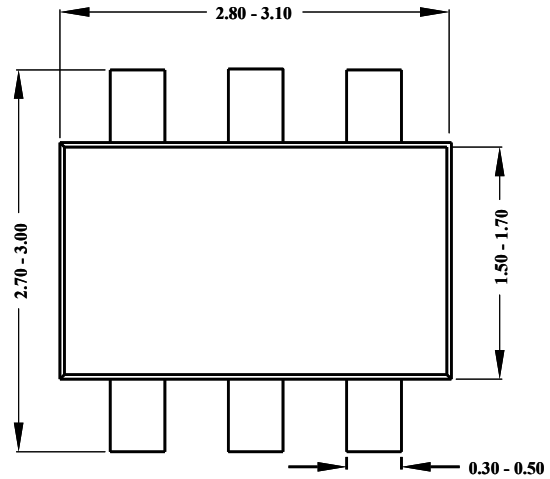


**SY7102**

## SOT23-6 Package outline & PCB layout design



**Recommended Pad Layout**



**Notes:** All dimensions are in millimeters.

All dimensions don't include mold flash & metal burr.