

23V, 500mA Low Dropout Voltage Linear Regulator

PRELIMINARY DATASHEET

Product Overview

The FH6242 series are a group of low-dropout (LDO) voltage regulators offering the benefits of wide input voltage range, low dropout voltage, low power consumption, and miniaturized packaging.

Quiescent current of only 1.5μA makes these devices ideal for powering the battery-powered, always-on systems that require very little idle-state power dissipation to a longer service life.

The FH6242 series of linear regulators are stable with the ceramic output capacitor over its wide input range from 2.0V to 23V and the entire range of output load current (0mA to 500mA).

Datasheet Brief

Key Features

- Wide Operating Input Voltage Range: 2V to 23V
- 1.5uA Ground Current at no Load
- Output Accuracy: ±1%
- Output Peak Current: 500mA
- Dropout Voltage: 0.35V at 100mA / VOUT 5V
- High PSRR: 70dB (typ.) @ 1kHz
- Support Fixed Output Voltage 1.8V, 2.5V, 2.8V, 3.0V, 3.3V, 4.4V, 5V
- Stable with Ceramic or Tantalum Capacitor
- Current Limit Protection
- Over-Temperature Protection

Applications

- Portable, Battery Powered Equipment
- Low Power Microcontrollers
- Wireless Communication Equipment
- Industrial Controls

Simplified Application Circuit

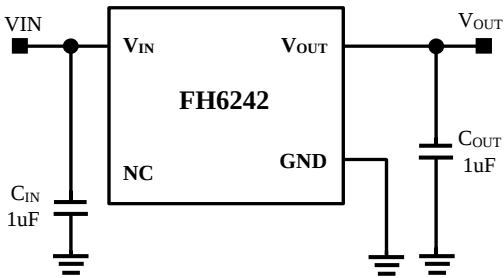
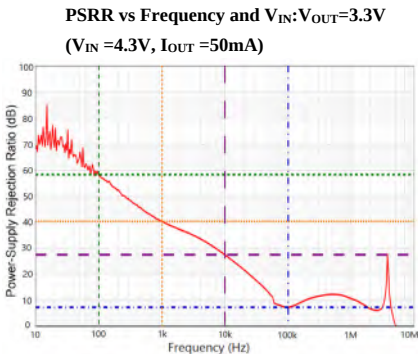


Figure 1. Application circuit of Fixed VOUT LDO

Package Type

- 3-pin SOT-23 / SOT-23-3L / SOT-89-3L
- 5-pin SOT-23-5L

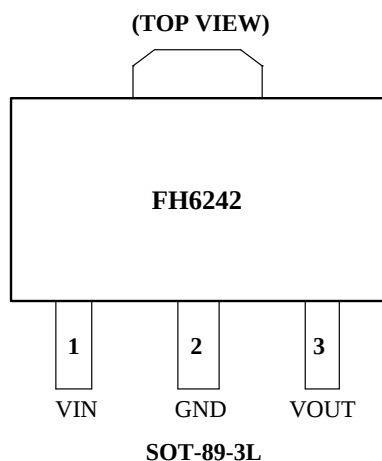
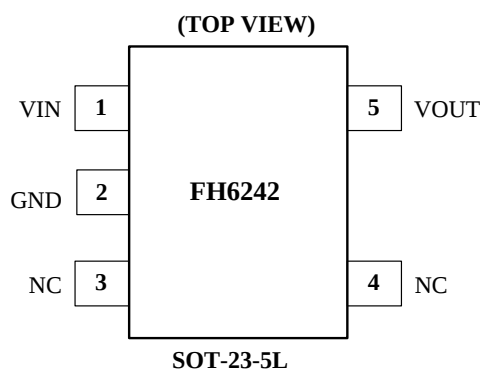
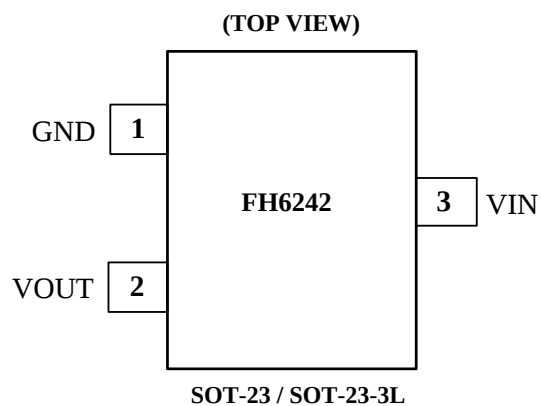


Device Information (1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
FH6242A**M3	SOT-23-3L (3L)	2.92mm × 1.30mm
FH6242A**M0	SOT-23 (3L)	2.80mm × 1.20mm
FH6242A**P3	SOT-89-3L (3L)	4.5mm × 4.095mm
FH6242A**M5	SOT-23-5L (5L)	2.90mm × 1.60mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.

Pin Configurations



Pin Description

Pin No				Pin Name	Pin Function
SOT-23	SOT-23-3L	SOT-89-3L	SOT-23-5L		
1	1	2	2	GND	Ground
2	2	3	5	VOUT	Output of the Regulator
3	3	1	1	VIN	Input of Supply Voltage
/	/	/	3 / 4	NC	No Internal Connection

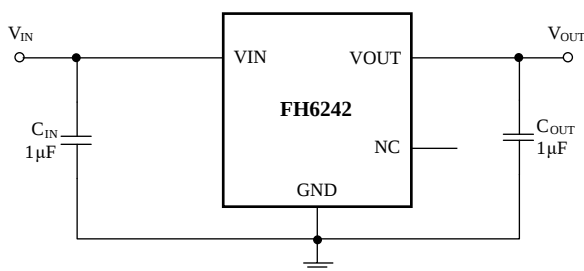
器件概述

FH6242 系列是一组低压差 (LDO) 转换器, 具有 2.0V 至 23V 宽电压输入范围、低压差、低功耗和小型化封装的等特性。

FH6242 低至 1.5uA 低静态电流特性, 特别适合用于电池供电、长时间待机系统设备应用, 能帮助降低系统设备的待机功耗, 有效延长待机时间和电池使用寿命。

FH6242 系列支持输出电容采用陶瓷电容器, 在 2.0V 至 23V 的宽输入电压范围内和整个输出负载电流 0mA~500mA 范围内稳定工作。

典型应用电路



引脚功能描述

引脚序号			名称	功能描述
SOT-23 SOT-23-3L	SOT-89-3L	SOT-23-5L		
1	2	2	GND	接地引脚
2	3	5	VOUT	电源输出端口
3	1	1	VIN	电源输入端口
/	/	3 / 4	NC	浮空引脚

产品特性

- 宽范围输入电压: 2.0V ~ 23V
- 1.5uA 静态电流 (无负载)
- 输出电压精度: $\pm 1\%$
- 输出瞬间最大电流: 500mA
- 低压差: 0.35V ($V_o=5V/I_o=100mA$ 条件下)
- 固定输出电压:
1.8V, 2.5V, 2.8V, 3.0V, 3.3V, 3.6V, 5.0V
- 支持陶瓷电容或者钽电容
- 限流保护
- 过温保护

封装类型

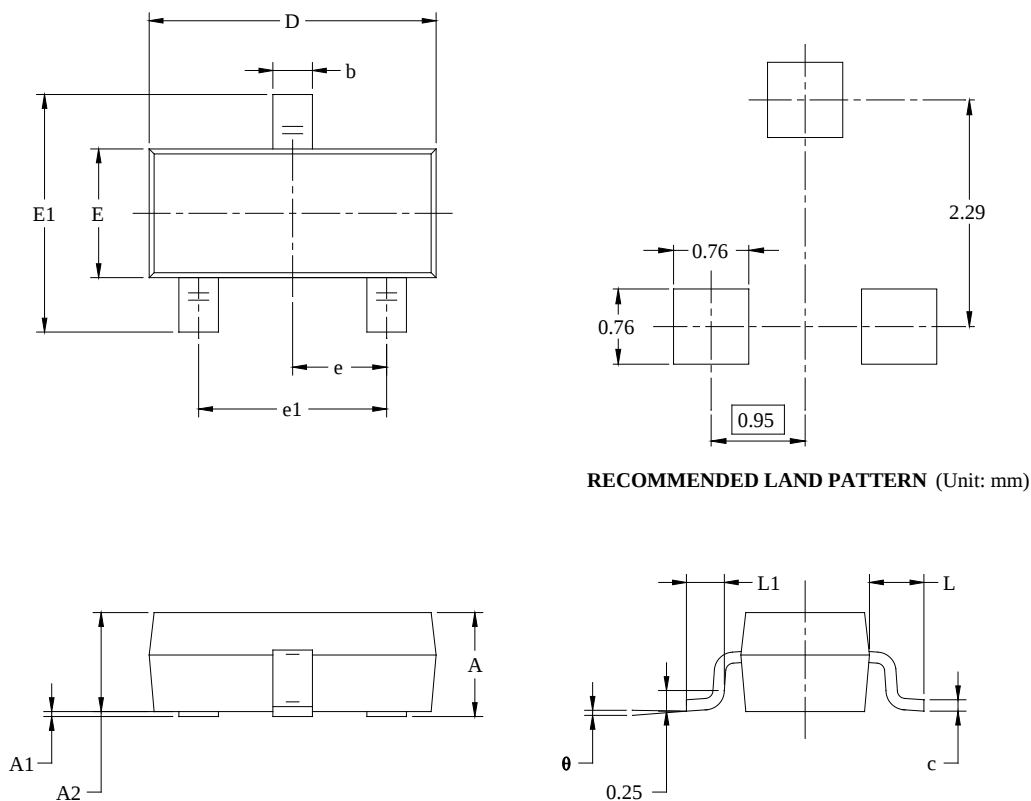
- 3-pin SOT-23 / SOT-23-3L / SOT-89-3L
- 5-pin SOT-23-5L

应用领域

- 手持式、电池供电设备
- 低功耗微处理器
- 无线通讯设备
- 音频/视频设备
- 车载导航系统
- 工业控制
- 智能电表
- 智能家居

PACKAGE OUTLINE DIMENSIONS

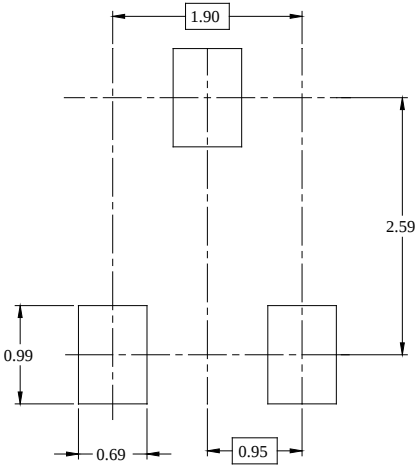
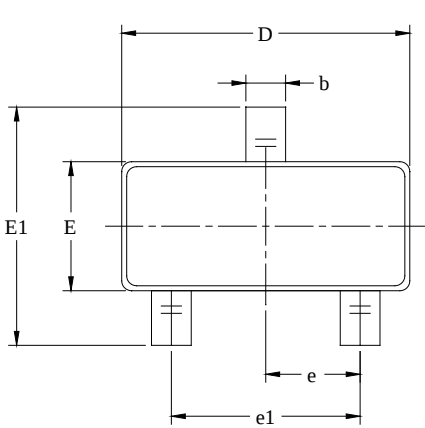
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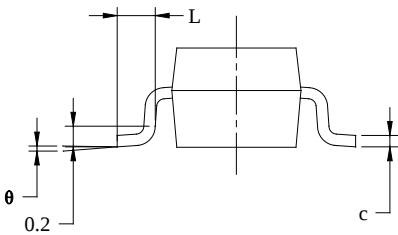
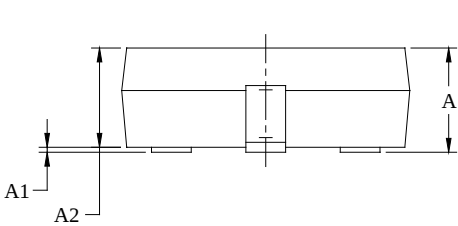
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 BSC		0.037 BSC	
e1	1.900 BSC		0.075 BSC	
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

PACKAGE OUTLINE DIMENSIONS

Type: SOT-23-3L



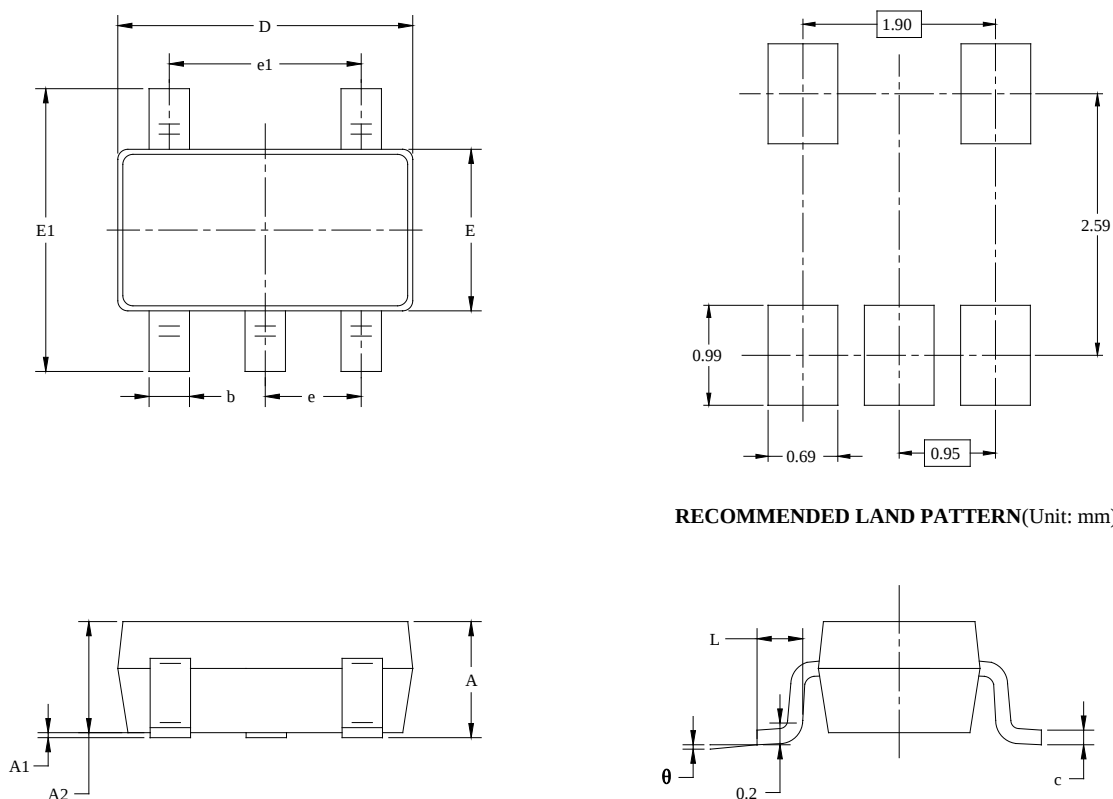
RECOMMENDED LAND PATTERN (Unit: mm)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.900 BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

PACKAGE OUTLINE DIMENSIONS

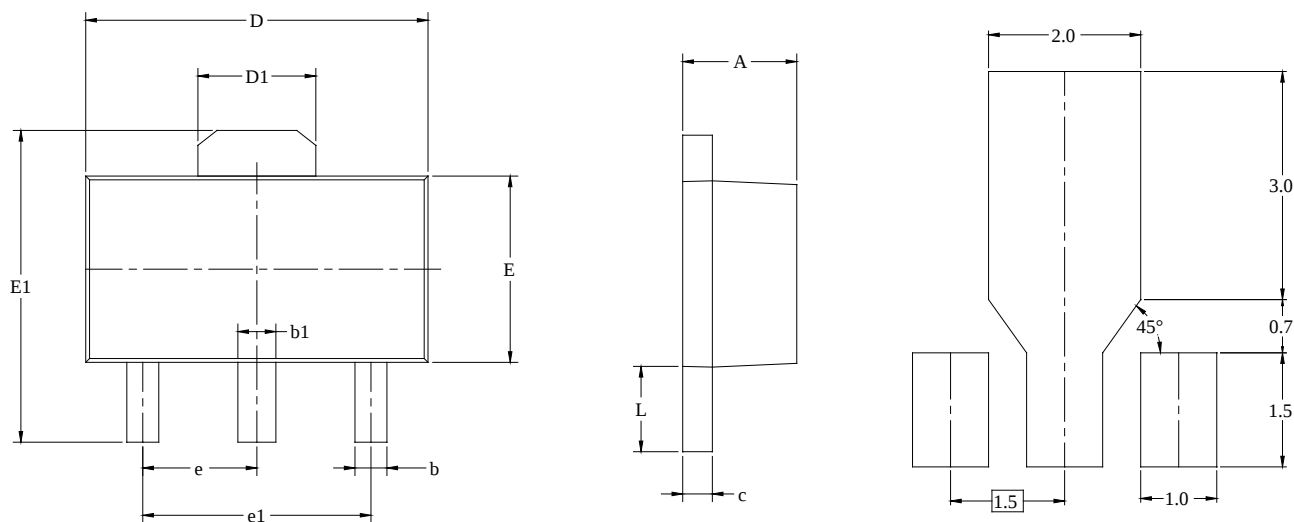
Type: SOT-23-5L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.900BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

PACKAGE OUTLINE DIMENSIONS

Type: SOT-89-3L



RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060 TYP	
e1	3.000 TYP		0.118 TYP	
L	0.900	1.200	0.035	0.047

ORDERING INFORMATION

Part Number	Input Voltage	Output Function	Operating Temperature	Package Type	Top Mark	SPQ
FH6242A**M0	~ 23.0V	** → Output voltage e.g., 18 = 1.8V 28 = 2.8V 33 = 3.3V 50 = 5.0V - The selectable voltage values are: 1.8V / 2.5V / 2.8V / 3.0V / 3.3V / 4.4V / 5.0V	-40°C to +85°C	SOT-23	06 <u>Y</u> <u>M</u> <u>L</u>	3000EA/Reel
FH6242A**M3	~ 23.0V		-40°C to +85°C	SOT-23-3L	AA ** <u>Y</u> <u>M</u> <u>L</u>	3000EA/Reel
FH6242A**P3	~ 23.0V		-40°C to +85°C	SOT-89-3L	AA ** <u>Y</u> <u>M</u> <u>L</u>	1000EA/Reel
FH6242A**M5	~ 23.0V		-40°C to +85°C	SOT-23-5L	AA ** <u>Y</u> <u>M</u> <u>L</u>	3000EA/Reel

Note:

- **FH6242A**M0 | FH6242A**M3 | FH6242A**P3 | FH6242A**M5** devices are Pb-free and RoHs compliant.
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