

## 1A Low Power High PSRR LDO

### Features

- Low voltage drop: 0.06V@100mA
- High input voltage: 8.5V
- Low temperature coefficient
- Low Quiescent Current: 25uA at 5.0V
- Output voltage accuracy: tolerance  $\pm 2\%$
- SOT23-5 ,SOT89 ,SOT89-5 ,TO252 and TO220 package

### Applications

- Battery-powered equipment
- Hand-Hold Equipment
- GRS Receivers
- Wireless LAN

### General Description

The PTĠĠ series is a group of positive voltage output, three-pin regulators, that provide a high current even when the input/output voltage differential is small. Low power consumption and high accuracy is achieved through CMOS and laser trimming technologies.

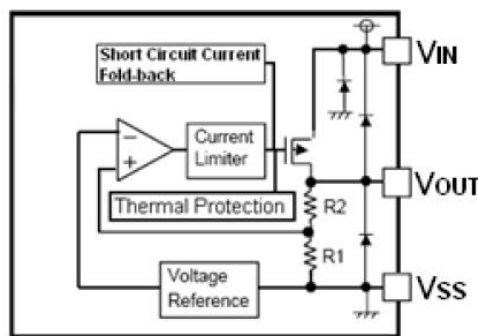
The ĀPTĠĠ consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Transient response to load variations have improved in comparison to the existing series.

### Order Information

PTĠĠ ①②③④

Designator	Symbol	Description
①	M5	Package:SOT23-5
	P	Package:SOT89A
	PB	Package:SOT89B
	P5	Package:SOT89-5
	TB	Package:TO220
	TC	Package:TO252
②③	Integer	Output Voltage(2.1~5.0V)
④	R	RoHS / Pb Free
	G	Halogen Free

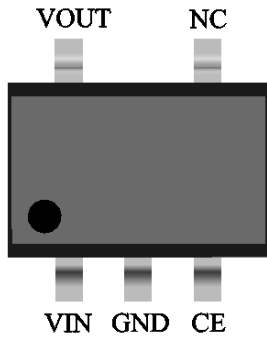
### Block Diagram



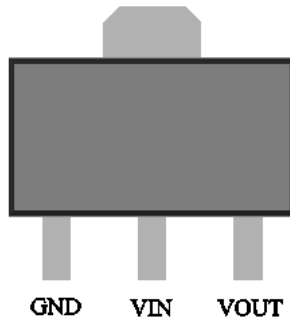
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## Pin Assignment

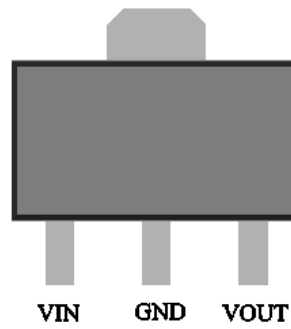
SOT23-5 (Top view)



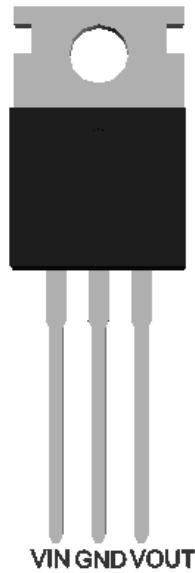
SOT89 A (Top view)



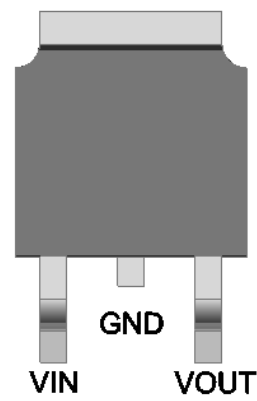
SOT89 B (Top view)



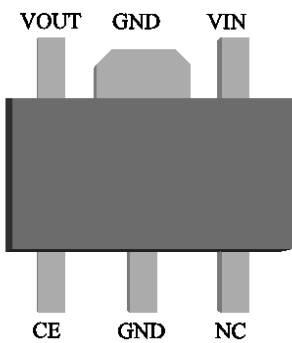
TO220 (Top View)



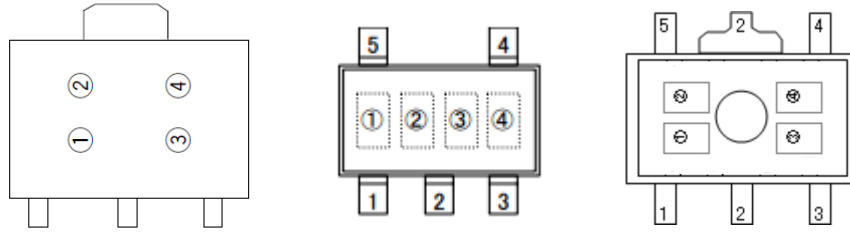
TO252 (Top View)



SOT89-5 (Top view)



**Marking Rule**



① product code: H

② output voltage code:

Voltage(V)	Code	Voltage(V)	Code	Voltage(V)	Code
1.0	a	2.4	0	3.8	N
1.1	b	2.5	A	3.9	O
1.2	c	2.6	B	4.0	P
1.3	d	2.7	C	4.1	Q
1.4	e	2.8	D	4.2	R
1.5	1	2.9	E	4.3	S
1.6	2	3.0	F	4.4	T
1.7	3	3.1	G	4.5	U
1.8	4	3.2	H	4.6	V
1.9	5	3.3	I	4.7	W
2.0	6	3.4	J	4.8	X
2.1	7	3.5	K	4.9	Y
2.2	8	3.6	L	5.0	Z
2.3	9	3.7	M		

③ CE code

Symbol	Standard
E	With CE
N	Without CE

④ Data Code: X

### Absolute Maximum Ratings

Supply Voltage .....	-0.3V to 8.5V	Operating Temperature .....	-40°C to 85°C
Output Current.....	1.1A	Storage Temperature .....	-40°C to 125°C

Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

**Electrical Characteristics**

HM6246 for any output voltage

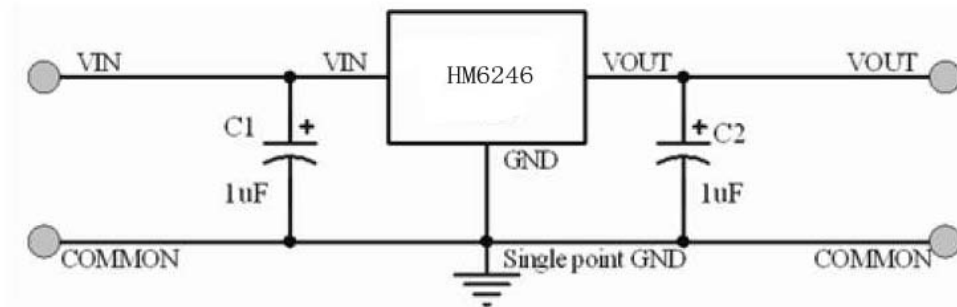
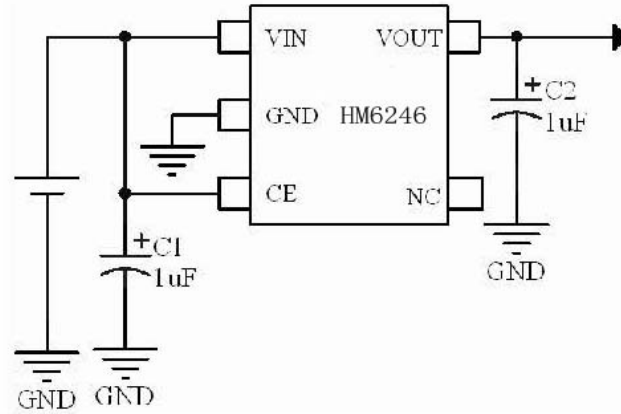
(Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	Vout	Vin=Vout+1V 1.0mA≤Iout≤30mA	Vout×0.98	--	Vout×1.02	V
Output Current*1	Iout	Vin-Vout=1V	--	1000	--	mA
Low dropout*2	Vdrop	Refer to the next table				
Line Regulation	$\Delta V_{out1}/(V_{in}-V_{out})$	1.6V≤Vin≤8V Iout=100mA	--	0.05	0.2	%/V
Load Regulation	$\Delta V_{out}$	Vin= Vout+1V 1.0mA≤Iout≤100mA	--	12	30	mV
Output voltage Temperature Coefficiency	$\Delta V_{out}/(T_a \cdot V_{out})$	Iout=30mA 0°C≤Ta≤70°C	--	±100	--	Ppm/°C
PSRR	PSRR	F=1KHz Vin=Vout+1V	--	70	--	dB
Supply Current	I <sub>SS</sub>	--	--	25	35	uA
Input Voltage	Vin	--	--	--	7.5	V
Thermal shutdown detection temperature	T <sub>SD</sub>	Junction temperature	-	160	-	°C
Thermal shutdown release temperature	T <sub>SR</sub>	Junction temperature	-	140	-	°C

**Electrical Characteristics by Output Voltage:**

Output Voltage Vout(V)	Dropout Voltage Vdif (V)		
	Conditions	Typ.	Max.
Vout ≤ 2.0V	Iout=60 mA	0.05	0.08
2.0 < Vout ≤ 3.0	Iout=80 mA	0.05	0.08
3.0 < Vout ≤ 4.0	Iout=100 mA	0.06	0.08
4.0 < Vout ≤ 5.0		0.05	0.08
3.0 < Vout ≤ 4.0	Iout=200 mA	0.13	0.16
4.0 < Vout ≤ 5.0		0.12	0.16
3.0 < Vout ≤ 4.0	Iout=1000 mA	0.65	0.8
4.0 < Vout ≤ 5.0		0.6	0.8

**Application Circuits**

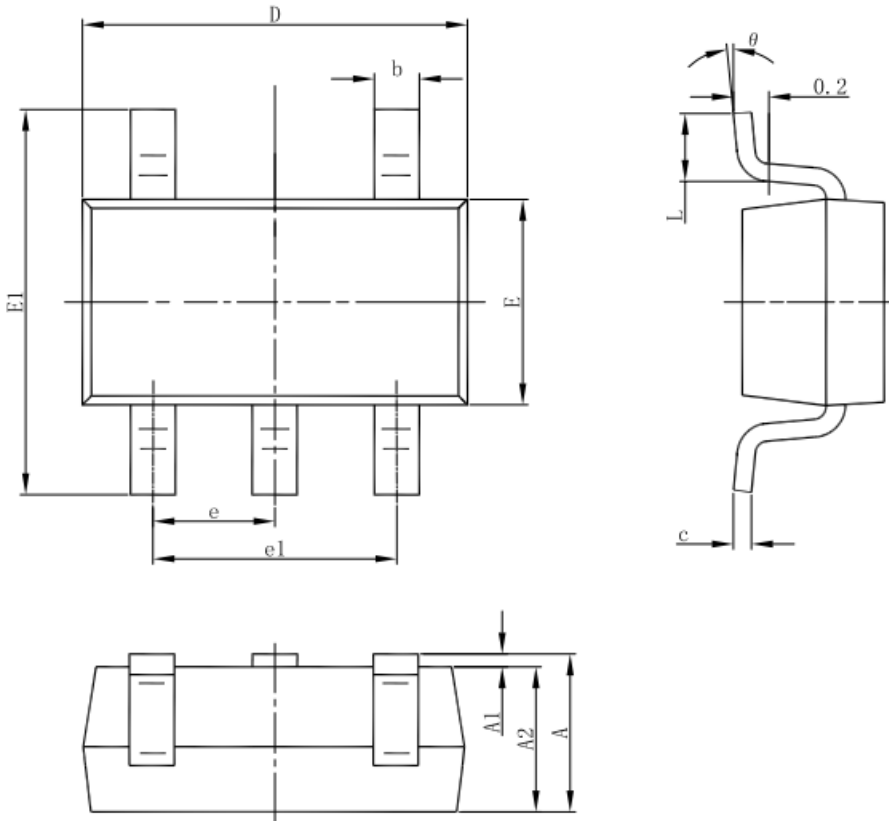


Note1: Input capacitor  $C_{IN}=1\mu F$ .

Note2: Output capacitor  $C_{OUT}=1\mu F/6.8\mu F$  (1uF Tantalum capacitor or 6.8uF ceramic capacitor is recommended).

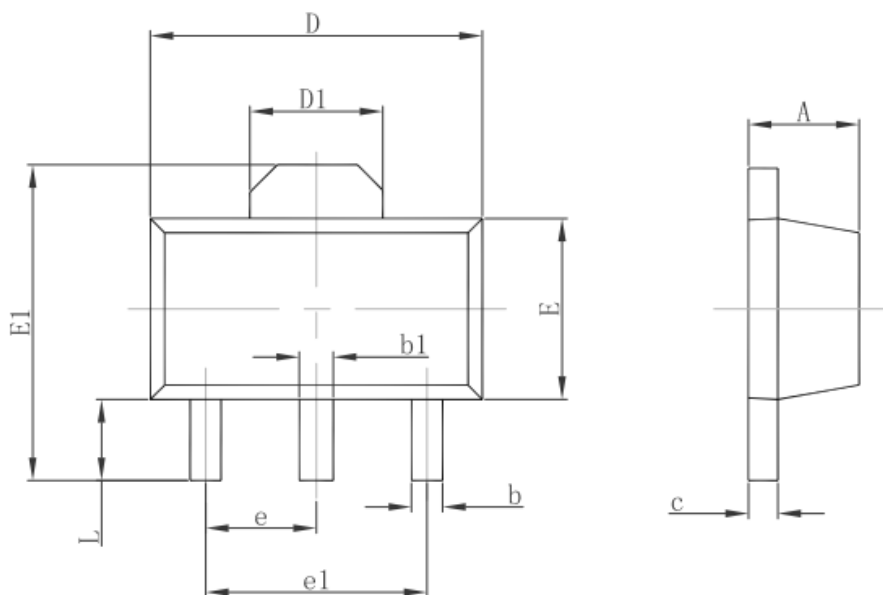
**Package Information**

**SOT-23-5L PACKAGE OUTLINE DIMENSIONS**



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	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

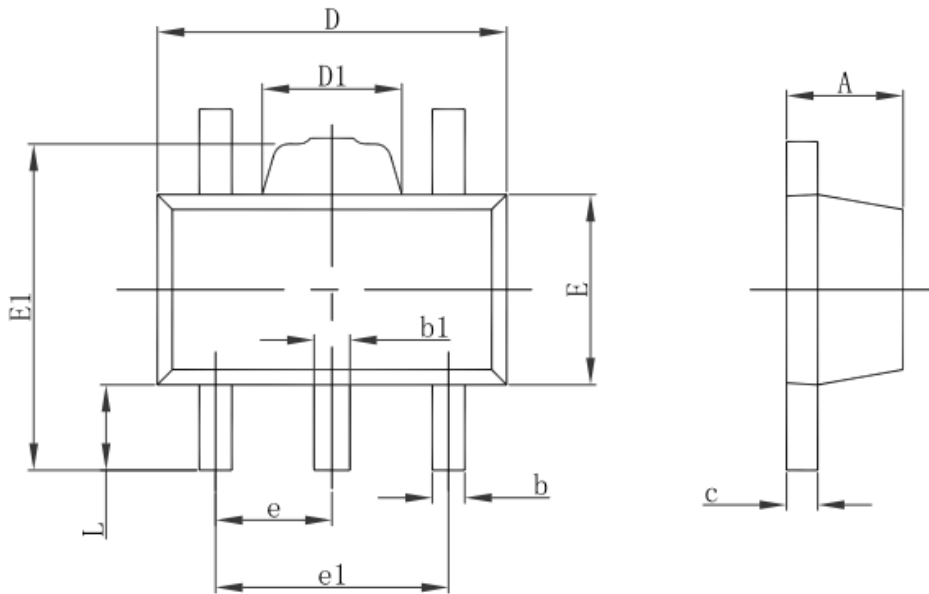
**SOT-89-3L PACKAGE OUTLINE DIMENSIONS**



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

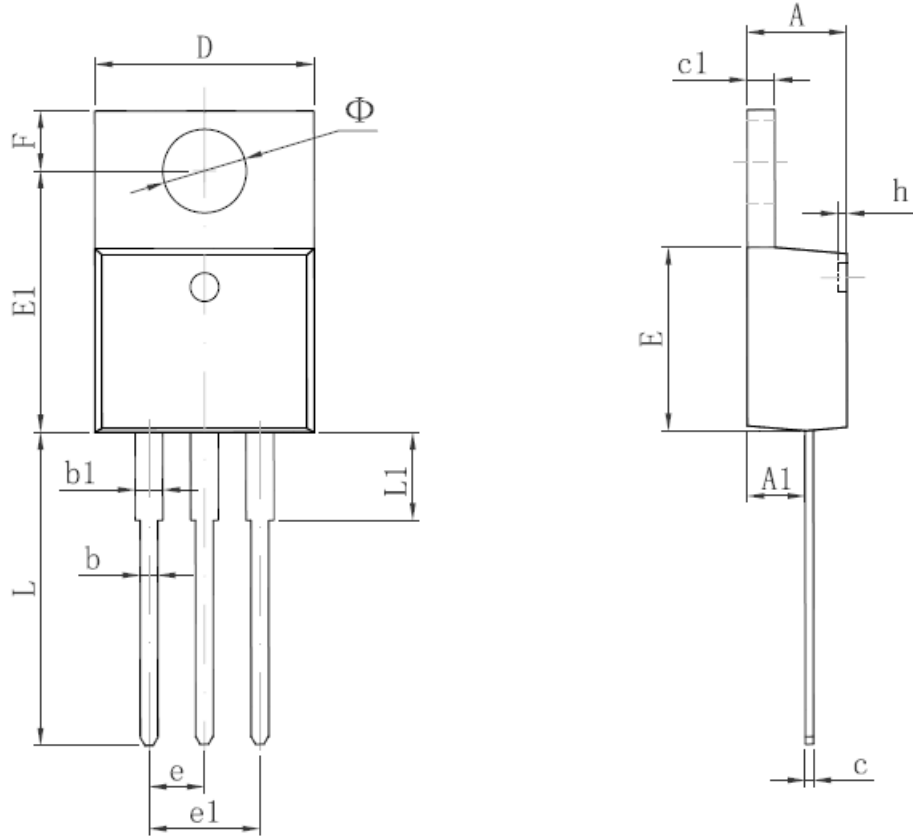


**SOT-89-5L PACKAGE OUTLINE DIMENSIONS**



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	0.360	0.560	0.014	0.022
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.400	1.800	0.055	0.071
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP.		0.060TYP.	
e1	2.900	3.100	0.114	0.122
L	0.900	1.100	0.035	0.043

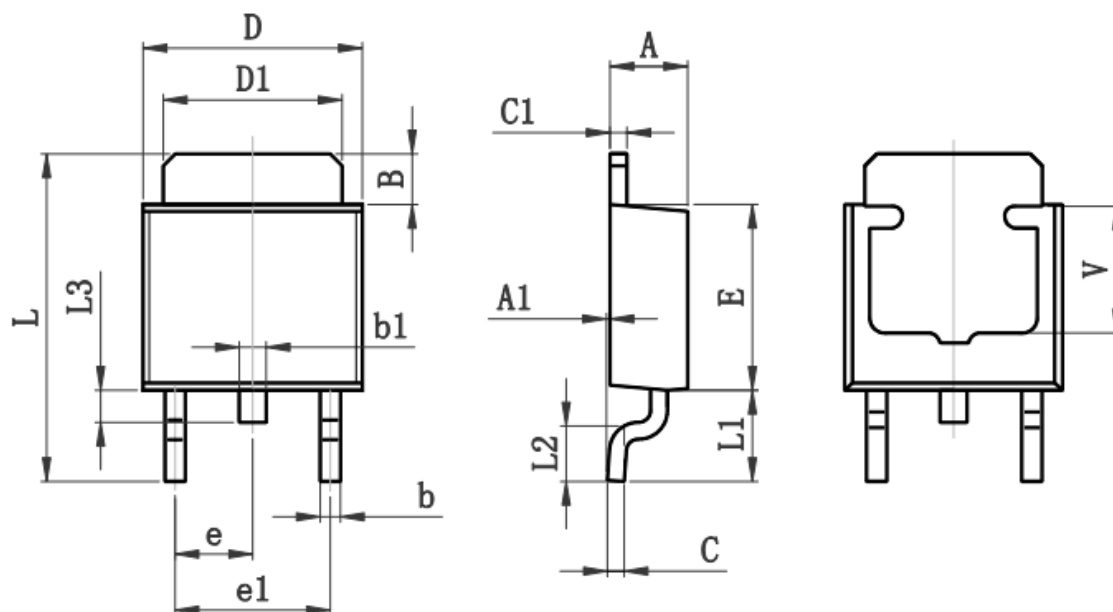
**TO-220-3L PACKAGE OUTLINE DIMENSIONS**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
$\Phi$	3.735	3.935	0.147	0.155

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## TO-252-2L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	9.500	9.900	0.374	0.390
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	3.800 REF.		0.150 REF.	