

## SNE2401 40V $\mu$ A-power LDO Regulator

### Features

- Maximum Operating Voltage: 40V
- Output Voltage: 1.8V, 2.5V, 3.0V, 3.3V, 3.6V, 4.0V, 4.2V and 5.0V
- Output Accuracy:  $\pm 1\%$
- Low Power Consumption: 1.5 $\mu$ A
- $< 0.1\mu$ A Standby Current When Shutdown
- Low Temperature Coefficient
- Current Limiting, Thermal Shutdown
- Available in SOT89-3, SOT23-5, SOT23/ SOT23-3L and SOT223 Packages

### Applications

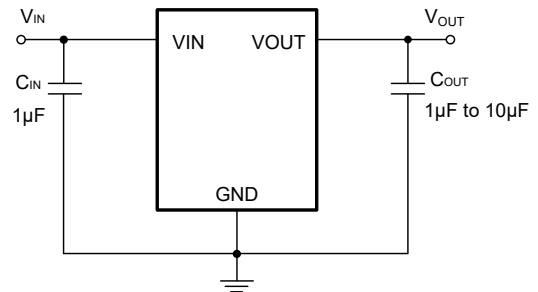
- Battery Supplied Systems
- Telecom Systems
- Audio & Video Devices
- Automotive Electronics
- Industrial Electronics

### General Description

The SNE2401 is a 40V  $\mu$ A-power high accuracy LDO regulator. The 1 $\mu$ A power consumption makes it ideal for most HV power-saving systems. The maximum operating voltage can be as high as 40V. The output accuracy is as excellent as  $\pm 1\%$ .

The other features include low dropout voltage, current limiting protection and thermal shutdown protection.

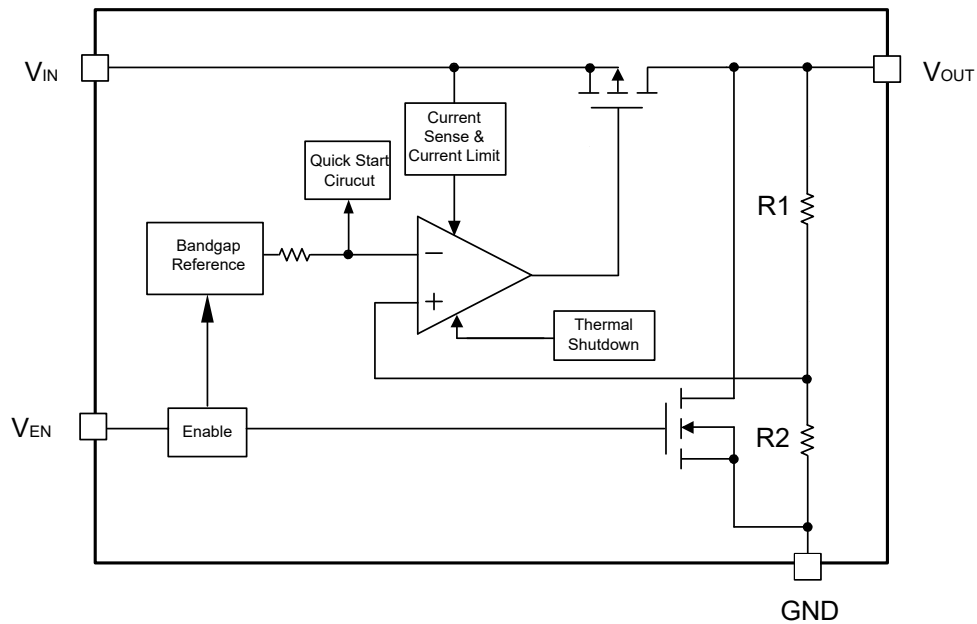
### Typical Application Circuit



### Order Information

Model	PIN-PACKAGE	Ordering Number	Packing Option
SNE2401	SOT23/SOT23-3L	SNE240100AB3	3000pcs/Reel
	SOT23-5A	SNE240100AB5	3000pcs/Reel
	SOT23-5B	SNE240101AB5	3000pcs/Reel
	SOT89-3A	SNE240100AY3	3000pcs/Reel
	SOT89-3B	SNE240101AY3	3000pcs/Reel
	SOT-223	SNE240100AS3	3000pcs/Reel

## Block Diagram



## Absolute Maximum Ratings

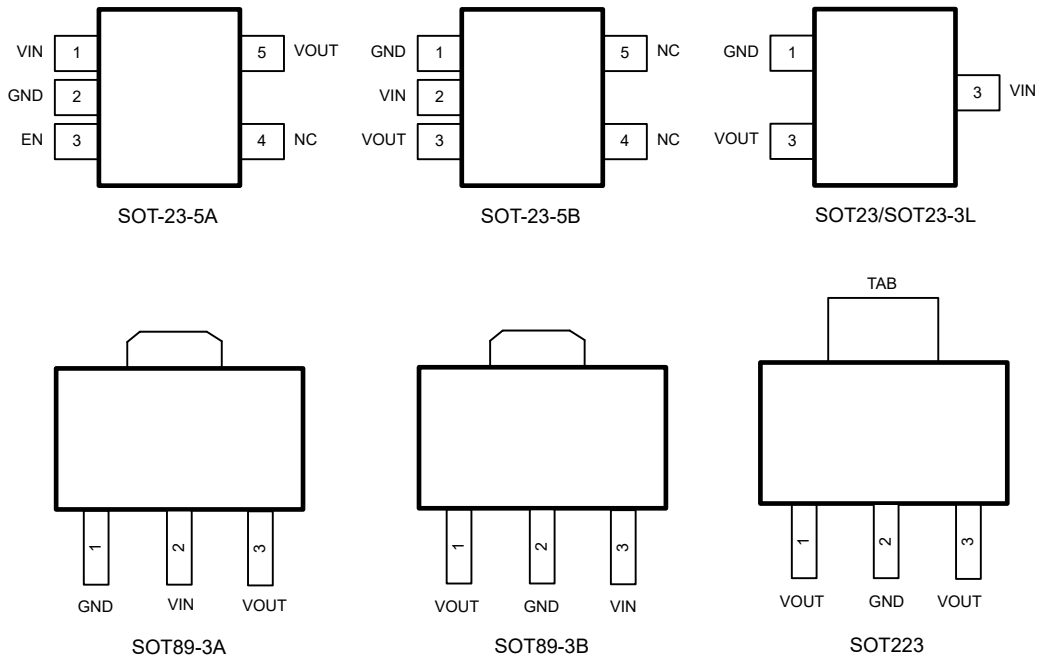
Parameter	Symbol	Rating	Unit
Supply Voltage	$V_{IN}$	-0.3~44	V
EN pin to GND Voltage	$V_{EN}$	-0.3~44	V
VOUT pin to GND Voltage	$V_{IO}$	-0.3~6	V
VOUT pin to VIN Voltage	$V_{IO2}$	-46~0.3	V
Maximum Power Dissipation, SOT89-3	$P_D$	1.2	W
Maximum Power Dissipation, SOT23-3		0.4	W
Junction Temperature Range	$T_J$	-40~150	°C
Storage Temperature Range	$T_{STG}$	-50~150	°C
Operating Temperature Range	$T_{OP}$	-45~80	°C
Lead Temperature (Soldering)	$T_{SOLDER}$	260°C, 10s	

**Note:** Absolute Maximum Ratings are threshold limit values that must not be exceeded even for an instant under any condition. Moreover, such values for any two items must not be reached simultaneously. Operation above these absolute maximum ratings may cause degradation or permanent damage to the device. These are stress ratings only and do not necessarily imply functional operation below these limits.

## Contents

1	Pin Description.....	4
2	Electrical Characteristics.....	5
3	Package Outline(SOT23-5).....	6
4	Package Outline(SOT89-3).....	7
5	Package Outline(SOT23).....	8
6	Package Outline(SOT223).....	9
7	Revision History.....	10

# 1 Pin Description



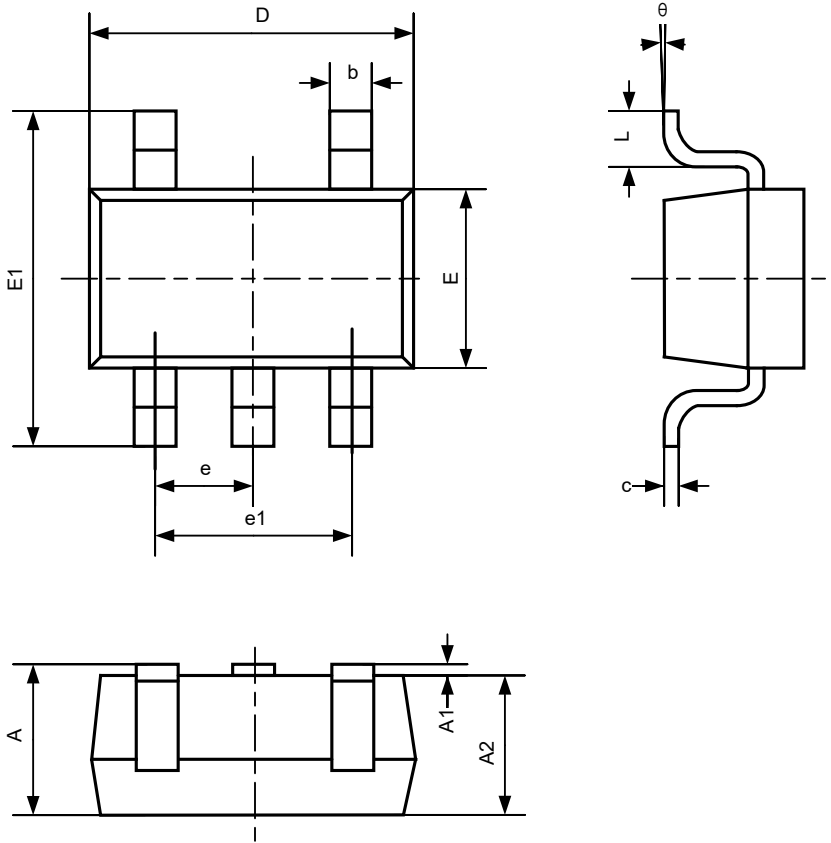
PIN					NAME	FUNCTION
SOT23/SOT23-3L	SOT89-3A/SOT223	SOT89-3B	SOT23-5A	SOT23-5B		
1	1	2	2	1	GND	Ground
2	3	1	5	3	VOUT	Output
3	2	3	1	2	VIN	Power Supply Input
			3		EN	Chip Enable
			4	4,5	NC	Not Connected

## 2 Electrical Characteristics

( $V_{IN} = V_{OUT} + 1V$ ,  $C_L = 1\mu F$ ,  $T_A = +25^\circ C$ , unless otherwise noted.)

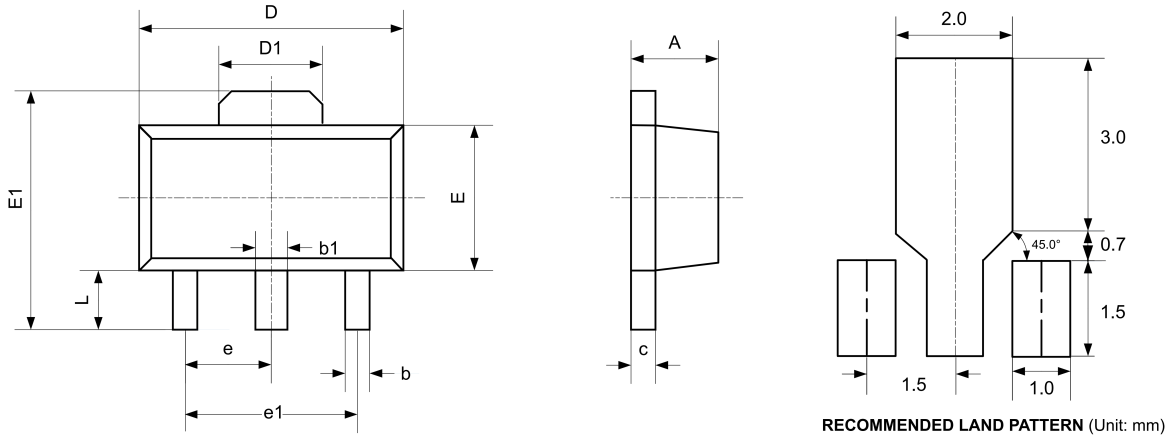
Parameter	Symbol	Values			Unit	Note/Test Condition
		Min.	Typ.	Max.		
Input Voltage	$V_{IN}$	2.5		40	V	
Output Voltage	$V_{OUT}$	-1%		+1%	V	$I_{OUT}=40mA$
Maxim Output Current	$I_{OUT\_max}$	150			mA	SOT89-3, SOT223
		100			mA	SOT23-3
Load Regulation	$\Delta V_{OUT}$		25	50	mV	$1mA < I_{OUT} < 60mA$
Dropout Voltage	$V_{Drop}$		260		mV	$I_{OUT}=40mA$ , $V_{OUT}=5V$
			700		mV	$I_{OUT}=100mA$ , $V_{OUT}=1.8V$
Quiescent Current	$I_{QC}$		1.3	2	$\mu A$	$V_{IN}=V_{OUT}+1V$ , $I_{OUT}=0mA$
Short Current	$I_{Short}$		70		mA	$V_{OUT}=0V$
Line Regulation	$R_{EGI}$		0.2	0.3	%/V	$V_{IN}=V_{OUT}+1V$ to 24V, $I_{OUT}=40mA$
Power Supply Rejection Ratio	$P_{SRR}$		85		dB	Freq=200Hz, $I_{OUT}=50mA$
			80			Freq=1KHz, $I_{OUT}=50mA$
Temperature Coefficient	$T_C$		$\pm 0.7$		mV/ $^\circ C$	$I_{OUT}=40mA$ , $-40^\circ C \sim +85^\circ C$
Thermal Shutdown	$T_{SD}$		180		$^\circ C$	Shutdown, Temp increasing
Thermal Hysteresis	$T_{HYST}$		20		$^\circ C$	

### 3 Package Outline(SOT23-5)



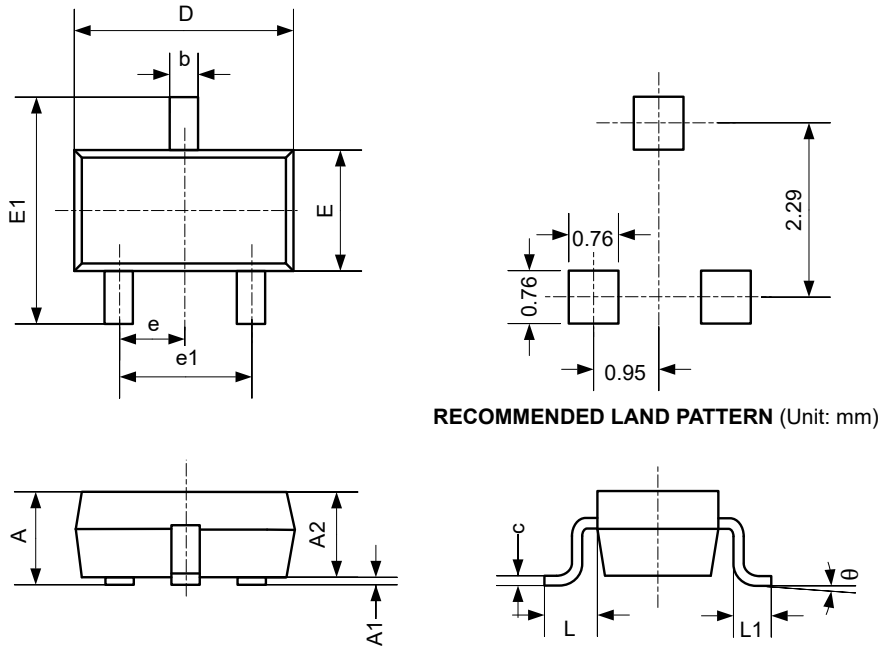
Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037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

### 4 Package Outline(SOT89-3)



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 TPY		0.060 TPY	
e1	3.000 TPY		0.118 TPY	
L	0.900	1.200	0.035	0.047

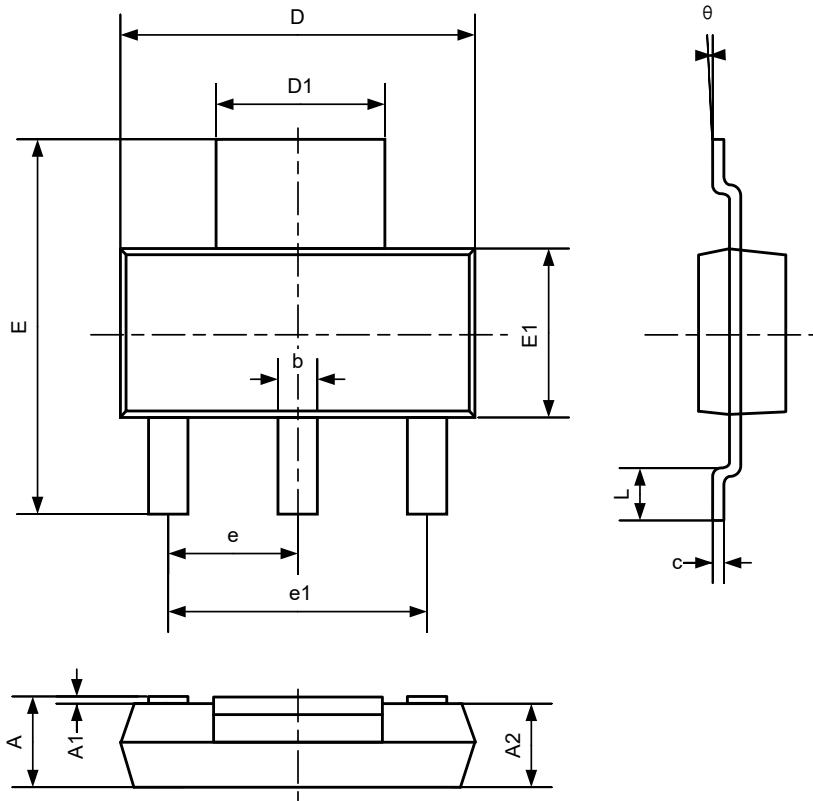
## 5 Package Outline(SOT23)



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



## 6 Package Outline(SOT223)




Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300 BSC		0.091 BSC	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°

## 7 Revision History

VERSION	DATE	NOTE
1.0	2022/07/08	Initial version
1.1	2022/11/24	Add SOT223 Package

### Copyright and Important Notice

No part of this document shall be excerpted, translated, reproduced, transmitted, or disseminated by any organization, company, or individual in any form or by any means without the prior written consent of Nanjing Senasic Electronic Technology Co.,Ltd.

 璿捷 and other SENASIC icons are trademarks of Nanjing Senasic Electronic Technology Co.,Ltd.(former Ningbo SENASIC Electronic Technology Co., Ltd.abbreviated as SENASIC).

The purchased products, services and features are stipulated by the contract made between SENASIC and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The content of this document may be changed due to product version upgrades, adjustments, or other reasons.Unless otherwise agreed, this document is used as Use guide only, all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

For further information on technical support, delivery and prices, please call the national consultation hotline: [021-5061-0206](tel:021-5061-0206), or you can obtain relevant support by email [info@senasic.com](mailto:info@senasic.com).

Copyright © 2022 Nanjing Senasic Electronic Technology Co.,Ltd. All rights reserved.