

SOT-23-3L SOT-89 LDO High Input Voltage Three Terminal Regulator 低落差高电压三端稳压 IC

■Features 特点

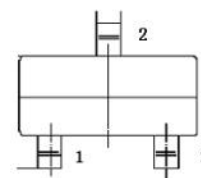
1.GND 2.Vi 3.Vo

Low Dropout Voltage 低落差电压: $< 0.3V$

Low Quiescent Current 低静态电流: $1.5\mu A$

High Input Voltage 高输入电压: Up to 高达 $20V$

High Precision Output Voltage 高精度输出电压: $\pm 2\%$



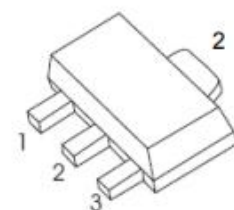
■Application 应用

Battery Power Supply Equipment 电池供电设备

Communication Equipment 通信设备

Audio/Video Equipment 音视频设备

Monitor Equipment 监控设备



■Absolute Maximum Ratings 最大额定值

($T_A = 25^\circ C$ unless otherwise noted 如无特殊说明, 温度为 $25^\circ C$)

Characteristic 特性参数	Symbol 符号	Rat 额定值	Unit 单位
Input Voltage 输入电压	V_i	20	V
Operating Current 工作电流	I_o	300	mA
Power dissipation 耗散功率	P_D (SOT-23-3L SOT-89)	200 500	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$ (SOT-23-3L SOT-89)	625 250	$^\circ C/W$
Solder Temperature/Time 焊接温度/时间	T_d	260/10	$^\circ C/S$
Operating Ambient Temperature 工作温度	T_A	-40~+85	$^\circ C$
Junction and Storage Temperature 结温和储藏温度	T_J, T_{stg}	-50to+125 $^\circ C$	

■Electrical Characteristics 电特性

7330 (T_{opt}=25°C)

Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Output Voltage 输出电压	V _O	I _O =10mA V _I =5V	2.94	3	3.06	V
Output Current 输出电流	I _O	V _I =5V	300			mA
Dropout Voltage 落差电压	V _D	I _O =100mA ΔV _O =2%		210	300	mV
Quiescent Current 静态电流	I _q	V _I =5V I _O =0		1.5	3	μA
Line Regulation 线性调整	ΔV _O /ΔV _I *V _O	I _O =1mA 4≤V _I ≤20			0.2	%/V
Output Short Current 输出短路电流	I _{lim}	V _O =0V		400		mA
Temperature Finger 温度系数	ΔV _O /ΔTa*V _O	I _O =10mA V _I =5V -40°C≤Ta≤85°C		±100		ppm/°C

7333 (T_{opt}=25°C)

Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Output Voltage 输出电压	V _O	I _O =10mA V _I =5.3V	3.234	3.3	3.366	V
Output Current 输出电流	I _O	V _I =5.3V	300			mA
Dropout Voltage 落差电压	V _D	I _O =100mA ΔV _O =2%		195	300	mV
Quiescent Current 静态电流	I _q	V _I =5.5V I _O =0		1.5	3	μA
Line Regulation 线性调整	ΔV _O /ΔV _I *V _O	I _O =1mA 4.3≤V _I ≤20		0.2		%/V
Load Regulation 负载调整	ΔV _O	1mA≤I _O ≤300mA V _I =5.5V		37	100	mV
Output Short Current 输出短路电流	I _{lim}	V _O =0V		400		mA
Temperature Finger 温度系数	ΔV _O /ΔTa*V _O	I _O =10mA V _I =5.3V -40°C≤Ta≤85°C		±100		ppm/°C

■Electrical Characteristics 电特性

7336 ($T_{opt}=25^{\circ}\text{C}$)

Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Output Voltage 输出电压	V_O	$I_O=10\text{mA}$ $V_I=5.6\text{V}$	3.528	3.6	3.672	V
Output Current 输出电流	I_O	$V_I=5.6\text{V}$	300			mA
Dropout Voltage 落差电压	V_D	$I_O=100\text{mA}$ $\Delta V_O=2\%$		180	300	mV
Quiescent Current 静态电流	I_q	$V_I=5.6\text{V}$ $I_O=0$		1.5	3	μA
Line Regulation 线性调整	$\Delta V_O/\Delta V_I \cdot V_O$	$I_O=1\text{mA}$ $4.6 \leq V_I \leq 20$		0.2		%/V
Load Regulation 负载调整	ΔV_O	$1\text{mA} \leq I_O \leq 300\text{mA}$ $V_I=5.6\text{V}$		37	100	mV
Output Short Current 输出短路电流	I_{lim}	$V_O=0\text{V}$		400		mA
Temperature Finger 温度系数	$\Delta V_O/\Delta T_a \cdot V_O$	$I_O=10\text{mA}$ $V_I=5.6\text{V}$ $-40^{\circ}\text{C} \leq T_a \leq 85^{\circ}\text{C}$		± 100		ppm/ $^{\circ}\text{C}$

7340 ($T_{opt}=25^{\circ}\text{C}$)

Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Output Voltage 输出电压	V_O	$I_O=10\text{mA}$ $V_I=6\text{V}$	3.92	4	4.08	V
Output Current 输出电流	I_O	$V_I=6\text{V}$	300			mA
Dropout Voltage 落差电压	V_D	$I_O=100\text{mA}$ $\Delta V_O=2\%$		170	300	mV
Quiescent Current 静态电流	I_q	$V_I=6\text{V}$ $I_O=0$		1.5	3	μA
Line Regulation 线性调整	$\Delta V_O/\Delta V_I \cdot V_O$	$I_O=1\text{mA}$ $5 \leq V_I \leq 20$		0.2		%/V
Load Regulation 负载调整	ΔV_O	$1\text{mA} \leq I_O \leq 300\text{mA}$ $V_I=6\text{V}$		37	100	mV
Output Short Current 输出短路电流	I_{lim}	$V_O=0\text{V}$		400		mA
Temperature Finger 温度系数	$\Delta V_O/\Delta T_a \cdot V_O$	$I_O=10\text{mA}$ $V_I=6\text{V}$ $-40^{\circ}\text{C} \leq T_a \leq 85^{\circ}\text{C}$		± 100		ppm/ $^{\circ}\text{C}$

■Electrical Characteristics 电特性

7344 ($T_{opt}=25^{\circ}\text{C}$)

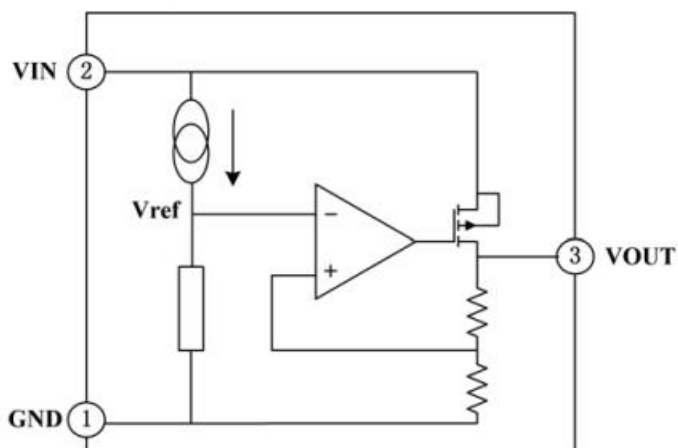
Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Output Voltage 输出电压	V_O	$I_O=10\text{mA}$ $V_I=6.4\text{V}$	4.312	4.4	4.488	V
Output Current 输出电流	I_O	$V_I=6.4\text{V}$	300			mA
Dropout Voltage 落差电压	V_D	$I_O=100\text{mA}$ $\Delta V_O=2\%$		160	300	mV
Quiescent Current 静态电流	I_q	$V_I=6.4\text{V}$ $I_O=0$		1.5	3	μA
Line Regulation 线性调整	$\Delta V_O/\Delta V_I \cdot V_O$	$I_O=1\text{mA}$ $5.4 \leq V_I \leq 20$		0.2		%/V
Load Regulation 负载调整	ΔV_O	$1\text{mA} \leq I_O \leq 300\text{mA}$ $V_I=6.4\text{V}$		37	100	mV
Output Short Current 输出短路电流	I_{lim}	$V_O=0\text{V}$		400		mA
Temperature Finger 温度系数	$\Delta V_O/\Delta T_a \cdot V_O$	$I_O=10\text{mA}$ $V_I=6.4\text{V}$ $-40^{\circ}\text{C} \leq T_a \leq 85^{\circ}\text{C}$		± 100		ppm/ $^{\circ}\text{C}$

7350 ($T_{opt}=25^{\circ}\text{C}$)

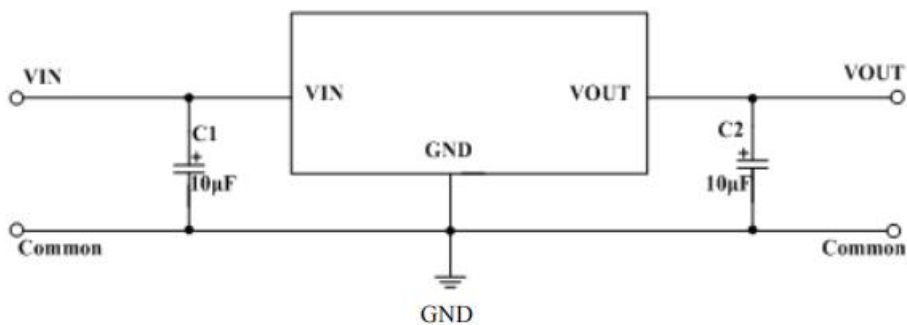
Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Output Voltage 输出电压	V_O	$I_O=10\text{mA}$ $V_I=7\text{V}$	4.9	5	5.1	V
Output Current 输出电流	I_O	$V_I=7\text{V}$	300			mA
Dropout Voltage 落差电压	V_D	$I_O=100\text{mA}$ $\Delta V_O=2\%$		150	300	mV
Quiescent Current 静态电流	I_q	$V_I=7\text{V}$ $I_O=0$		1.5	3	μA
Line Regulation 线性调整	$\Delta V_O/\Delta V_I \cdot V_O$	$I_O=1\text{mA}$ $6 \leq V_I \leq 20$		0.2		%/V
Load Regulation 负载调整	ΔV_O	$1\text{mA} \leq I_O \leq 300\text{mA}$ $V_I=7\text{V}$		37	100	mV
Output Short Current 输出短路电流	I_{lim}	$V_O=0\text{V}$		400		mA
Temperature Finger 温度系数	$\Delta V_O/\Delta T_a \cdot V_O$	$I_O=10\text{mA}$ $V_I=7\text{V}$ $-40^{\circ}\text{C} \leq T_a \leq 85^{\circ}\text{C}$		± 100		ppm/ $^{\circ}\text{C}$

■Application Circuit 应用电路

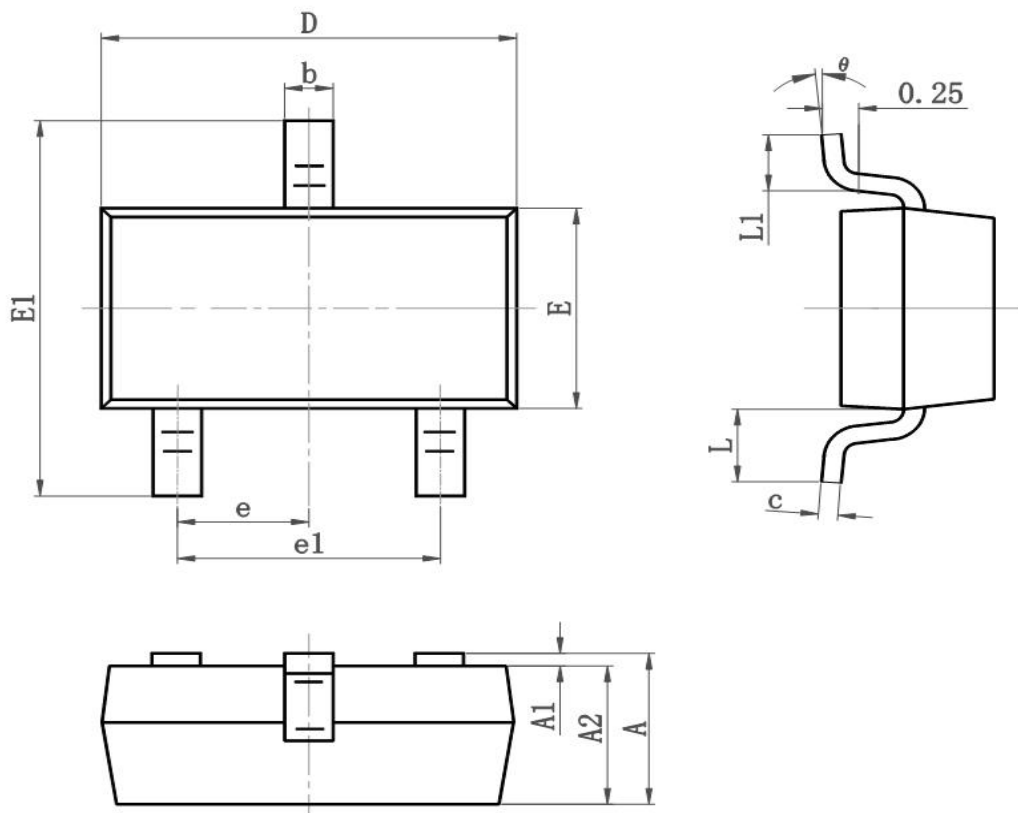
Block Circuit 电路框图



Basic Circuit 基本电路

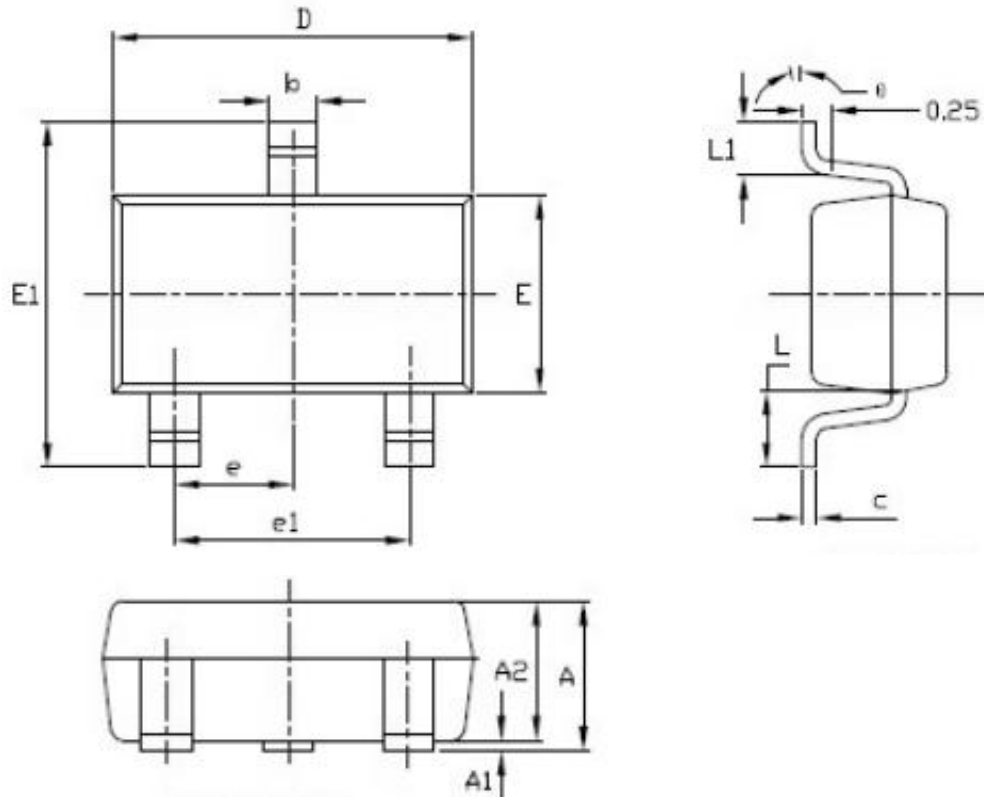


■SOT-23 Dimension 外形封装尺寸



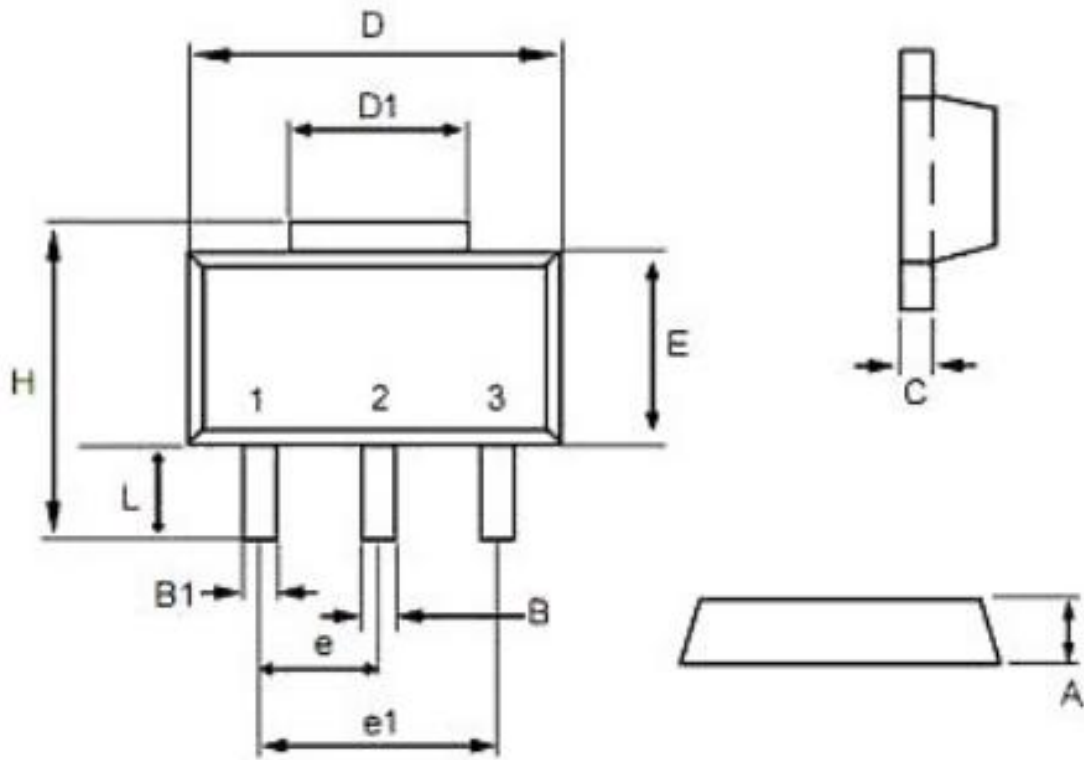
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.050	0.055
E1	2.250	2.550	0.089	0.100
e	0.900	1.00	0.035	0.039
e1	1.800	2.000	0.071	0.079
L	0.500	0.600	0.020	0.024
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

■SOT-23-3L Dimension 外形封装尺寸



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	0.900	1.00	0.035	0.039
e1	1.800	2.000	0.071	0.079
L	0.450	0.650	0.018	0.026
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

■SOT-89 Dimension 外形封装尺寸



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.40	1.60	0.055	0.063
B	0.40	0.56	0.016	0.022
B1	0.35	0.48	0.014	0.019
C	0.35	0.44	0.014	0.017
D	4.40	4.60	0.173	0.181
D1	1.35	1.83	0.053	0.072
e	1.45	1.55	0.057	0.061
e1	2.95	3.05	0.116	0.120
E	2.29	2.60	0.090	0.102
H	3.75	4.25	0.148	0.167
L	0.80	1.20	0.031	0.047