

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

■Features 特点

1.Vo 2.GND 3.Vi

Low Dropout Voltage 低落差电压: Type 典型值 0.1V

Low Quiescent Current 低静态电流: < 3μA

High Input Voltage 高输入电压: Up to 高达 30V

High Precision Output Voltage 高精度输出电压: ±3%
具过温保护、过流和短路保护功能

■Application 应用

Battery Power Supply Equipment 电池供电设备

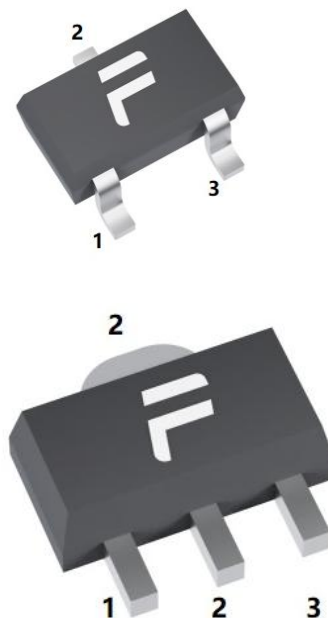
Communication Equipment 通信设备

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℃ unless otherwise noted 如无特殊说明, 温度为 25℃)



Characteristic 特性参数	Symbol 符号	Rat 额定值	Unit 单位
Input Voltage 输入电压	V _i	30	V
Operating Current 工作电流	I _O	100	mA
Power dissipation 耗散功率	P _D	400	mW
Thermal Resistance Junction-Ambient 热阻	R _{θJA}	306	℃/W
Solder Temperature/Time 焊接温度/时间	T _d	260/10	℃/S
Operating Ambient Temperature 工作温度	T _A	-25~+70	℃
Junction and Storage Temperature 结温和储藏温度	T _J , T _{stg}	-50to+125℃	

■Electrical Characteristics 电特性
FS(S)7530R(M)-1 (T_{opt}=25℃)

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	2.91	3	3.09	V
Output Current 输出电流	I _O	V _I =5V	60	100		mA
Dropout Voltage 落差电压	V _D	I _O =1mA		100		mV
Quiescent Current 静态电流	I _q	V _I =5V I _O =0		2	3	μA
Line Regulation 线性调整	$\Delta V_O / \Delta V_I * V_O$	I _O =1mA 4≤V _I ≤24		0.2		%/V
Load Regulation 负载调整	ΔV_O	1mA≤I _O ≤20mA V _I =5V		100	150	mV
Temperature Finger 温度系数	$\Delta V_O / \Delta T_a$	I _O =10mA V _I =5V 0℃≤T _a ≤70℃		±0.45		mV/℃

FS(S)7533R(M)-1 (T_{opt}=25℃)

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 =5.5V	3.201	3.3	3.399	V
Output Current 输出电流	I _O	V _I =5.5V	60	100		mA
Dropout Voltage 落差电压	V _D	I _O =1mA		100		mV
Quiescent Current 静态电流	I _q	V _I =5.5V I _O =0		2	3	μA
Line Regulation 线性调整	$\Delta V_O / \Delta V_I * V_O$	I _O =1mA 4.5≤V _I ≤24		0.2		%/V
Load Regulation 负载调整	ΔV_O	1mA≤I _O ≤20mA V _I =5.5V		100	150	mV
Temperature Finger 温度系数	$\Delta V_O / \Delta T_a$	I _O =10mA V _I =5.5V 0℃≤T _a ≤70℃		±0.5		mV/℃

■ Electrical Characteristics 电特性

FS(S)7536R(M)-1 ($T_{opt}=25^{\circ}\text{C}$)

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	$I_O=10\text{mA}$ $V_I=5.6\text{V}$	3.492	3.6	3.708	V
Output Current 输出电流	I_O	$V_I=5.6\text{V}$	60	100		mA
Dropout Voltage 落差电压	V_D	$I_O=1\text{mA}$		100		mV
Quiescent Current 静态电流	I_q	$V_I=5.6\text{V}$ $I_O=0$		2	3	μA
Line Regulation 线性调整	$\Delta V_O/\Delta V_I \cdot V_O$	$I_O=1\text{mA}$ $4.6 \leq V_I \leq 24$		0.2		%/V
Load Regulation 负载调整	ΔV_O	$1\text{mA} \leq I_O \leq 20\text{mA}$ $V_I=5.6\text{V}$		100	150	mV
Temperature Finger 温度系数	$\Delta V_O/\Delta T_a$	$I_O=10\text{mA}$ $V_I=5.6\text{V}$ $0^{\circ}\text{C} \leq T_a \leq 70^{\circ}\text{C}$		± 0.6		mV/ $^{\circ}\text{C}$

FS(S)7540R(M)-1 ($T_{opt}=25^{\circ}\text{C}$)

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	$I_O=10\text{mA}$ $V_I=6\text{V}$	3.88	4	4.12	V
Output Current 输出电流	I_O	$V_I=6\text{V}$	60	100		mA
Dropout Voltage 落差电压	V_D	$I_O=1\text{mA}$		100		mV
Quiescent Current 静态电流	I_q	$V_I=6\text{V}$ $I_O=0$		2	3	μA
Line Regulation 线性调整	$\Delta V_O/\Delta V_I \cdot V_O$	$I_O=1\text{mA}$ $5 \leq V_I \leq 24$		0.2		%/V
Load Regulation 负载调整	ΔV_O	$1\text{mA} \leq I_O \leq 20\text{mA}$ $V_I=6\text{V}$		100	150	mV
Temperature Finger 温度系数	$\Delta V_O/\Delta T_a$	$I_O=10\text{mA}$ $V_I=6\text{V}$ $0^{\circ}\text{C} \leq T_a \leq 70^{\circ}\text{C}$		± 0.7		mV/ $^{\circ}\text{C}$

■ Electrical Characteristics 电特性

FS(S)7544R(M)-1 ($T_{opt}=25^{\circ}\text{C}$)

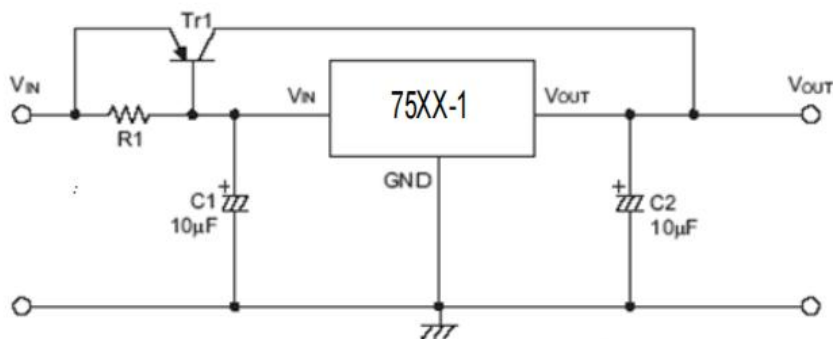
Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Output Voltage 输出电压	V_O	$I_O=10\text{mA}$ $V_I=6.4\text{V}$	4.268	4.4	4.532	V
Output Current 输出电流	I_O	$V_I=6.4\text{V}$	60	100		mA
Dropout Voltage 落差电压	V_D	$I_O=1\text{mA}$		100		mV
Quiescent Current 静态电流	I_q	$V_I=6.4\text{V}$ $I_O=0$		2	3	μA
Line Regulation 线性调整	$\Delta V_O/\Delta V_I \cdot V_O$	$I_O=1\text{mA}$ $5.4 \leq V_I \leq 24$		0.2		%/V
Load Regulation 负载调整	ΔV_O	$1\text{mA} \leq I_O \leq 20\text{mA}$ $V_I=6.4\text{V}$		100	150	mV
Temperature Finger 温度系数	$\Delta V_O/\Delta T_a$	$I_O=10\text{mA}$ $V_I=6.4\text{V}$ $0^{\circ}\text{C} \leq T_a \leq 70^{\circ}\text{C}$		± 0.7		mV/ $^{\circ}\text{C}$

FS(S)7550R(M)-1 ($T_{opt}=25^{\circ}\text{C}$)

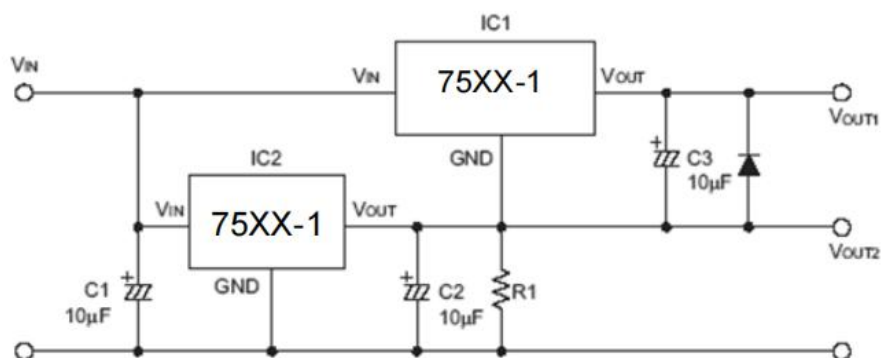
Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Output Voltage 输出电压	V_O	$I_O=10\text{mA}$ $V_I=7\text{V}$	4.85	5	5.15	V
Output Current 输出电流	I_O	$V_I=7\text{V}$	60	100		mA
Dropout Voltage 落差电压	V_D	$I_O=1\text{mA}$		100		mV
Quiescent Current 静态电流	I_q	$V_I=7\text{V}$ $I_O=0$		2	3	μA
Line Regulation 线性调整	$\Delta V_O/\Delta V_I \cdot V_O$	$I_O=1\text{mA}$ $6 \leq V_I \leq 24$		0.2		%/V
Load Regulation 负载调整	ΔV_O	$1\text{mA} \leq I_O \leq 20\text{mA}$ $V_I=7\text{V}$		100	150	mV
Temperature Finger 温度系数	$\Delta V_O/\Delta T_a$	$I_O=10\text{mA}$ $V_I=7\text{V}$ $0^{\circ}\text{C} \leq T_a \leq 70^{\circ}\text{C}$		± 0.75		mV/ $^{\circ}\text{C}$

■ Application Circuit 应用电路

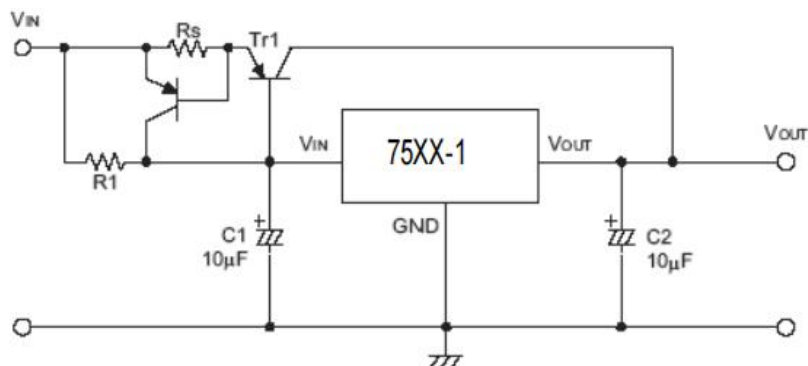
High Output Current Regulator Circuit 高输出电流稳压电路



Dual Output Circuit 双端输出电路

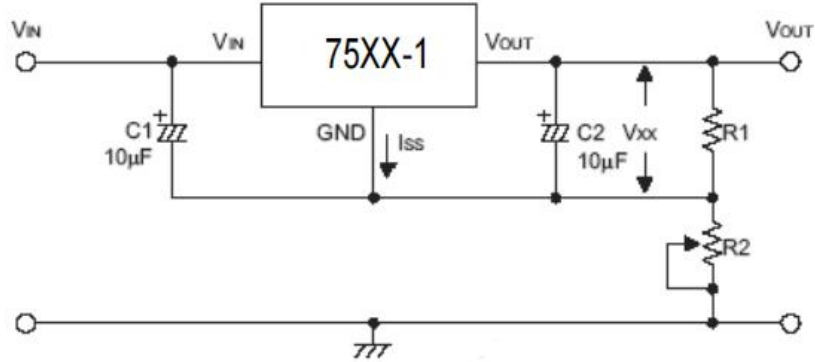


Shortage Protection Circuit 短路保护电路

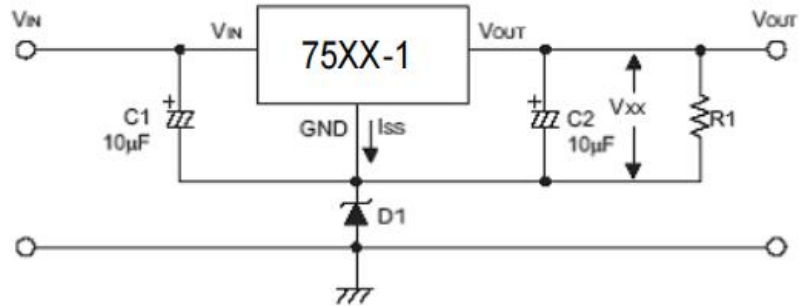


■ Application Circuit 应用电路

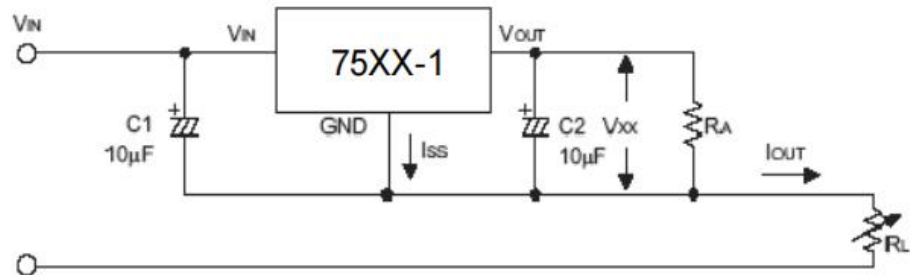
High Output Voltage Circuit 高输出电压电路 $V_{OUT}=V_{XX}(1+R2/R1)+I_q \cdot R2$



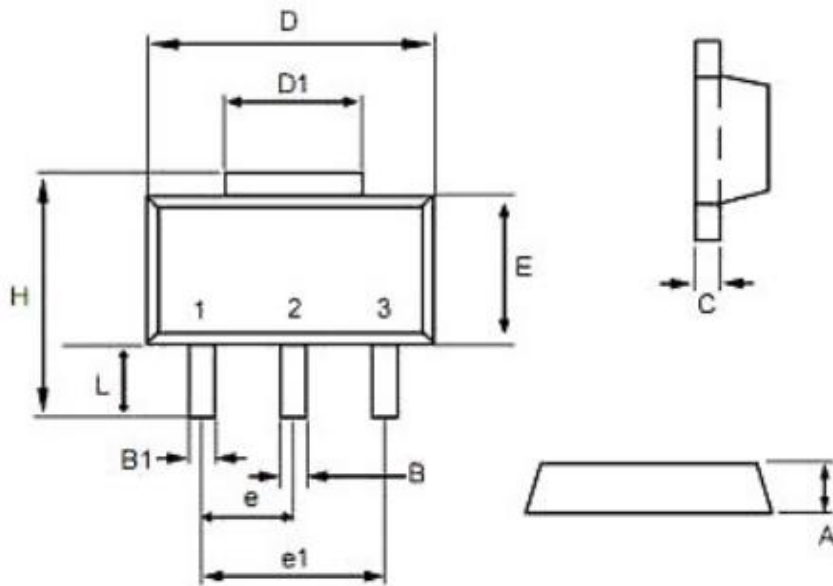
High Output Voltage Circuit 高输出电压电路 $V_{OUT}=V_{XX}+V_{D1}$



Current Adjustment Circuit 电流调节电路 $I_{OUT}=V_{XX}/R_X+I_q$

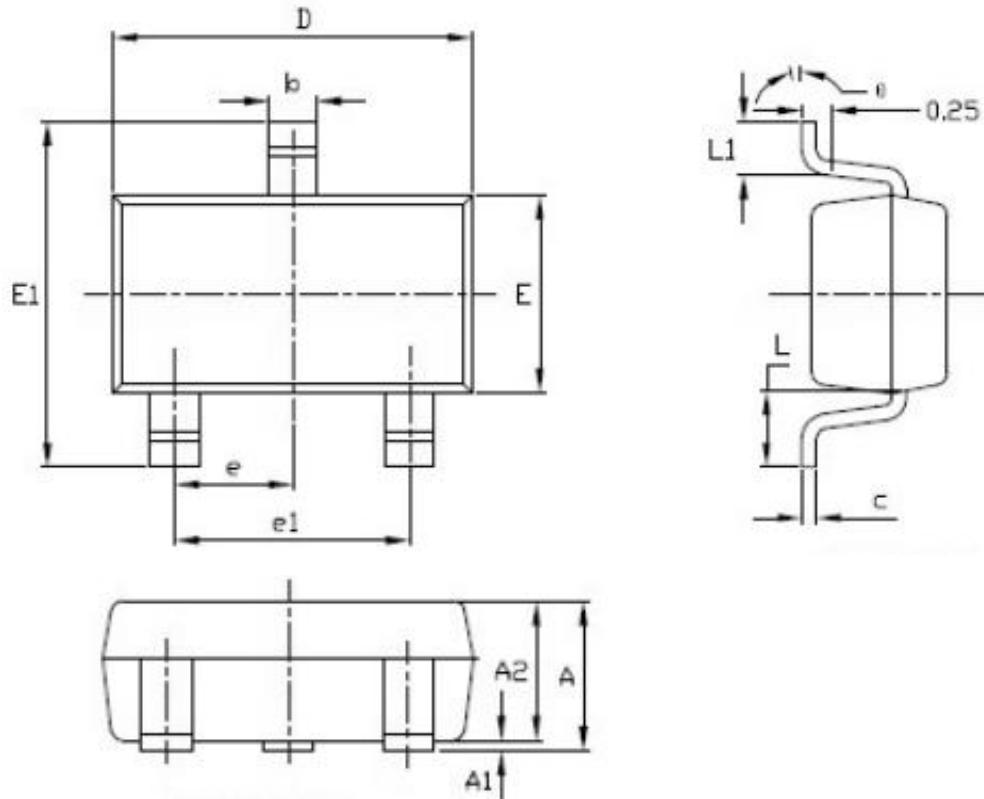


■ SOT-89-3L Dimension 外形封装尺寸



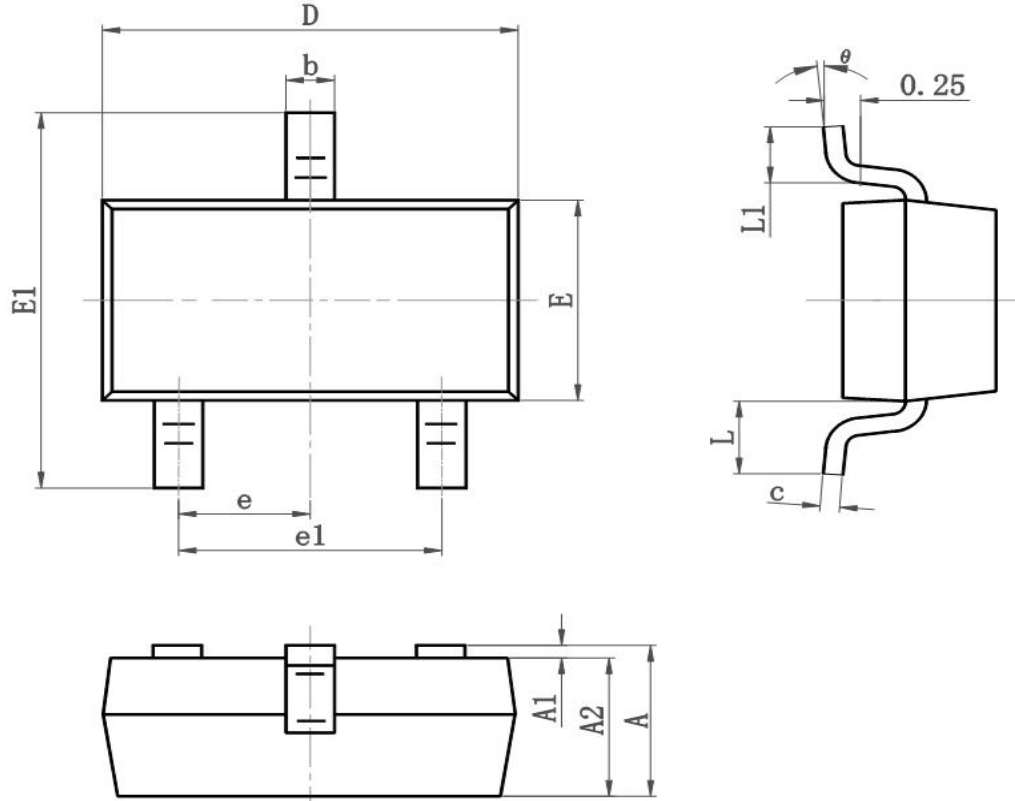
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.40	1.60	0.055	0.063
B	0.40	0.56	0.016	0.022
B1	0.35	0.48	0.014	0.019
C	0.35	0.44	0.014	0.017
D	4.40	4.60	0.173	0.181
D1	1.35	1.83	0.053	0.072
e	1.45	1.55	0.057	0.061
e1	2.95	3.05	0.116	0.120
E	2.29	2.60	0.090	0.102
H	3.75	4.25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

■ 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-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°