3-TERMINAL POSITIVE LINEAR REGULATOR

1.Description

The FLD78L12H series are three terminal positive regulators designed for a wide variety of applications including local, on-card regulation.

This series of regulators are complete with internal current limiting, thermal shutdown protection, and safe-area compensation which make them virtually immune from output overload. If adequate heat sinking are provided, these regulators can deliver output currents up to 200mA.

The FLD78L12H are available in SOT-89-3L and TO-92 packages.

2.Features

- Output Current up to 200mA
- Fixed Output Voltages of 12V
- Output Voltage Tolerances of ±1%,±2%
- Internal Short Circuit Current-limiting
- Internal Thermal Overload Protection

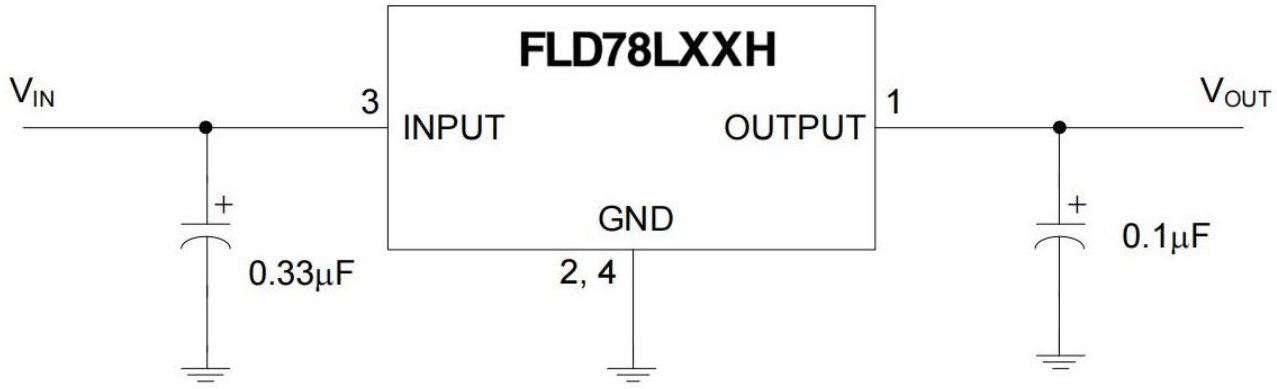
3.Applications

- High-efficiency linear regulators
- Post regulation for switching supplies
- Microprocessor power supplies
- Motherboards

4.Order information

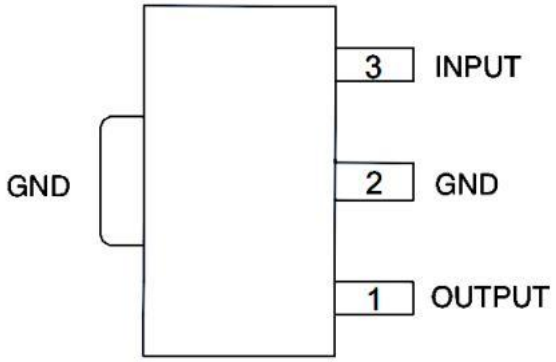
Mode	Voltage Tolerances	Package	Ordering Number	Packing Option
FLD78L12H	±1%	SOT-89-3L	FLD78L12HAYSOT893G/TR	Tape and Reel,1000
		TO-92	FLD78L12HAYTO92G/TX	Box,2000
FLD78L12H	±2%	SOT-89-3L	FLD78L12HBYSOT893G/TR	Tape and Reel,1000
		TO-92	FLD78L12HBYTO92G/TX	Box,2000

5.Typical Applications Circuit



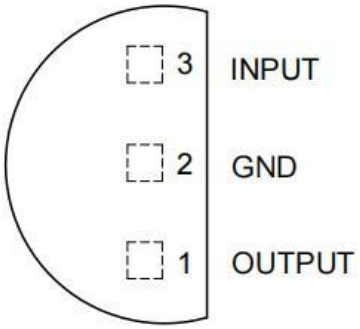
6.Pin Assignments

(Top view)



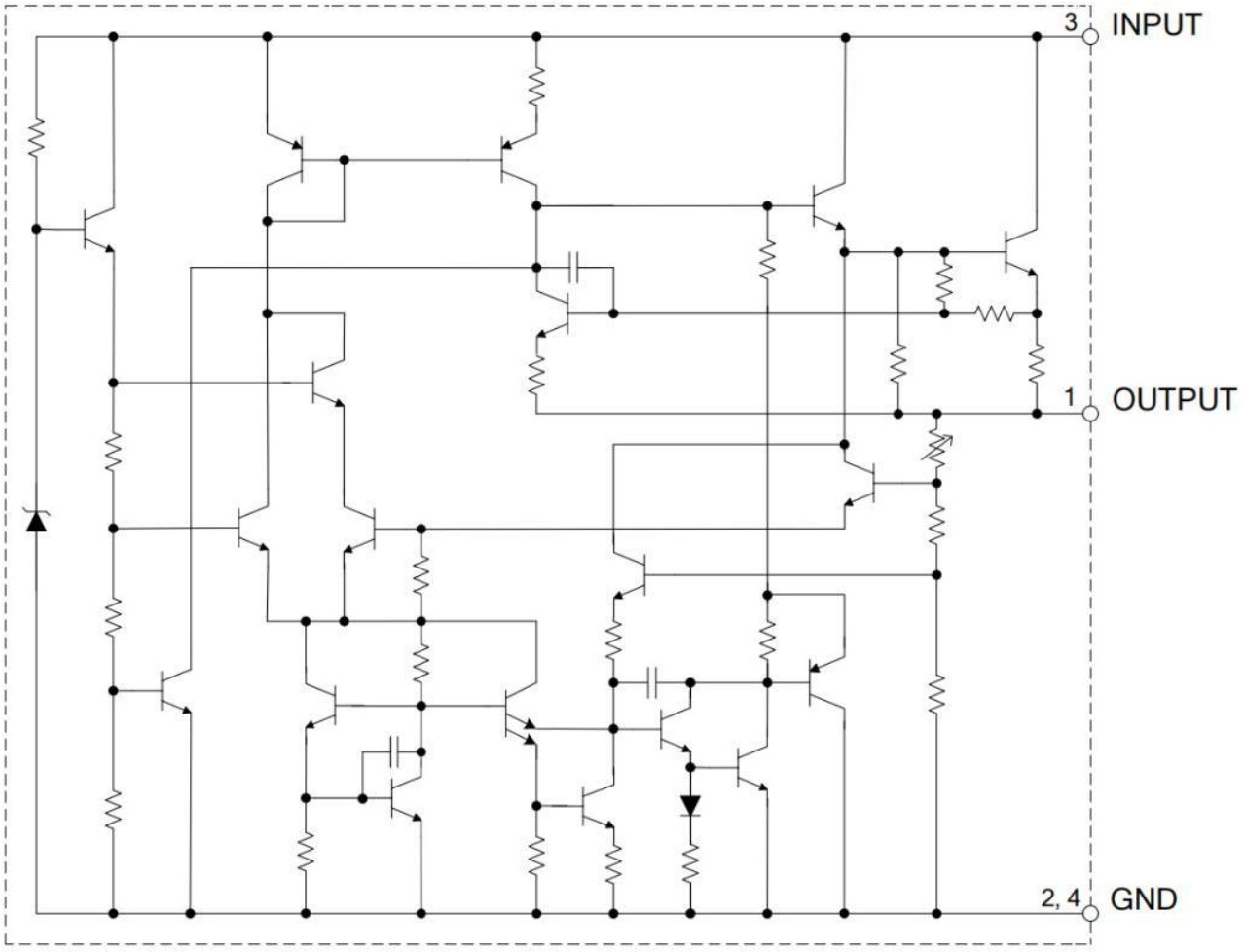
SOT-89-3L

(Top view)



TO-92

7.Functional Block Diagram



8.Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
V_{IN}	Input Voltage		36	V
P_D	Power Dissipation	SOT-89-3L	350	W
		TO-92	650	
T_J	Operating Junction Temperature		+150	℃
T_{STG}	Storage Temperature Range		-65 to +150	℃
θ_{JA}	Thermal Resistance	SOT-89-3L	180	℃/W
		TO-92	180	℃/W

9.Recommended Operating Conditions

Symbol	Parameter	Min	Max	Unit
V_{IN}	Input Voltage	-	27	V
T=	Operating Junction Temperature	-40	125	℃

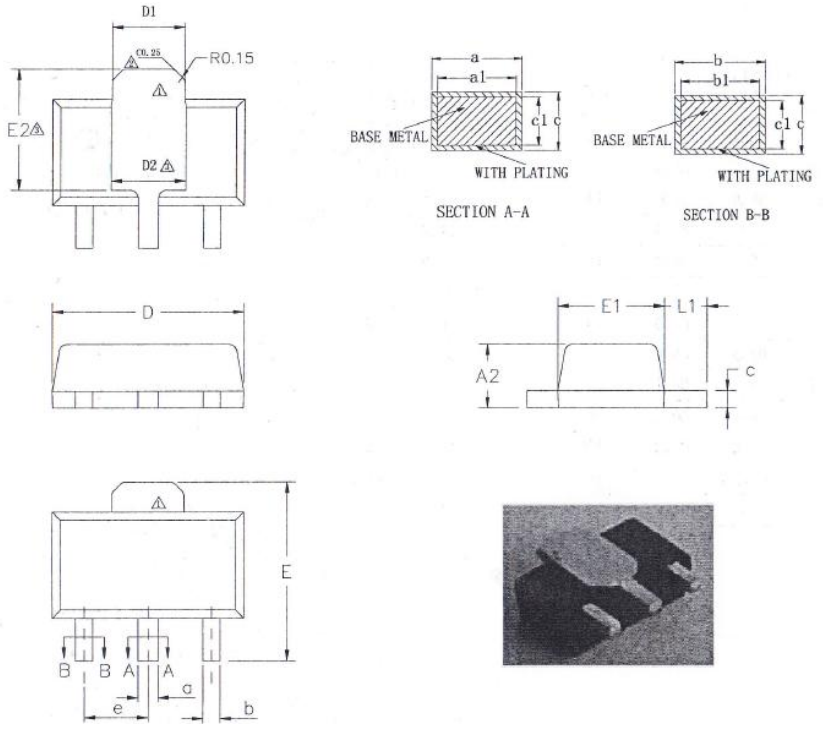
10.Electrical Characteristics

(0<T_J<125℃，I_{OUT}=40mA, V_{IN}=19V, C_{IN}=0.33μF, C_{OUT}=1μF, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{OUT}	Output Voltage	T_J=25℃	11.76	12	12.24	V
		14.5V≤V_{IN}≤27V, I_{OUT}=1mA to 40mA	11.4		12.6	
		14.5V≤V_{IN}≤V_{MAX}, I_{OUT}=1mA to 70mA	11.4		12.6	
V_{RLOAD}	Load Regulation	T_J=25℃，I_{OUT}=1mA to 100mA		25	150	mV
		T_J=25℃，I_{OUT}=1mA to 40mA		12	75	
V_{RLINE}	Line Regulation	T_J=25℃，14.5V≤V_{IN}≤27V		25	300	mV
		T_J=25℃，16V≤V_{IN}≤27V		20	250	
I_Q	Quiescent Current			2	6	mA
ΔI_Q	Quiescent Current Change	16V≤V_{IN}≤27V			1.5	mA
		1mA≤I_{OUT}≤40mA			0.1	
N_O	Output Noise Voltage	10Hz≤f≤100kHz		80		μV
$\Delta V_{OUT}/\Delta T$	Average Temperature Coefficient of Output Voltage	I_{OUT}=5mA		-1		mV/℃
PSRR	Ripple Rejection	15V≤V_{IN}≤25V, f=120Hz, T_J=25℃	37	65		dB
V_{DROP}	Dropout Voltage	T_J=25℃		1.7		V

11.Package Outline Dimensions

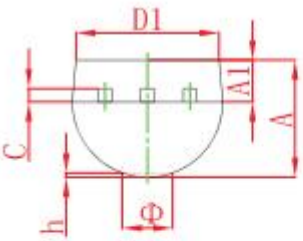
(1) Package Type: SOT-89-3L

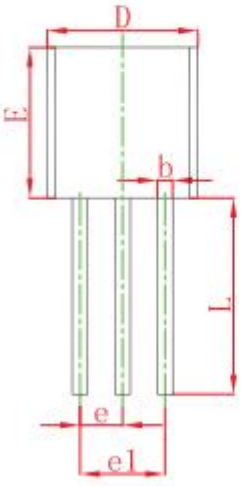


	SYMBOL	MILLIMETER		
		MIN	NOM	MAX
	A2	1.40	1.50	1.60
4	b	0.38	—	0.46
	b1	0.37	0.40	0.43
4	c	0.38	—	0.42
4	c1	0.37	0.38	0.39
	a	0.46	—	0.56
	a1	0.45	0.48	0.51
4	D	4.40	4.50	4.60
5	D1	1.62	—	1.83
5	E	3.95	—	4.25
4	E1	2.40	2.50	2.60
	e	1.50BSC		
5	L1	0.89	—	1.20

L/F Size (mil) \ Size (mm)	3 D2	3 E2
66.9*63	1.75REF	2.84REF

(2) Package Type:TO-92





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
K		1.600		0.063
h	0.000	0.380	0.000	0.015

12.Important Notice And Disclaimer

● We reserves the right to change the instruction manual without prior notice.

● Any semiconductor product has a certain possibility of failure or malfunction under specific conditions. The buyer is responsible for complying with safety standards and taking safety measures when using our products for system design and overall manufacturing to avoid potential failure risks that may cause personal injury or property damage.

● The improvement of product quality is endless, our company will be dedicated to provide customers with better products.