3-TERMINAL POSITIVE LINEAR REGULATOR

1.Description

The FLD78L05H 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 FLD78L05H are available in SOT-89-3L and SOT23-3 packages.

2.Features

- Output Current up to 200mA
- Fixed Output Voltages of 5V
- Output Voltage Tolerances of ±1%,±2%
- Internal Short Circuit Current-limiting
- Internal Thermal Overload Protection

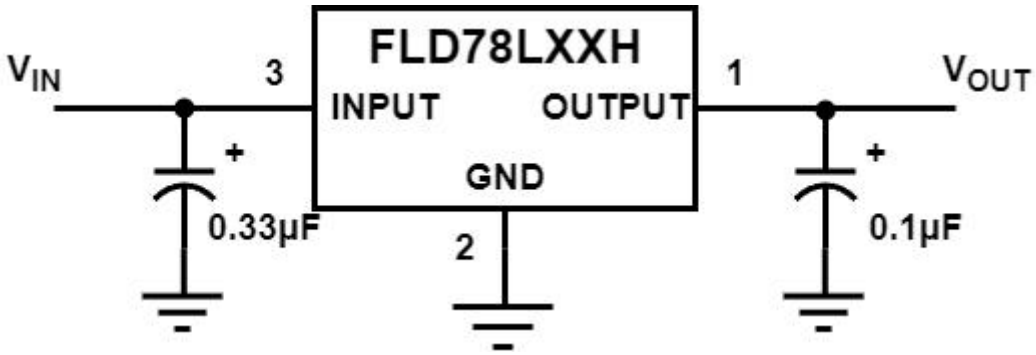
3.Applications

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

4.Order information

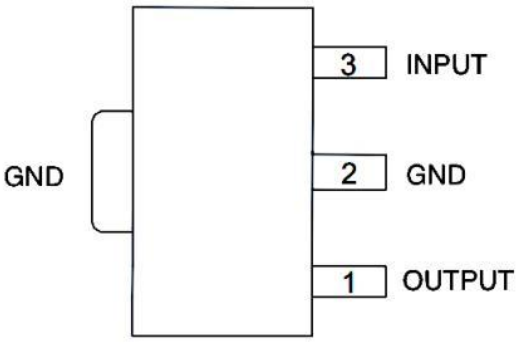
Mode	Voltage Tolerances	Package	Ordering Number	Packing Option
FLD78L05H	±1%	SOT-89-3L	FLD78L05H-5.0YSOT893G/TR	Tape and Reel,1000
		SOT-23-3	FLD78L05H-5.0YSOT233G/TR	Tape and Reel,3000
	±2%	SOT-89-3L	FLD78L05-5.0YSOT893G/TR	Tape and Reel,1000
		SOT-23-3	FLD78L05-5.0YSOT233G/TR	Tape and Reel,3000

5.Typical Applications Circuit



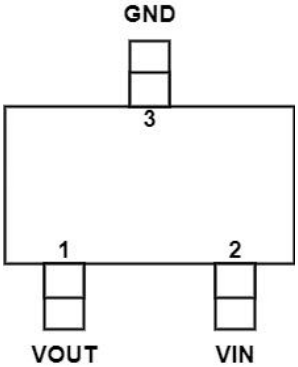
6.Pin Assignments

(Top view)



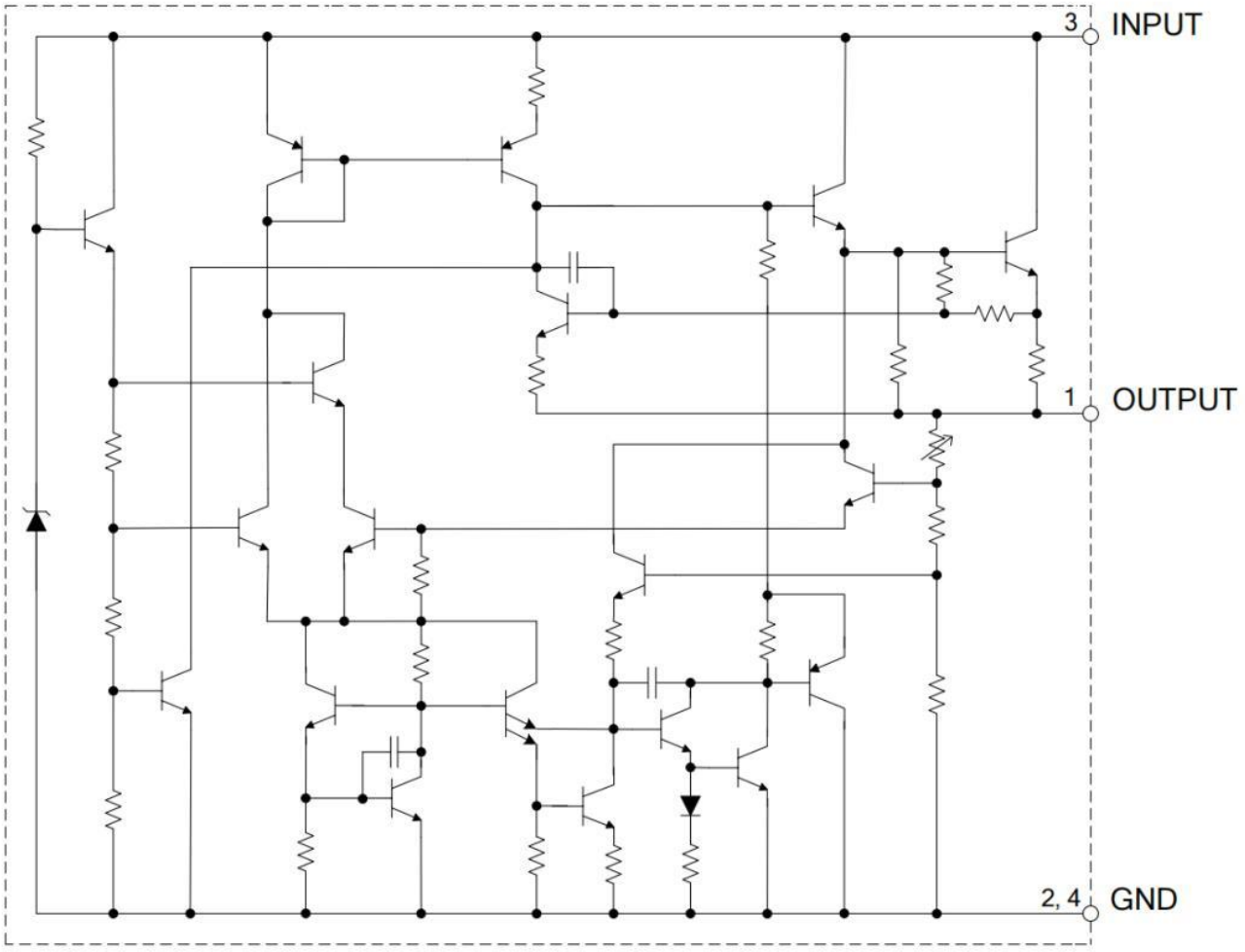
SOT-89-3L

(Top view)



SOT-23-3

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	mW
T_J	Operating Junction Temperature		+150	℃
T_{STG}	Storage Temperature Range		-65 to +150	℃
θ_{JA}	Thermal Resistance	SOT-89-3L	180	℃/W

9.Recommended Operating Conditions

Symbol	Parameter	Min	Max	Unit
V_{IN}	Input Voltage	-	20	V
T_J	Operating Junction Temperature	-40	125	℃

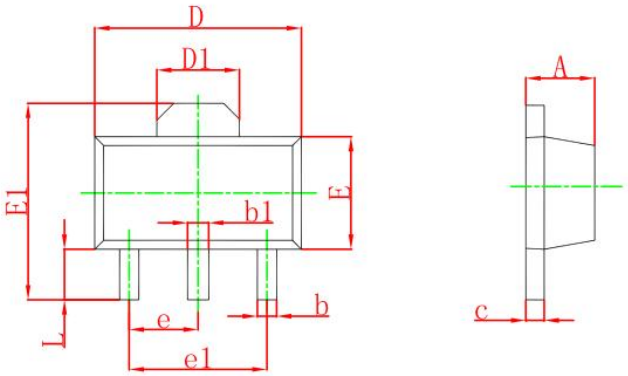
10.Electrical Characteristics

(0<T_J<125℃ , I_{OUT}=40mA, V_{IN}=10V, C_{IN}=0.33μF, C_{OUT}=1μF, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{OUT}	Output Voltage	T_J=25℃	4.95	5	5.05	V
		7V≤V_{IN}≤20V, I_{OUT}=1mA to 40mA	4.85		5.15	
		7V≤V_{IN}≤V_{MAX}, I_{OUT}=1mA to 70mA	4.85		5.15	
V_{RLOAD}	Load Regulation	T_J=25℃ , I_{OUT}=1mA to 100mA		11	60	mV
		T_J=25℃ , I_{OUT}=1mA to 40mA		5	30	
V_{RLINE}	Line Regulation	T_J=25℃ , 7V≤V_{IN}≤20V		8	150	mV
		T_J=25℃ , 8V≤V_{IN}≤20V		6	100	
I_Q	Quiescent Current			2	5.5	mA
ΔI_Q	Quiescent Current Change	8V≤V_{IN}≤20V			1.5	mA
		1mA≤I_{OUT}≤40mA			0.1	
N_O	Output Noise Voltage	10Hz≤f≤100kHz		40		μV
$\Delta V_{OUT}/\Delta T$	Average Temperature Coefficient of Output Voltage	I_{OUT}=5mA		-0.65		mV/℃
PSRR	Ripple Rejection	10V≤V_{IN}≤20V, f=120Hz, T_J=25℃	41	80		dB
V_{DROP}	Dropout Voltage	T_J=25℃		1.7		V

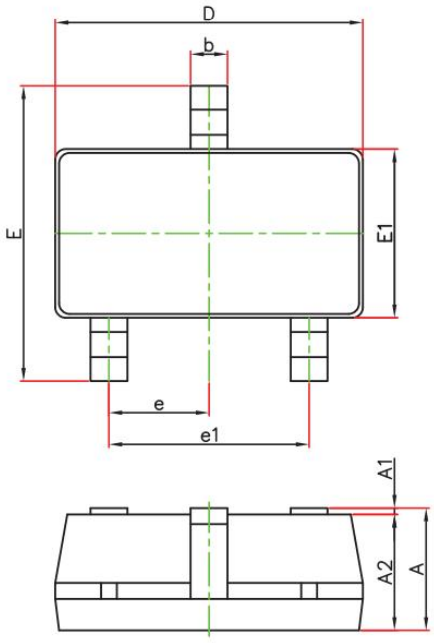
11.Package Outline Dimensions

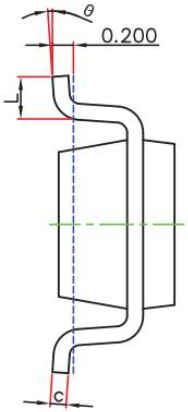
(1) Package Type: SOT-89-3L



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

(2) Package Type:SOT-23-3





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
E1	1.500	1.700	0.059	0.067
E	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°

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.

13.Version Modification Record

Version Number	Revision
first edition	
V0.1	1.Update the Order information 2.Update the Electrical Characteristics--Output Voltage 3.Update the Features
V0.2	1.Update the Order information
V1.2	1.Update the Typical Applications Circuit