1. Description

The FLD78L05 is a 5V-output linear 3-terminal voltage regulator featuring a wide input voltage range. It incorporates an internal reference voltage circuit, over-voltage protection, over-current protection, and over-temperature protection to ensure reliable operation. The output stage exhibits low output impedance, and the device can deliver an output current of up to 100mA. The chip also features low quiescent current. It is available in SOT-89-3L packages.

2. Features

- Wide input voltage range: 7 to 35V
- Low quiescent current: 2.3mA@10V (typical)
- Over full input voltage, output current, and temperature ranges, the output voltage tolerance:±3%
- Stable output current up to 100mA
- Built-in over-temperature protection, over-voltage protection, and over-current protection

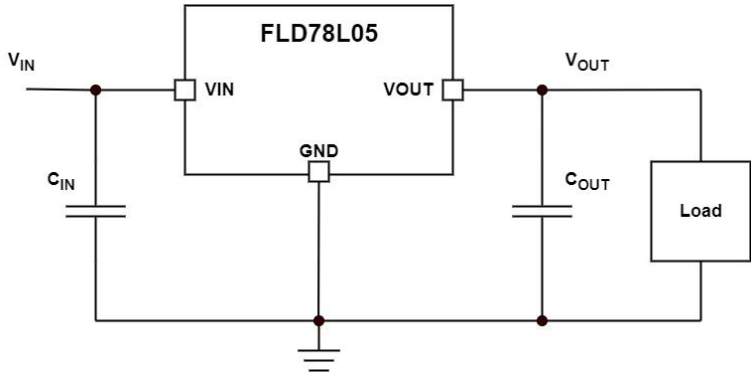
3. Applications

- Instrumentation
- Mainboard Power Supply
- Multi- channel Power Supply System
- Equipment Power Module

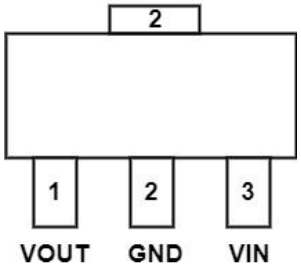
4. Order Information

Part Number	Package Description	Ordering Code	Packing Quantity
FLD78L05	SOT-89-3L	FLD78L05YSOT893G/TR	Tape and Reel,1000

5. Typical Application



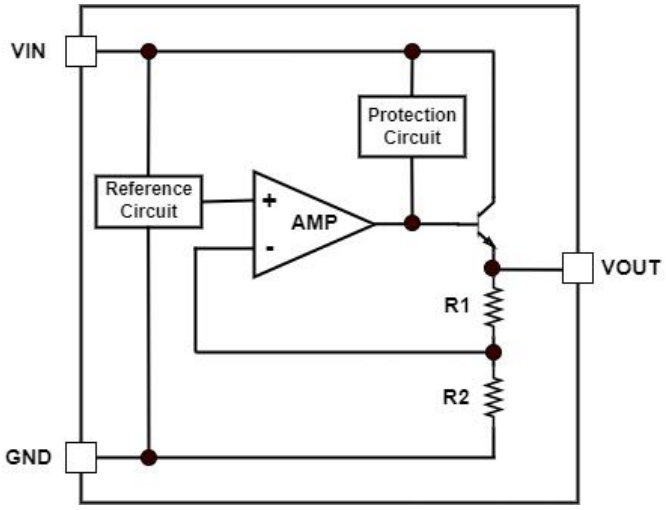
6. Pin Configuration and Functions



SOT-89-3L

Pin Number	Pin Name	Description
2	GND	Ground
3	VIN	Voltage Input
1	VOUT	Voltage Output

7. Functional Block Diagram



8. Absolute Maximum Ratings

Description	Symbol	Parameter	Unit
Input voltage range	V_{IN}	-0 .3~35 (Vout＜10V)	V
Output voltage range	V_{IN}	-0 .3~40(Vout＞10V)	V
Maximum junction temperature	T_J	150	℃
Maximum power dissipation	P_D	630	mW
Heat resistance （from the junction to the environment）	$R_{\theta JA}$	160	℃/W
Operating temperature range	T_A	-40 ~ 85	℃
Storage temperature range	T_{stg}	-55 ~ 150	℃

Note:

The parameters listed in the table above represent the absolute maximum ratings that the circuit can withstand. Operating at or beyond these limits may cause the circuit to malfunction and significantly increases the risk of permanent damage. Furthermore, prolonged operation under conditions approaching these values will substantially raise the probability of device failure.

9. Electrical Characteristics

(T_A= 25°C, Unless Otherwise Specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage	V_O	V_{IN} = 10V ,I_O = 40mA	4.9	5.0	5.15	V
		7V < V_{IN} < 25V 1mA < I_O < 40mA	4.85		5.2	
		1mA < I_O < 100mA	4.85		5.25	
Line Regulation	ΔV_O	7V < V_{IN} < 25V, I_O = 10mA		18	100	mV
		8V < V_{IN} < 25V, I_O = 10mA		10	70	
Load Regulation	ΔV_O	V_{IN}=8V, 1mA < I_O < 100mA		20	60	mV
		V_{IN}=8V , 1mA < I_O < 40mA		5	30	
Quiescent Current	I_Q			2.3	5	mA
Quiescent Current Change	ΔI_Q	8V < V_{IN} < 25V		0.3	1.0	mA
		1mA < I_O < 40mA			1.0	
Output Noise Voltage	V_n	f=10Hz to 100KHz		40		μV
Ripple Rejection	PSRR	f=100Hz, 8V < V_{IN} < 16V	47	62		dB
Peak output current	I_{PK}			200		mA
Voltage Temperature Coefficient	V_{TC}	I_O = 10mA		0.5		mV/ ℃
Dropout Voltage	V_{Drop}	I_O = 100mA		1.75	2	V
		I_O = 200mA		1.95	2.1	
Minimum input voltage	$V_{IN,\ MIN}$			6.8	7	V
Over-voltage protection threshold	$V_{IN,\ MAX}$	I_O = 10mA		38		V

10. Typical Performance Characteristics

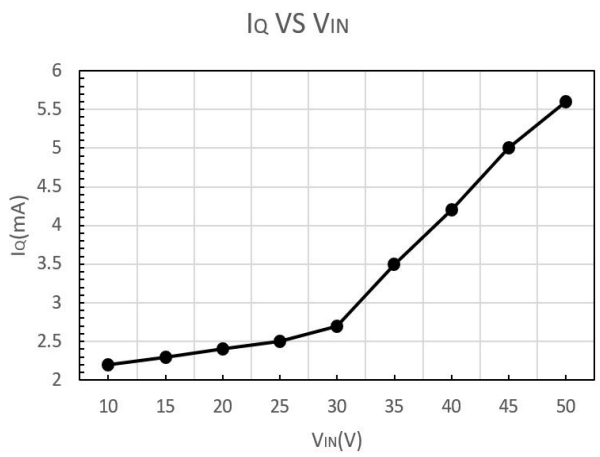


Figure 1.The quiescent current varies with the input voltage

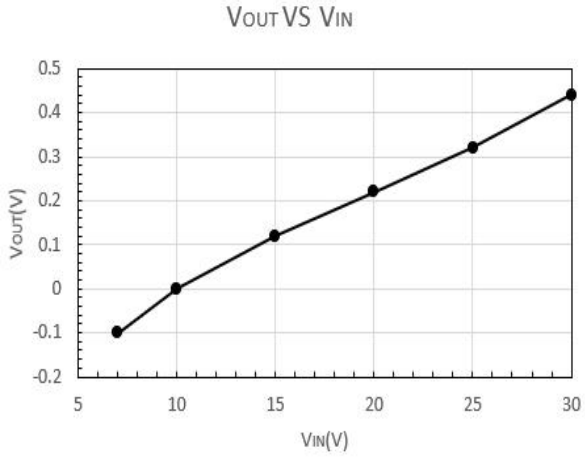


Figure 2.The output voltage varies with the input voltage (I_O = 10 mA)

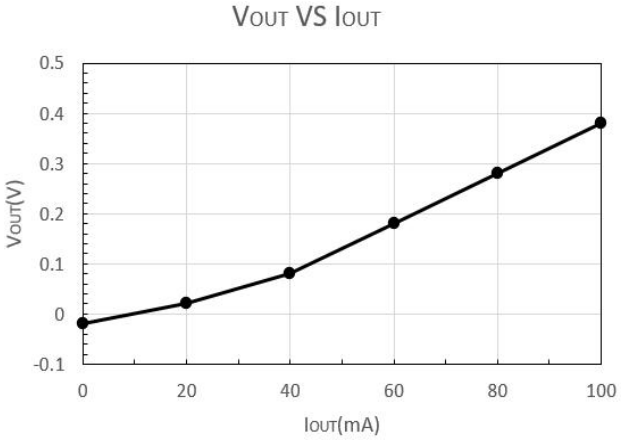


Figure 3.The output voltage varies with the load current (V_{IN} = 8 V).

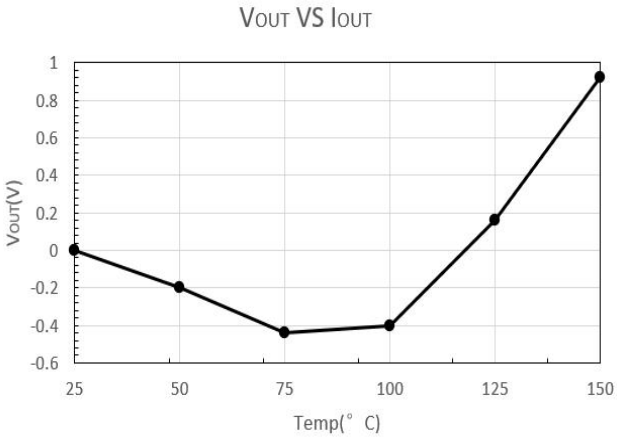
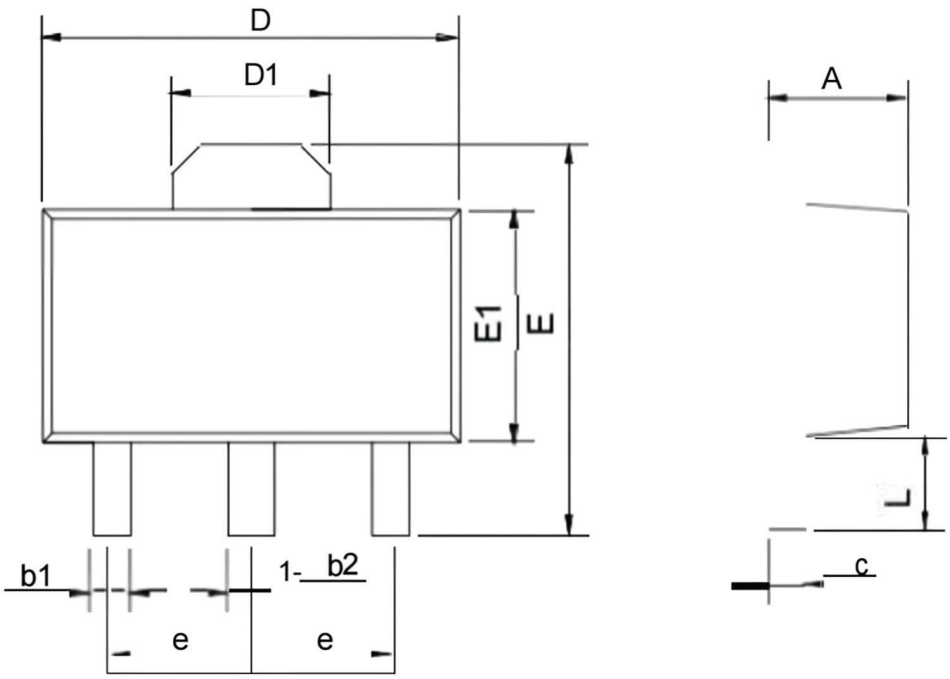


Figure 4.The output voltage varies with temperature (V_{IN} = 10 V, I_{OUT} = 10 mA).

11.Package Information

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



Symbol	Dimensions (mm)	
	Min	Max
A	1.40	1.60
b1	0.35	0.50
b2	0.45	0.60
c	0.36	0.46
D	4.30	4.70
D1	1.40	1.80
E	4.00	4.40
E1	2.30	2.70
e	1.50BSC	
L	0.80	1.20

12.Important Notice And Disclaimer

- We reserve 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.