

## 1. Description

The KIA78L05 is monolithic fixed voltage regulator integrated circuit. It is suitable for applications that require supply current up to 100mA.

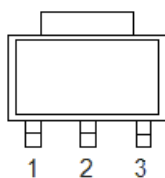
## 2. Features

- n Output current up to 100mA
- n No external part needed
- n Thermal overload shutdown protection
- n Short circuit current limiting
- n SOT89 package

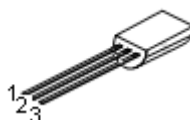
## 3. Applications

- n Battery-powered circuitry
- n Post regulator for switching power supply

## 4. Pinning information



SOT-89



TO-92

Pin	Description
1	$V_{OUT}$
2	GND
3	$V_{IN}$

## 5. Maximum ratings

(Ta=25°C, unless otherwise notes)

Parameter	Symbol	Rating	Units
Input voltage	V <sub>IN</sub>	30	V
Power dissipation	P <sub>D</sub>	500	mW
Junction temperature	T <sub>J</sub>	-20~+125	°C
Operating temperature	T <sub>OPR</sub>	-20~+85	°C
Storage temperature	T <sub>STG</sub>	-65~+150	°C

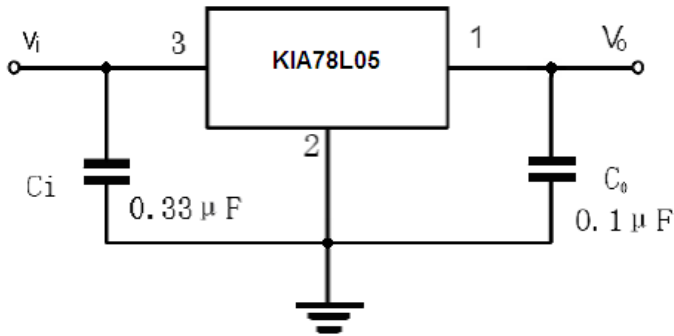
## 6. Electrical characteristics

(V<sub>IN</sub>=10V, I<sub>OUT</sub>=40mA, C<sub>IN</sub>=0.33uF, C<sub>OUT</sub>=0.1uF, T<sub>J</sub>=25°C, unless otherwise notes)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Output voltage	V <sub>OUT</sub>		4.8	5.0	5.2	V
		7.0V ≤ V <sub>IN</sub> ≤ 20V 1.0mA ≤ I <sub>OUT</sub> ≤ 40mA	4.75	5.0	5.25	V
		1.0mA ≤ I <sub>OUT</sub> ≤ 70mA	4.65	5.0	5.30	V
Line regulation	Reg line	7.0V ≤ V <sub>IN</sub> ≤ 20V	-	29	150	mV
		8.0V ≤ V <sub>IN</sub> ≤ 20V	-	26	100	mV
Load regulation	Reg load	1.0mA ≤ I <sub>OUT</sub> ≤ 100mA	-	9.0	60	mV
		1.0mA ≤ I <sub>OUT</sub> ≤ 40mA	-	5.0	30	mV
Quiescent current	I <sub>Q</sub>		-	2.8	6.0	mA
Quiescent current change	ΔI <sub>Q</sub>	8.0V ≤ V <sub>IN</sub> ≤ 20V	-	0.15	1.5	mA
		1.0mA ≤ I <sub>OUT</sub> ≤ 40mA	-	0.08	0.1	mA
Output noise voltage	V <sub>ON</sub>	10Hz ≤ f ≤ 100KHz	-	40	-	uV <sub>rm</sub>
Ripple rejection ratio	RR	10V ≤ V <sub>IN</sub> ≤ 20V, f=120Hz	40	49	-	dB
Dropout voltage	V <sub>D</sub>		-	1.7	-	V

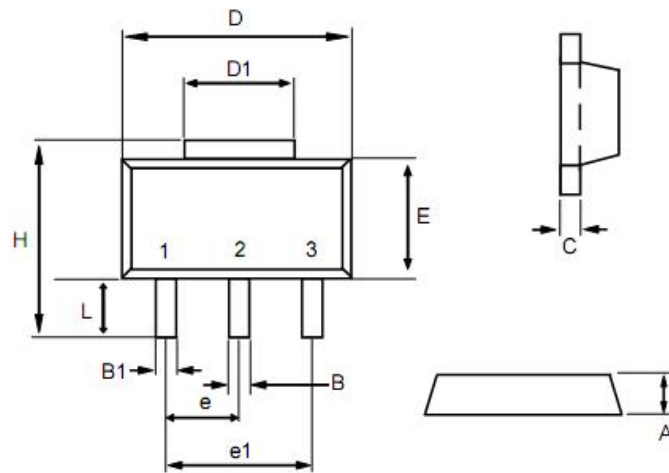
Note1: The maximum steady state usable output current is dependent on input voltage, heat sinking, lead length of the package and copper pattern of PCB.

**7. Applcation circuits**



Note1: The input voltage must remain typically 1.7V above the output voltage.  
 Note2: Bypass capacitors are recommended for optimum stability and transient reponse and should be located as close as possible to the regulators.

**8. Package outline**



Dim	min	max
A	1.40	1.60
B	0.40	0.56
B1	0.35	0.48
C	0.35	0.44
D	4.40	4.60
D1	1.35	1.83
e	1.50 BSC	
e1	3.00 BSC	
E	2.29	2.60
H	3.75	4.25
L	0.80	1.20