



1. Description

The KIA78L15 is monolithic fixed voltage regulator integrated circuit. It is suitable for applications that require supply current up to 100mA.

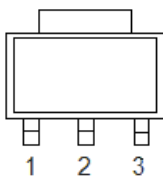
2. Features

- 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 Front View

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 _{IN}	35	V
Power dissipation	P _D	500	mW
Junction temperature	T _J	-20~+125	°C
Operating temperature	T _{OPR}	-20~+85	°C
Storage temperature	T _{STG}	-65~+150	°C

6. Electrical characteristics

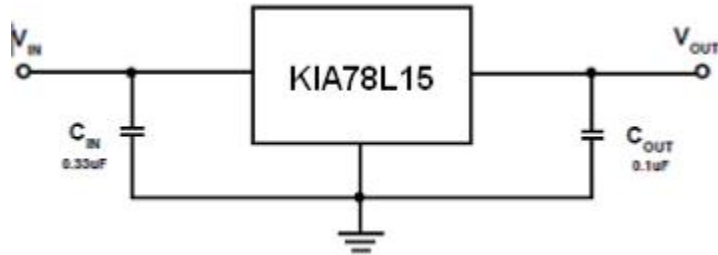
(V_{IN}=23V, I_{OUT}=40mA, C_{IN}=0.33uF, C_{OUT}=0.1uF, T_J=25°C, unless otherwise notes)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Output voltage	V _{OUT}		14.40	15	15.60	V
		17.5V ≤ V _{IN} ≤ 30V 1.0mA ≤ I _{OUT} ≤ 40mA	14.25	15	15.75	V
		1.0mA ≤ I _{OUT} ≤ 70mA	13.95	15	16.05	V
Line regulation	Reg line	17.5V ≤ V _{IN} ≤ V _{30V}	-	130	300	mV
		20V ≤ V _{IN} ≤ 30V	-	110	250	mV
Load regulation	Reg load	1.0mA ≤ I _{OUT} ≤ 100mA	-	25	150	mV
		1.0mA ≤ I _{OUT} ≤ 40mA	-	12	75	mV
Quiescent current	I _Q		-	3.1	6.5	mA
Quiescent current change	ΔI _Q	20V ≤ V _{IN} ≤ 30V	-	0.15	1.5	mA
		1.0mA ≤ I _{OUT} ≤ 40mA	-	0.08	0.1	mA
Output noise voltage	V _{ON}	10Hz ≤ f ≤ 100KHz	-	90	-	uV _{rm}
Ripple rejection ratio	RR	18.5V ≤ V _{IN} ≤ 28.5V, f=120Hz	34	40	-	dB
Dropout voltage	V _D		-	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.



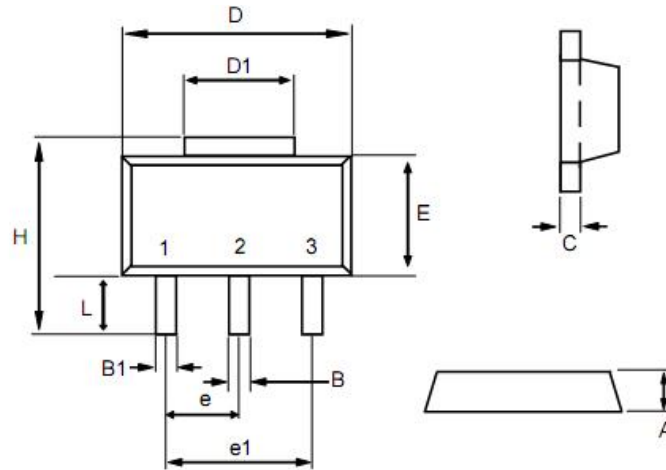
7. Application circuits



Note1: The input voltage must remain typically 1.7V above the output voltage.

Note2: Bypass capacitors are recommended for optimum stability and transient response 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



1. Description

The KIA78L15 is monolithic fixed voltage regulator integrated circuit. It is suitable for applications that require supply current up to 100mA.

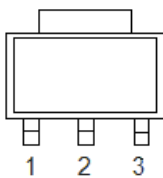
2. Features

- 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 Front View

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 _{IN}	35	V
Power dissipation	P _D	500	mW
Junction temperature	T _J	-20~+125	°C
Operating temperature	T _{OPR}	-20~+85	°C
Storage temperature	T _{STG}	-65~+150	°C

6. Electrical characteristics

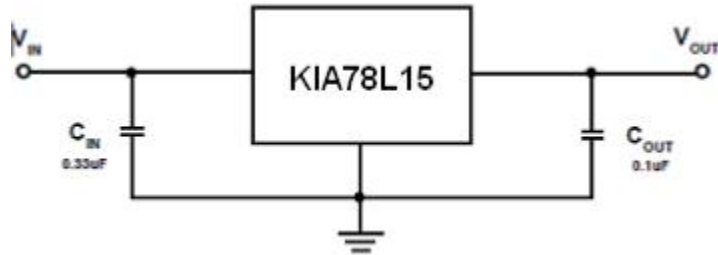
(V_{IN}=23V, I_{OUT}=40mA, C_{IN}=0.33uF, C_{OUT}=0.1uF, T_J=25°C, unless otherwise notes)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Output voltage	V _{OUT}		14.40	15	15.60	V
		17.5V ≤ V _{IN} ≤ 30V 1.0mA ≤ I _{OUT} ≤ 40mA	14.25	15	15.75	V
		1.0mA ≤ I _{OUT} ≤ 70mA	13.95	15	16.05	V
Line regulation	Reg line	17.5V ≤ V _{IN} ≤ V _{30V}	-	130	300	mV
		20V ≤ V _{IN} ≤ 30V	-	110	250	mV
Load regulation	Reg load	1.0mA ≤ I _{OUT} ≤ 100mA	-	25	150	mV
		1.0mA ≤ I _{OUT} ≤ 40mA	-	12	75	mV
Quiescent current	I _Q		-	3.1	6.5	mA
Quiescent current change	ΔI _Q	20V ≤ V _{IN} ≤ 30V	-	0.15	1.5	mA
		1.0mA ≤ I _{OUT} ≤ 40mA	-	0.08	0.1	mA
Output noise voltage	V _{ON}	10Hz ≤ f ≤ 100KHz	-	90	-	uV _{rm}
Ripple rejection ratio	RR	18.5V ≤ V _{IN} ≤ 28.5V, f=120Hz	34	40	-	dB
Dropout voltage	V _D		-	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.



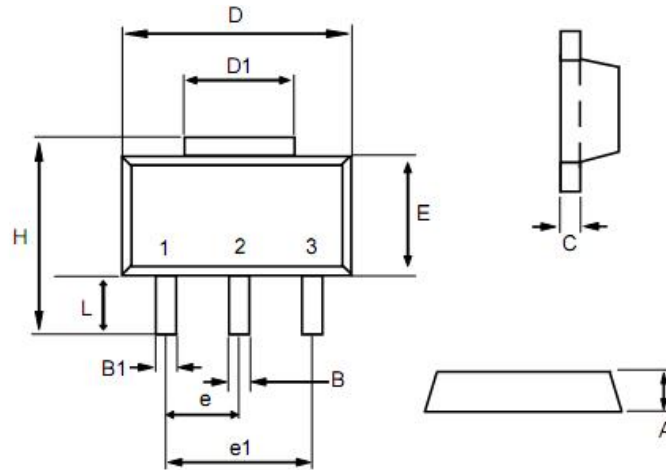
7. Application circuits



Note1: The input voltage must remain typically 1.7V above the output voltage.

Note2: Bypass capacitors are recommended for optimum stability and transient response 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