1. Description

KIA6206 series are highly precise,low power consumption, high voltage,positive voltage regulators manufactured using CMOS and laser trimming technologies .The series provides large currents with a significantly small dropout voltage.The series is compatible with low ESR ceramic capacitors .The current limiter's foldback circuit also operates as a short protect for the output current limiter and the output pin.

2. Features

- Highly Accurate：±2%；
- Output voltage range：1.5V~5.0V (selectable in 0.1V steps)；
- Low power consumption：Typ. =8.0μA；
- Large output current ：300mA；
- Dropout voltage：0.2V at 100mA and 0.40V at 200mA；
- Input Stability
- Be available to regulator and reference voltage；

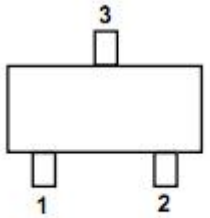
3.Applications

- Battery powered equipment；
- Communication tools；
- Mobile phones；
- Portable games；
- Portable AV systems；
- Cameras, Video systems；
- Reference voltage sources。

4. Pinning configuration

Pin	Description
1	V_{SS}
2	V_{OUT}
3	V_{IN}

Simplified outline



(SOT23 Front View)

5.Package information

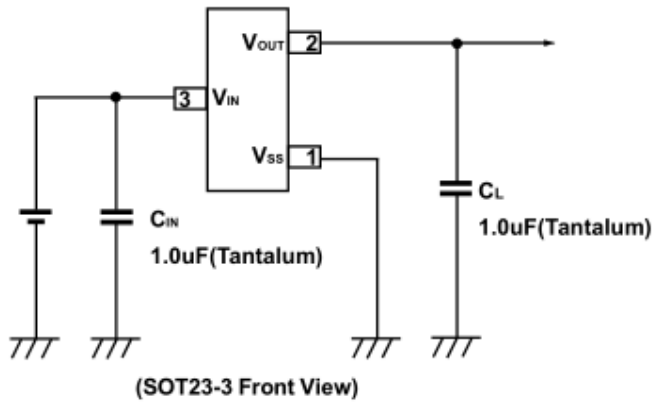
3K/Reel **30K/Box** **360K/CTN**

6.Maximum ratings(Ta=25 °C)

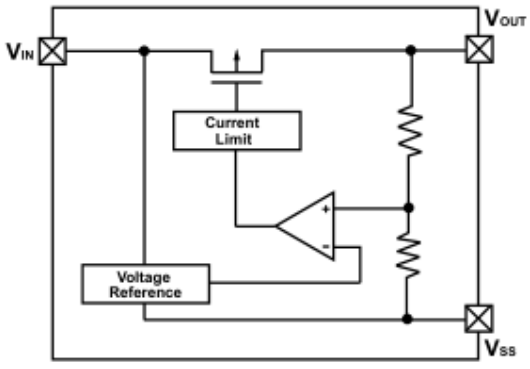
Parameter	Symbol	Rating	Units
Input Voltage	V_{IN}	6.5	V
Output Current	I_{OUT}	500	mA
Output Voltage	V_{OUT}	Vss-0.3~Vout+0.3	V
Power Dissipation	P_D	300	mW
Operating Ambient Temperature	T_{OPR}	-25~+85	°C
Storage Temperature	T_{STG}	-40~+125	°C
Soldering Temperature And Time	T_{Solder}	260°C,10s	

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.Block diagram&Typical application



(Typical Application)



(Block Diagram)

8. Electrical characteristics

KIA6206-1.5V(VIN =Vout+1V,Cin=Cout=1u,**T A =25°C ,Unless otherwise Stated**）

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Output voltage	$V_{OUT}(E)$ (Note2)	I_{OUT} =10mA, Vin =Vout+1V	V_{OUT}*0.98	$V_{OUT}(T)$ (Note1)	V_{OUT}*1.02	v
Maximum Output Voltage	$I_{OUT}(max)$	Vin =Vout+1V	-	100	-	mA
Load Regulation	ΔV_{OUT}	Vin=Vout+1V, 1mA≤I_{OUT} ≤80mA	-	10	-	mV
Dropout Voltage (Note 3)	Vdif1	$I_{OUT=}$20mA		180	-	mV
	Vdif2	$I_{OUT=}$50mA	-	360	-	mV
Supply Current	Iss	Vin =Vout+1V	-	7	-	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta VIN \bullet V_{OUT}}$	I_{OUT}=10mA Vout+1V ≤Vin ≤5V	-	0.1	-	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I_{OUT} =10mA,f=1kHz	-	45	-	dB
Short Circuit Current	Ishort	Vin=Vout(T)+1.5V Vout=Vss	-	20	-	mA
Over Current Protection	Ilimit		-	200	-	mA

KIA6206-1.8V(VIN =Vout+1V,Cin=Cout=1u,**T A =25°C ,Unless otherwise Stated**）

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Output voltage	$V_{OUT}(E)$ (Note2)	I_{OUT} =10mA, Vin =Vout+1V	V_{OUT}*0.98	$V_{OUT}(T)$ (Note1)	V_{OUT}*1.02	v
Maximum Output Voltage	$I_{OUT}(max)$	Vin =Vout+1V	-	120	-	mA
Load Regulation	ΔV_{OUT}	Vin=Vout+1V, 1mA≤I_{OUT} ≤80mA	-	12	-	mV
Dropout Voltage (Note 3)	Vdif1	$I_{OUT=}$20mA		180	-	mV
	Vdif2	$I_{OUT=}$50mA	-	360	-	mV
Supply Current	Iss	Vin =Vout+1V	-	7	-	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta VIN \bullet V_{OUT}}$	I_{OUT}=10mA Vout+1V ≤Vin ≤5V	-	0.1	-	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I_{OUT} =10mA,f=1kHz	-	45	-	dB
Short Circuit Current	Ishort	Vin=Vout(T)+1.5V Vout=Vss	-	25	-	mA
Over Current Protection	Ilimit		-	200	-	mA

KIA6206-2.8V(VIN =Vout+1V,Cin=Cout=1u,**T A =25°C ,Unless otherwise Stated**）

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Output voltage	V_{OUT}(E) (Note2)	I_{OUT} =10mA, Vin =Vout+1V	V_{OUT}*0.98	V_{OUT}(T) (Note1)	V_{OUT}*1.02	v
Maximum Output Voltage	I_{OUT}(max)	Vin =Vout+1V	-	300	-	mA
Load Regulation	ΔV_{OUT}	Vin=Vout+1V, 1mA≤I_{OUT} ≤100mA	-	14	-	mV
Dropout Voltage (Note 3)	Vdif1	I_{OUT}=80mA		180	-	mV
	Vdif2	I_{OUT}=200mA	-	380	-	mV
Supply Current	Iss	Vin =Vout+1V	-	8	-	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta VIN \bullet V_{OUT}}$	I_{OUT}=40mA Vout+1V ≤Vin ≤6V	-	0.03	-	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I_{OUT} =10mA,f=1kHz	-	50	-	dB
Short Circuit Current	Ishort	Vin=Vout(T)+1.5V Vout=Vss	-	30	-	mA
Over Current Protection	Ilimit		-	500	-	mA

KIA6206-3.0V(VIN =Vout+1V,Cin=Cout=1u,**T A =25°C ,Unless otherwise Stated**）

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Output voltage	V_{OUT}(E) (Note2)	I_{OUT} =10mA, Vin =Vout+1V	V_{OUT}*0.98	V_{OUT}(T) (Note1)	V_{OUT}*1.02	v
Maximum Output Voltage	I_{OUT}(max)	Vin =Vout+1V	-	300	-	mA
Load Regulation	ΔV_{OUT}	Vin=Vout+1V, 1mA≤I_{OUT} ≤100mA	-	14	-	mV
Dropout Voltage (Note 3)	Vdif1	I_{OUT}=80mA		180	-	mV
	Vdif2	I_{OUT}=200mA	-	380	-	mV
Supply Current	Iss	Vin =Vout+1V	-	8	-	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta VIN \bullet V_{OUT}}$	I_{OUT}=40mA Vout+1V ≤Vin ≤6V	-	0.03	-	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I_{OUT} =10mA,f=1kHz	-	50	-	dB
Short Circuit Current	Ishort	Vin=Vout(T)+1.5V Vout=Vss	-	30	-	mA
Over Current Protection	Ilimit		-	500	-	mA

KIA6206-3.3V(VIN =Vout+1V,Cin=Cout=1u,**T A =25°C ,Unless otherwise Stated**）

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Output voltage	V_{OUT}(E) (Note2)	I_{OUT} =10mA, Vin =Vout+1V	V_{OUT}*0.98	V_{OUT}(T) (Note1)	V_{OUT}*1.02	v
Maximum Output Voltage	I_{OUT}(max)	Vin =Vout+1V	-	300	-	mA
Load Regulation	ΔV_{OUT}	Vin=Vout+1V, 1mA≤I_{OUT} ≤100mA	-	14	-	mV
Dropout Voltage (Note 3)	Vdif1	I_{OUT}=80mA		180	-	mV
	Vdif2	I_{OUT}=200mA	-	380	-	mV
Supply Current	I_{ss}	Vin =Vout+1V	-	9	-	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta VIN \bullet V_{OUT}}$	I_{OUT}=40mA Vout+1V ≤Vin ≤6V	-	0.03	-	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I_{OUT} =10mA,f=1kHz	-	50	-	dB
Short Circuit Current	I_{short}	Vin=Vout(T)+1.5V Vout=Vss	-	30	-	mA
Over Current Protection	I_{limit}		-	500	-	mA

Note :

1. V OUT (T) ： Specified Output Voltage

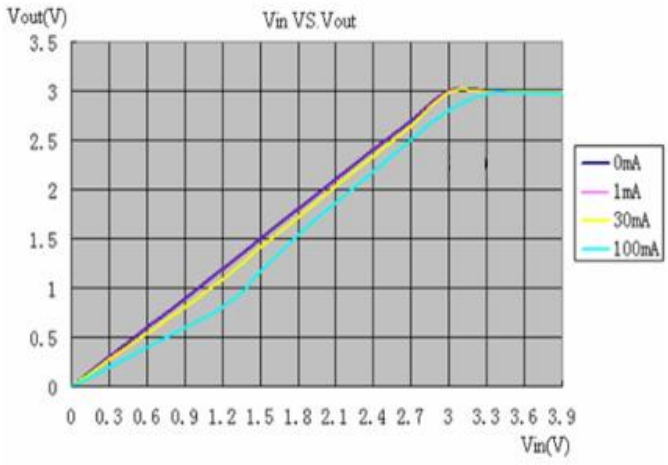
2.V OUT (E) ： Effective Output Voltage (le. The output voltage when “V OUT (T)+1.0V”is provided at the Vin pin while maintaining a certain Iout value.)

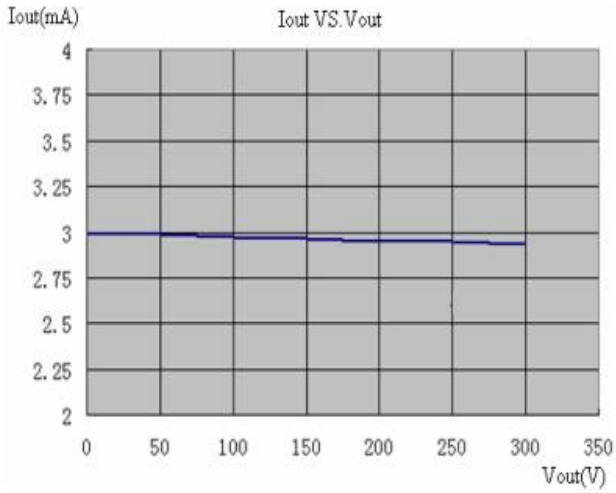
3.V dif ： V IN1 －V OUT (E) ’

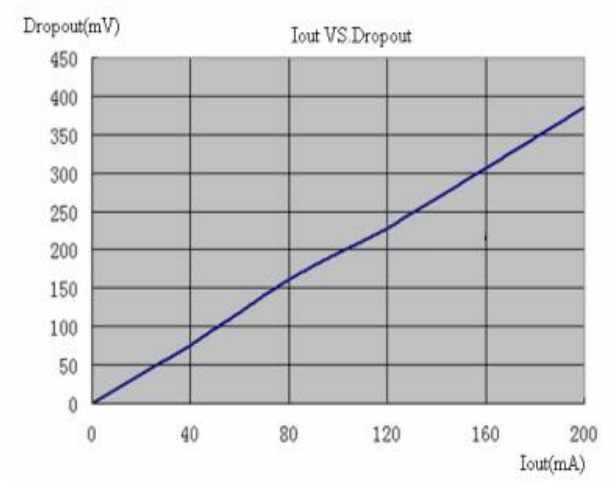
V IN1 ： The input voltage when V OUT (E)’ appears as input voltage is gradually decreased.

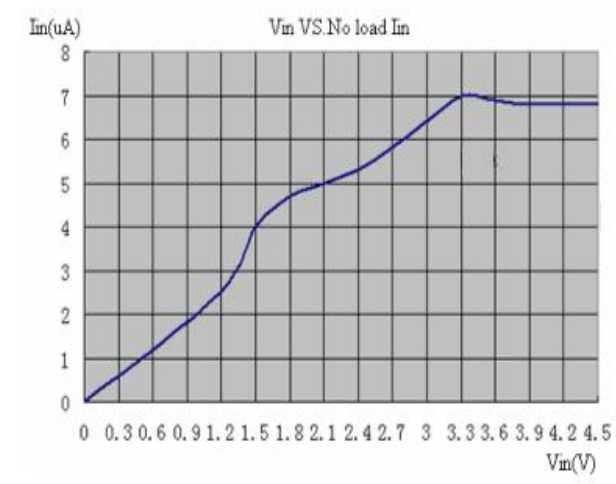
V OUT (E)’ =A voltage equal to 98% of the output voltage whenever an amply stabilized Iout {V OUT (T)+1.0V} is input.

9.Typical performance characteristics



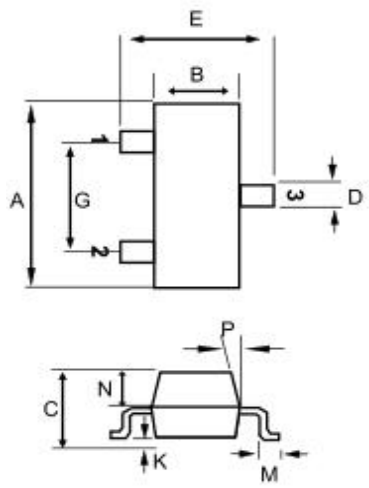






10.SOT23 package outline

Table6: SOT23 package outline
DIMENSIONS(mm are the original dimensions)



Dim	Min	Max
A	2.70	3.10
B	1.50	1.80
C	1.10	1.30
D	0.30	0.50
E	2.60	3.00
G	1.70	2.10
K	0.00	0.10
M	0.20	
N	0.50	0.70
P	0°	8°