



## Low ESR Caps Compatible High Speed LDO Voltage Regulator with ON/OFF Switch

### ■ GENERAL DESCRIPTION

The AMS6211 series is a high accuracy, low noise, high speed, low dropout CMOS regulator with high ripple rejection. The series includes a reference voltage source, an error amplifier, a current limiter, and a phase compensation circuit.

The CE function enables the entire circuit to be in stand-by state by inputting low level signal. As for the AMS6211 stand-by mode, the electric charge at the output capacitor ( $C_L$ ) will be discharged by the internal auto-discharge switch, and as a result the  $V_{OUT}$  pin quickly returns to the  $V_{SS}$  level. The output stabilization capacitor ( $C_L$ ) is also compatible with low ESR ceramic capacitors.

Output voltage is selectable in 0.1V increments within a range of 1.2V~5.0V, using the laser trimming technology set in factory.

The current limiter's fold-back circuit also operates as a short circuit protection and an output current limiter at the output pin. The series achieves a fast response with only  $50\mu A$  of low power consumption. Also the series has low dropout voltage characteristics, which is 100mV at  $I_{OUT}=100mA$ .

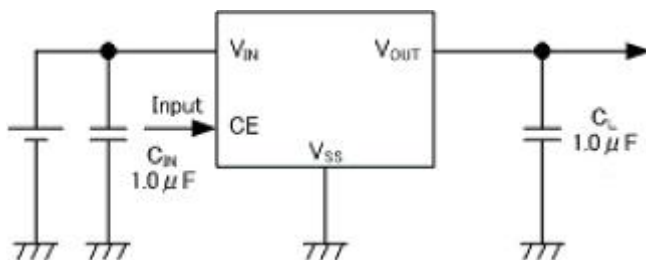
### APPLICATIONS

- Cellular phones
- Cordless phones
- Wireless communication equipment
- Portable games
- Cameras, VCRs
- Portable AV equipment
- PDAs

### ■ FEATURES

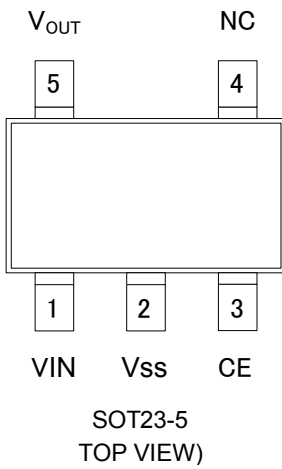
<b>Maximum Output Current</b>	: 500mA (TYP.)
<b>Dropout Voltage</b>	: 100mV@ $I_{OUT}=100mA$
<b>Operating Voltage Range</b>	: 2V ~ 6.5V
<b>Output Voltage Range</b>	: 1.2V~5.0V
<b>Accuracy</b>	: $\pm 2\%$ (Standard)
<b>Low Power Consumption</b>	: 50uA (TYP.)
<b>Stand-by Current</b>	: 0.1uA (TYP)
<b>High Ripple Rejection</b>	: 70dB @ 1kHz
<b>CE Function</b>	: CE Active High
<b>Stand-by Current</b>	: Less than 0.1 $\mu A$
<b>Low ESR Capacitor</b>	
<b>Low Output Noise</b>	: 50uVrms
<b>Packages</b>	: SOT23-5
<b>Environmentally Friendly</b>	: EU RoHS Compliant, Pb Free
<b>Operating Ambient Temperature</b>	: -40°C~+85°C

### ■ TYPICAL APPLICATION CIRCUIT





## ■ PIN CONFIGURATION

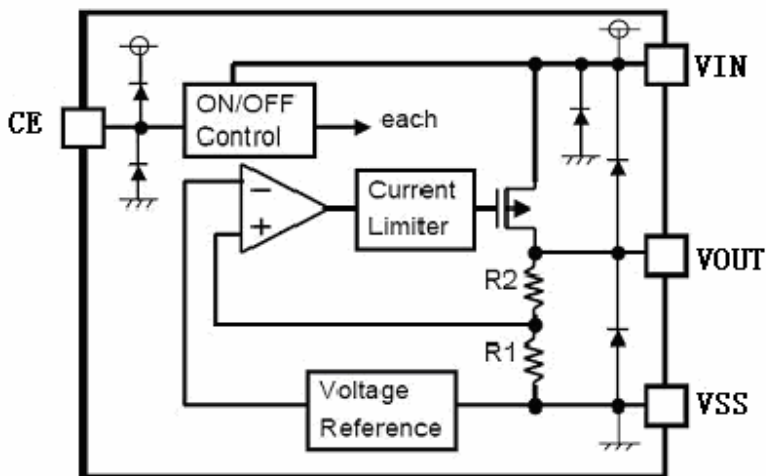


## ■ PIN ASSIGNMENT

PIN NUMBER				PIN NAME	FUNCTIONS
SOT23-5					
1				V <sub>IN</sub>	Power Input
5				V <sub>OUT</sub>	Output
2				V <sub>SS</sub>	Ground
3				CE	ON/OFF Control
4				NC	No Connection

PIN NAME	DESIGNATOR	CONDITIONS
CE	H	$1.2V \leq V_{CE} \leq 6.0V$
	L	$V_{CE} \leq 0.3V$

## ■ BLOCK DIAGRAMS





## ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNITS
Input Voltage		$V_{IN}$	7	V
Output Current		$I_{out}$	600	mA
Output Voltage		$V_{out}$	$V_{ss}-0.3 \sim V_{out}+0.3$	V
Power Dissipation	SOT23	$P_d$	300	mW
	SOT89	$P_d$	500	mW
Operating Temperature		$T_{Opr}$	-40 ~ +85	°C
Storage Temperature		$T_{stg}$	-40 ~ +125	°C
Soldering Temp & Time		$T_{solder}$	260°C, 10s	

## ■ ELECTRICAL CHARACTERISTIC

AMS621133

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{out}+1V$	X 0.98	$V_{OUT(T)}$ (Note 1)	X 1.02	V
Input Voltage	$V_{IN}$				5.5	V
Maximum Output Current	$I_{OUTmax}$	$V_{IN}=V_{out}+1V$		500		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{out}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		9		mV
Dropout Voltage (Note 3)	$V_{dif}$	$I_{OUT} = 100mA$		100		mV
Quiescent Current	$I_{SS}$	$V_{IN}=V_{out}+1V$		50		$\mu A$
CE Low Level Current	$I_{CEL}$	$V_{ce} = 0V$		0.1		$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT} = 40mA$ $V_{out}+1V \leq V_{IN} \leq 6.5V$		0.05		%/V
Output Noise	en	$I_{OUT} = 40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
	PSRR	$V_{in} = [V_{out}+1]V$ +1Vp-pAC $I_{OUT} = 50mA, f=1kHz$		70		dB

注：

1.  $V_{OUT(T)}$  : Nominal output voltage
2.  $V_{OUT(E)}$  : Effective output voltage
3.  $V_{dif}$  :  $V_{IN1} - V_{OUT(E)}$

$V_{IN1}$  is the input voltage when  $V_{OUT1}$  appears at the  $V_{OUT}$  pin while input voltage is gradually decreased.

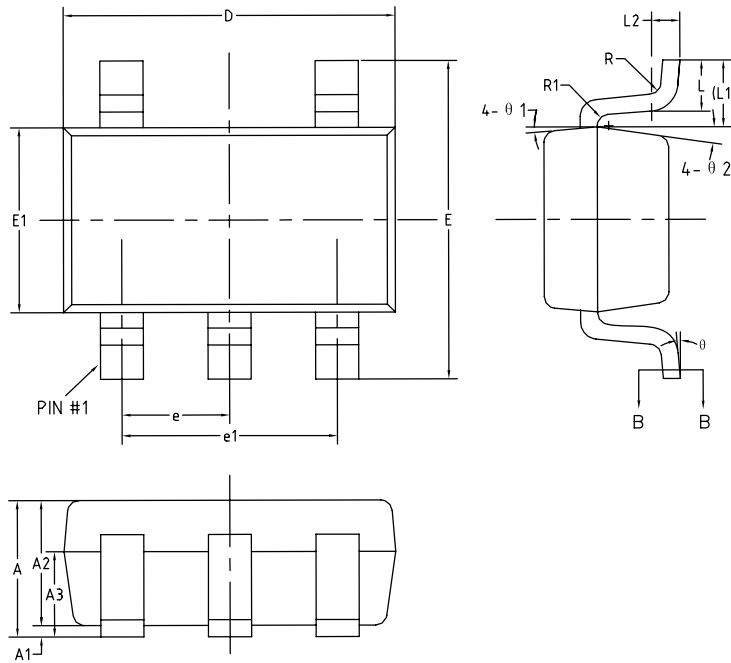
$V_{OUT(E)}$  is the voltage equal to 98% of the normal output voltage when amply stabilized  $V_{OUT(T)} + 1.0V$  are input at the  $V_{IN}$  pin.



## PACKAGING INFORMATION

● SOT23-5

(unit : mm)



Symbol	mm		
	MIN	TYPE	MAX
A	-	-	1.25
A1	0	-	0.15
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.36	-	0.50
b1	0.36	0.38	0.45
c	0.14	-	0.20
c1	0.14	0.15	0.16
D	2.826	2.926	3.026
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	0.95BSC		
e1	1.90BSC		
L	0.35	0.45	0.60
L1	0.59REF		
L2	0.25BSC		
R	0.10	-	-
R1	0.10	-	0.25
θ	0°	-	8°
θ1	3°	5°	7°
θ2	6°	8°	10°

