

1. Description

The XC6211 series are CMOS step-down voltage regulators with high ripple rejection, low power consumption, and low dropout voltage, along with overcurrent and short-circuit protection. These devices feature very low quiescent bias current (45µA typical). They can deliver 250mA of output current with minimal input-output voltage differential while maintaining excellent regulation. Due to the minimal input-output voltage differential and low quiescent bias current, these devices are ideal for battery-powered products such as computers, consumer products, and industrial equipment, where extended battery life is desired.

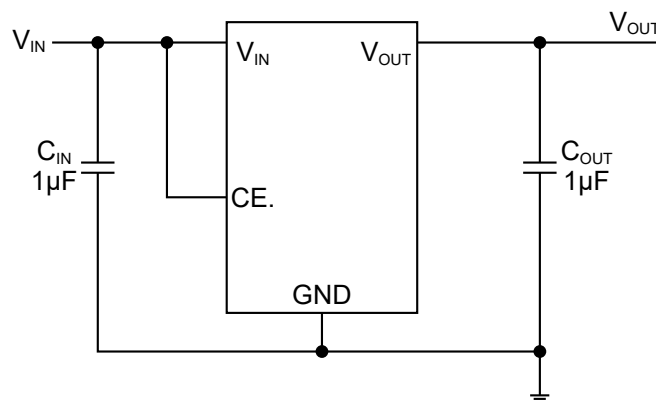
2. Features

- Output range: 0.8V-5.0V
- 300mA output current
- High PSRR: 70dB at 1kHz
- Very low quiescent bias current:
45µA (typical)
- than 1 µA in shutdown mode
- Junction temperature operation is
-40 °C to +85 °C

3. Applications

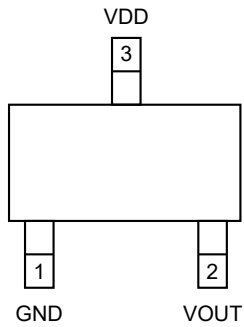
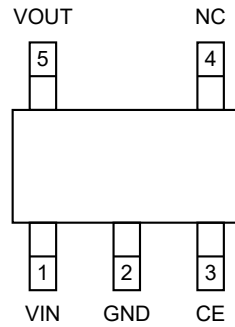
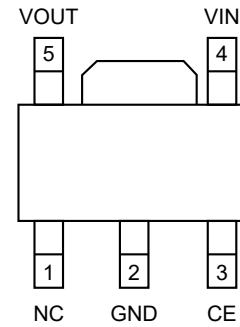
- CDMA GSM mobile phones
- PDAs/MP3
- WLAN and Bluetooth devices
- Cordless Phones
- Battery-Powered Systems

4. Typical Applications





5. Pinning Information

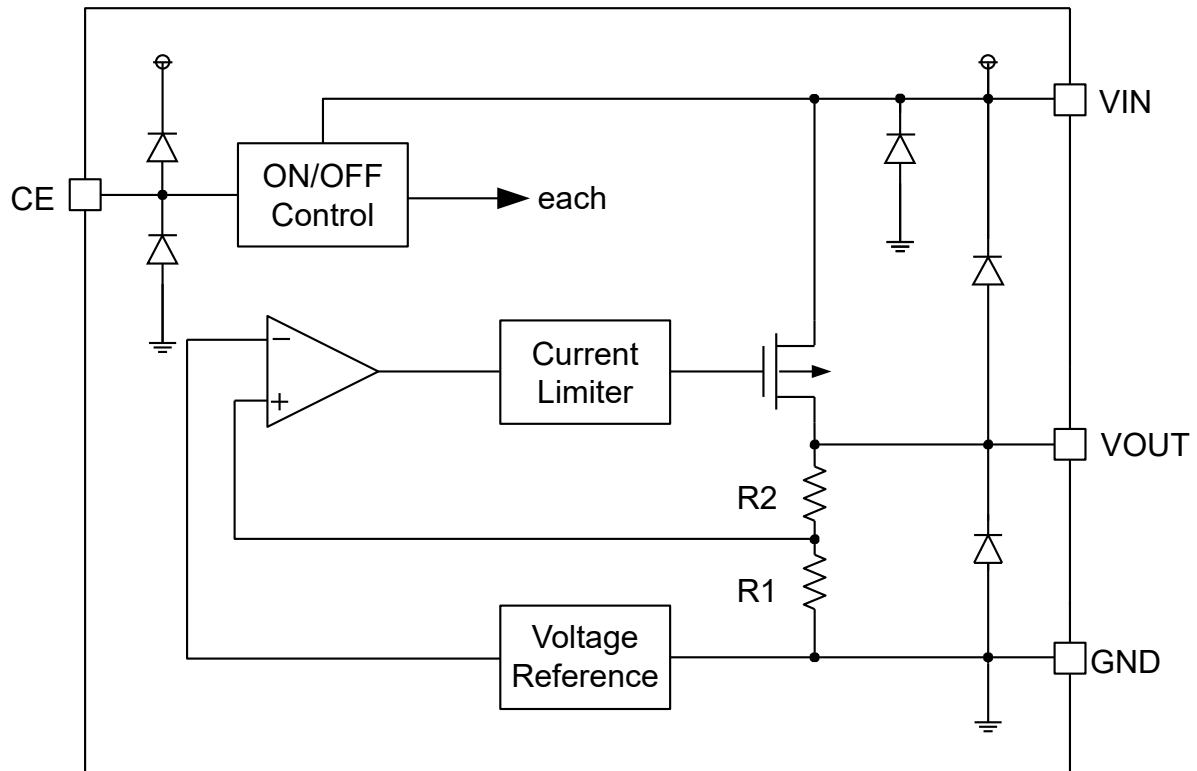
**SOT-23-3L****SOT-23-5L****SOT-89-5L**

Pin Functions

Pin Number			Symbol	Description
SOT-23-3L	SOT-23-5L	SOT-89-5L		
3	1	4	VIN	Voltage Input
1	2	2	GND	Ground Pin
-	3	3	CE	CE terminal
-	4	1	NC	Empty
2	5	5	VOUT	Voltage Output



6. Functional Block Diagram



7. Package Dissipation Rating

Package	Pd(mW)
SOT-23-3L	100
SOT-23-5L	300
SOT-89-5L	500



8. Absolute Maximum Ratings

Parameter	Symbol	Limit Value	Unit
V_{IN} pin voltage	V_{IN}	8	V
V_{OUT} pin current	I_{OUT}	500	mA
V_{OUT} pin voltage	V_{OUT}	$V_{SS} - 0.3 \sim V_{OUT} + 0.3$	V
Operating Temperature	T_{OPR}	-25 to 85	°C
Storage Temperature	T_{STG}	-40 to 125	°C
Soldering Temperature and Time	T_{solder}	260°C, 10s	

Note: Stresses beyond the "Absolute Maximum Ratings" may damage the device. Device operation is permitted within the recommended operating range, but performance is not guaranteed. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



9. Electrical Characteristics

Unless specified otherwise, $V_{IN}=V_{OUT}+1V$, $C_{IN}=C_{OUT}=1\mu$, $T_A=25^\circ C$.

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output voltage	$V_{OUT(E)}^{(2)}$	$I_{OUT}=40mA$, $V_{IN}=V_{OUT}+1V$	$V_{out} \times 0.98$	$V_{OUT(T)}$ (Note 1)	$V_{out} \times 1.02$	V
Input voltage	V_{IN}				7	V
Startup voltage	$V_{startup}$	$I_{OUT}>100mA$		0.8		V
Maximum output current	$I_{OUT(max)}$	$V_{IN}=V_{OUT}+1V$	300			mA
Load characteristics	ΔV_{OUT}	$V_{IN}=V_{OUT}+1V$, $1mA \leq I_{OUT} \leq 100mA$		30		mV
Voltage Drop	V_{dif1}	$I_{OUT}=100mA$		200		mV
	V_{dif2}	$I_{OUT}=200mA$		400		mV
Quiescent Current	I_{SS}	$V_{IN}=V_{OUT}+1V$		45		μA
Shutdown current	I_{CEL}	$V_{CE}=0V$		1		μA
Short-circuit protection current	I_{VIN}	$V_{IN}=V_{OUT}+1V$		20		mA
Power supply voltage regulation rate	$\Delta V_{OUT}/(\Delta V_{IN} \times V_{OUT})$	$I_{OUT}=40mA$ $V_{OUT}+1V \leq V_{IN} \leq 8V$		0.05		%/V
Output noise	en	$I_{OUT}=40mA$, 300Hz~50kHz		50		μV_{rms}
Ripple suppression ratio	PSRR	$V_{IN}=[V_{OUT}+1]V + 1V_{p-pAC}$ $I_{OUT}=40mA$, $f=1kHz$		70		dB

Note:

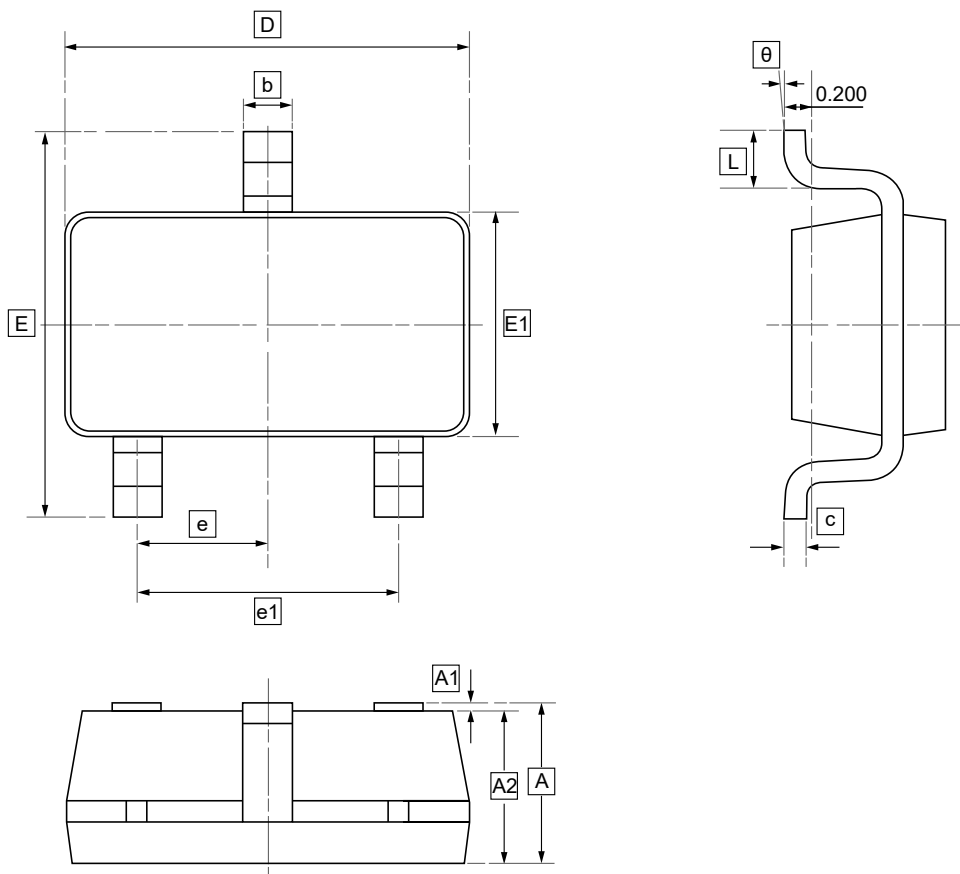
- $V_{OUT(T)}$: the specified output voltage.
- $V_{OUT(E)}$: effective output voltage (when I_{OUT} maintains a certain value, $V_{IN}=(V_{OUT(T)} + 1.0V)$ is the output voltage).
- V_{dif} : $V_{IN1} - V_{OUT(E)}$

V_{IN1} : Gradually reduce the input voltage, and record the input voltage when the output voltage drops to 98% of $V_{OUT(E)}$.

$V_{OUT(E)}' = V_{OUT(E)} \times 98\%$



10.1 SOT-23-3L Package Outline Dimensions

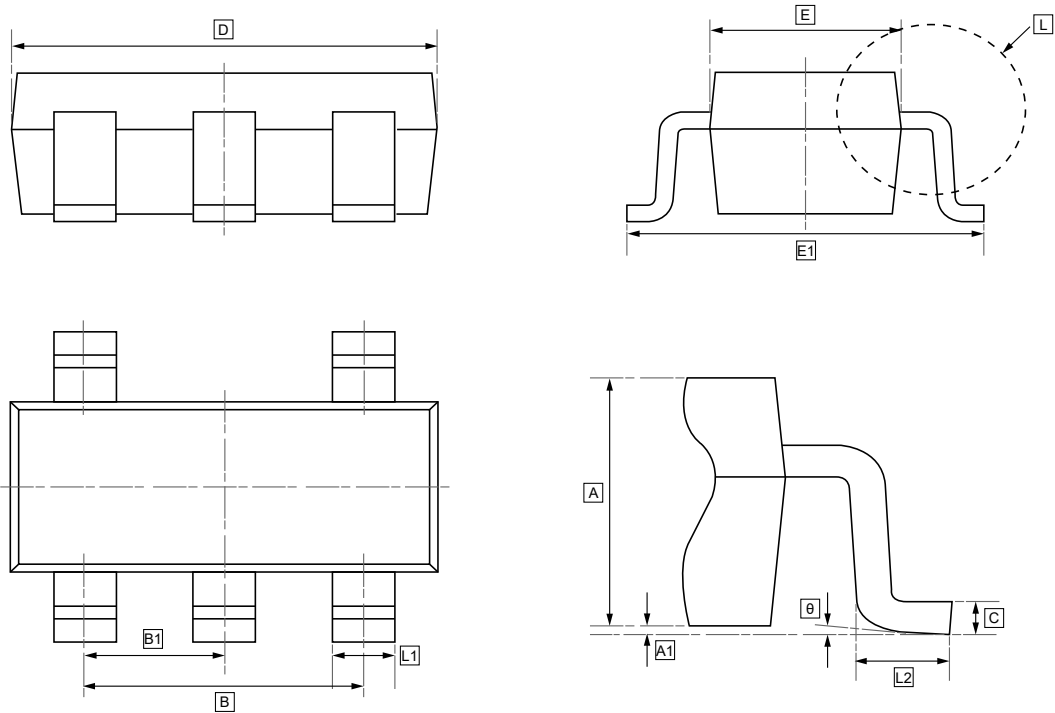


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E1	E	e	e1	L	K
Min	1.050	0.000	1.050	0.300	0.100	2.820	1.500	2.650	0.950	1.800	0.300	0°
Max	1.250	0.100	1.150	0.500	0.200	3.020	1.700	2.950	BSC	2.000	0.600	8°



10.2 SOT23-5 Package Outline Dimensions

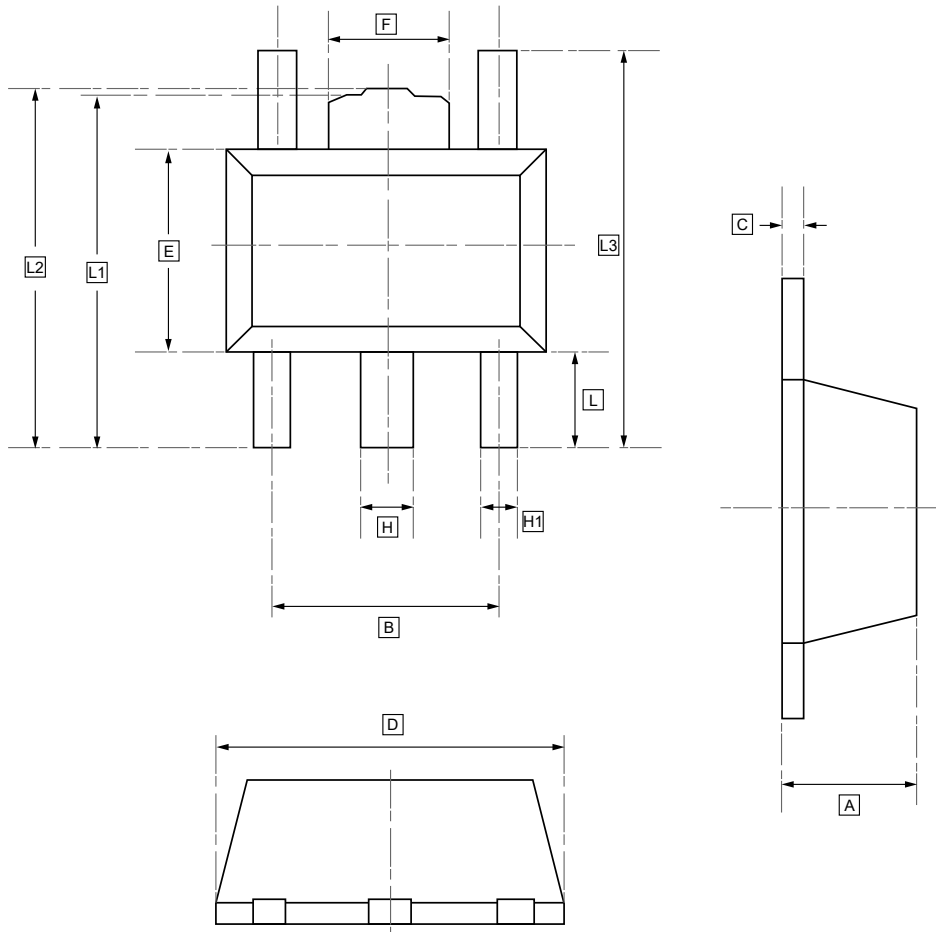


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	B	B1	C	D	E	E1	L1	L2	θ
Min	1.050	0.000	1.800	0.950	0.100	2.820	1.500	2.650	0.300	0.300	0°
Max	1.150	0.100	2.000	TYP	0.200	3.020	1.700	2.950	0.500	0.600	8°



10.3 SOT-89-5 Package Outline Dimensions

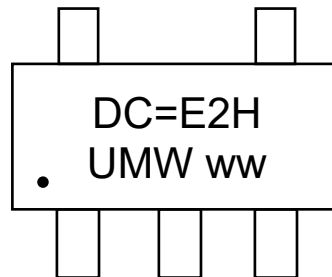


DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	F	H	H1	L	L1	L2	L3
Min	1.450	2.950	0.330	4.450	2.450	1.650	0.450	0.370	0.900	4.100	4.100	4.350
Max	1.550	3.050	0.430	4.550	2.550	1.750	0.580	0.480	1.000	4.300	4.350	4.450



11.ordering Information



ww: Week Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW XC6211B152MR	DS=J2T	SOT-23-5	3000	Tape and reel
UMW XC6211B182MR	DC=E2H	SOT-23-5	3000	Tape and reel
UMW XC6211B252MR	DH=M6C	SOT-23-5	3000	Tape and reel
UMW XC6211B282MR	DJ=N10	SOT-23-5	3000	Tape and reel
UMW XC6211B302MR	DK=06L	SOT-23-5	3000	Tape and reel
UMW XC6211B332MR	DE=A1D	SOT-23-5	3000	Tape and reel
UMW XC6211B362MR	DF=C2D	SOT-23-5	3000	Tape and reel
UMW XC6211B122MR	DA=G3K	SOT-23-5	3000	Tape and reel



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