

Polarity inverting charge pump DC/DC converter IC AN1201SM

Overview

AN1201SM is a negative voltage generation IC for bias voltage of transmission power module of cellular phones. This IC is a polarity inverting DC/DC converter to change from positive voltage into negative voltage.

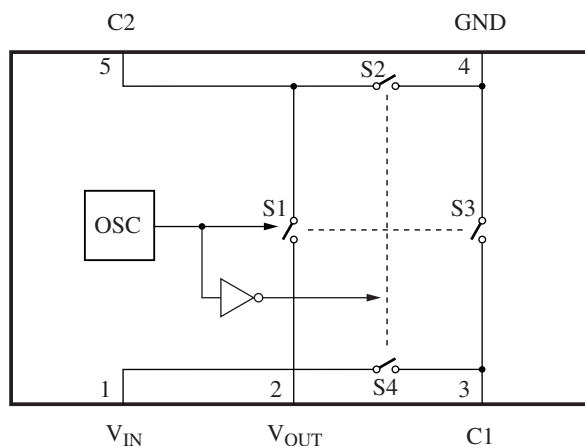
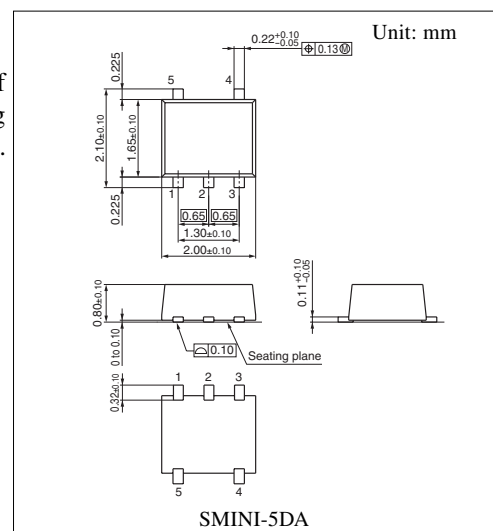
Features

- High power conversion efficiency: 89% typ. (when output current is 5 mA.)
- Low output resistance: 20 Ω typ.
- High voltage conversion efficiency: 99.9%
- Small (S-MINI) package

Applications

- Cellular phone

Block Diagram



¶ The products and specifications are subject to change without any notice. Please ask for the latest product standards to guarantee the satisfaction of your product requirements.

Semiconductor Company, Matsushita Electric Industrial Co., Ltd.

■ Pin Descriptions

Pin No.	Symbol	Description
1	V _{IN}	Supply voltage pin
2	V _{OUT}	Inverted output pin
3	C1	Charge pump capacitor's positive polarity side connecting pin
4	GND	Ground pin
5	C2	Charge pump capacitor's negative polarity side connecting pin

■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V _{IN}	3.3	V
Supply current	I _{IN}	10	mA
Output current	I _O	20	mA
Power dissipation *2	P _D	48	mW
Operating ambient temperature *2	T _{opr}	-30 to +85	°C
Storage temperature *1	T _{stg}	-55 to +125	°C

Note) 1. Do not apply external currents or voltages to any pins not specifically mentioned.

For circuit currents, (+) denotes current flowing into the IC, and (-) denotes current flowing out of the IC.

2. *1: Except for the power dissipation, operating ambient temperature and storage temperature, all ratings are for T_a = 25°C.

*2: T_a = 85°C, For the independent IC without a heat sink.

■ Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	V _{IN}	2.0 to 3.0	V

■ Electrical Characteristics at V_{IN} = 2.5 V, C1 = 1 μF, T_a = 25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Consumption current	I _{CC}	No load	—	0.25	1	mA
Oscillator frequency	f _{OSC}	No load	90	125	160	kHz
Output resistance	R _{OUT}	Load 500 Ω	—	—	50	Ω
Voltage conversion efficiency	V _h	No load	95.0	99.9	—	%
Power efficiency	P _h	Load 500 Ω	80	89	—	%
Consumption current in Sleep mode	I _{OFF}	V _{IN} = 0.2 V, no load	—	—	1	μA

· Design reference data

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Unless otherwise specified: V_{IN} = 2.5 V, T_a = 25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Oscillator frequency	f _{OSC}	V _{IN} = 2.5 V, no load T _a = -30°C to 85°C	66	125	198	kHz