AN1201SM

Polarity inverting charge pump DC/DC converter IC

Overview

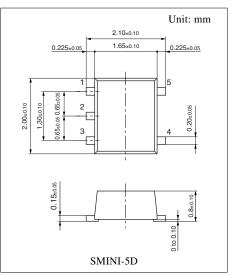
AN1201SM is a negative voltage generation IC for bias voltage of transmission power module of cellular phones. This IC is a polarity inverting DC/DC converter to change from positive voltage into negative voltage.

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

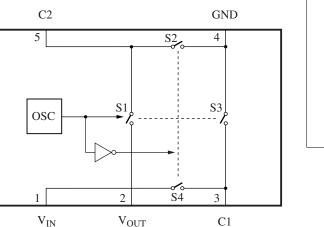
Applications

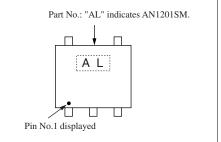
• Cellular phones



Note) The package of this product will be changed to lead-free type (SMINI-5DA). See the new package dimensions section later of this datasheet.

Marking





Block Diagram

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 $T_a = 25^{\circ}$ C. *2: $T_a = 85^{\circ}$ 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 $V_{IN} = 2.5 \text{ V}, C1 = 1 \mu\text{F}, T_a = 25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Min	Тур	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_{η}	No load	95.0	99.9		%
Power efficiency	Pη	Load 500 Ω	80	89		%
Consumption current in Sleep mode	I _{OFF}	$V_{IN} = 0.2 V$, no load			1	μΑ

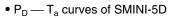
• Design reference data

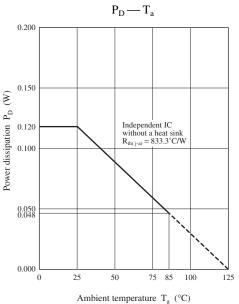
Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Unless otherwise specified: $V_{IN} = 2.5 \text{ V}, T_a = 25^{\circ}\text{C}$

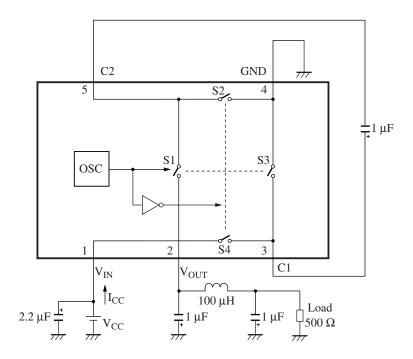
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Oscillator frequency	f _{OSC}	$V_{IN} = 2.5 \text{ V}$, no load $T_a = -30^{\circ}\text{C}$ to 85°C	66	125	198	kHz

Technical Data

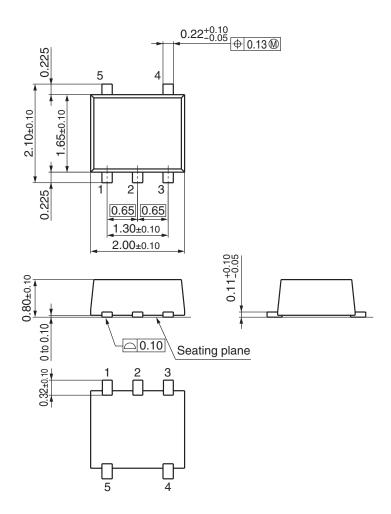




■ Application Circuit Example



- New Package Dimensions (Unit: mm)
- SMINI-5DA (Lead-free package)



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