RC5231

CPU Voltage Regulator for Mobile PC's

Features

- **S**ynchronous rectification
- High precision
- High efficiency
- Voltage mode
- 6V to 20V input voltage range
- ±10% current limit precision
- TSSOP20
- 1.7V CPU and 1.8V CACHE
- UVLO
- OVP

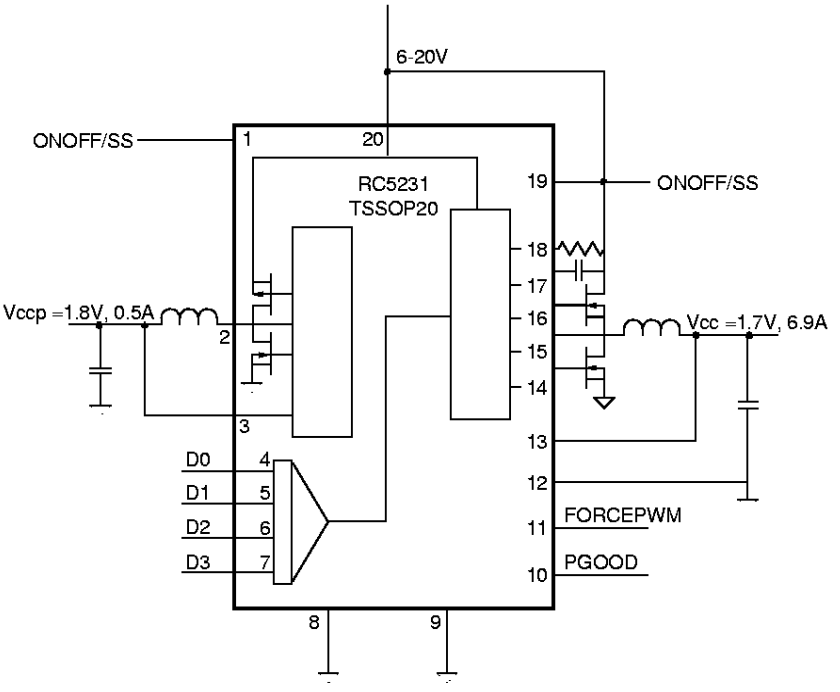
Description

The RC5231 is a high efficiency and high precision DC/DC controller for notebooks. The tightly controller current limit threshold allows for a tight design of magnetics and discrete transistors for minimum cost and space at maximum performance.

Applications

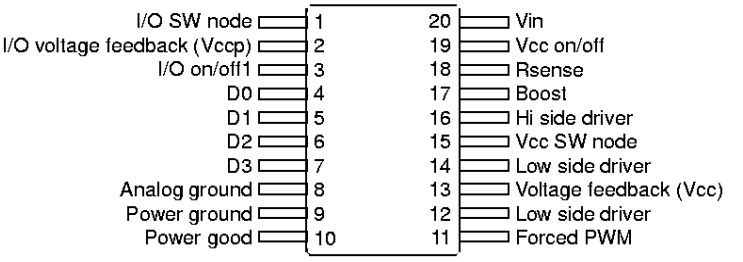
- Notebook and PDA PC's
- Hand-held portable instruments

Block Diagram



Preliminary Information

Pin Assignments



Preliminary Information

Pin Description

Pin Number	Pin Name
1	I/O SW node
2	I/O voltage feedback (Vccp)
3	I/O on/off1
4	D0
5	D1
6	D2
7	D3
8	Analog ground
9	Power ground
10	Power good
11	Forced PWM
12	Low side driver
13	Voltage feedback (Vcc)
14	Low side driver
15	Vcc SW node
16	Hi side driver
17	Boost
18	Rsense
19	Vcc on/off
20	Vin

Absolute Maximum Ratings (Beyond which the device may be damaged)[1]

Parameter	Conditions	Min.	Typ.	Max.	Units
Vs	Input Supply Voltage			30	V
Ambient Temperature, Ta		0		70	Deg. C

Note: 1. Functional Operation under any of these conditions is NOT implied. Performance and reliability are guaranteed only if Operating Conditions are not exceeded.

Operating Conditions (DCIN = 19VV, Ta = 0-70°C unless otherwise specified)

Parameter	Conditions	Min.	Typ.	Max.	Units
Supply and Regulator					
Vs Input Supply Voltage		6		20	V
Input Quiescent Current	Operation Sleep			2 1	mA µA
5V regulator accuracy	0 to 70 Deg. C	- 2		+2	%

Note: 1. Functional Operation under any of these conditions is NOT implied. Performance and reliability are guaranteed only if Operating Conditions are not exceeded.

Applications

Figure 1 below shows the system block diagram.

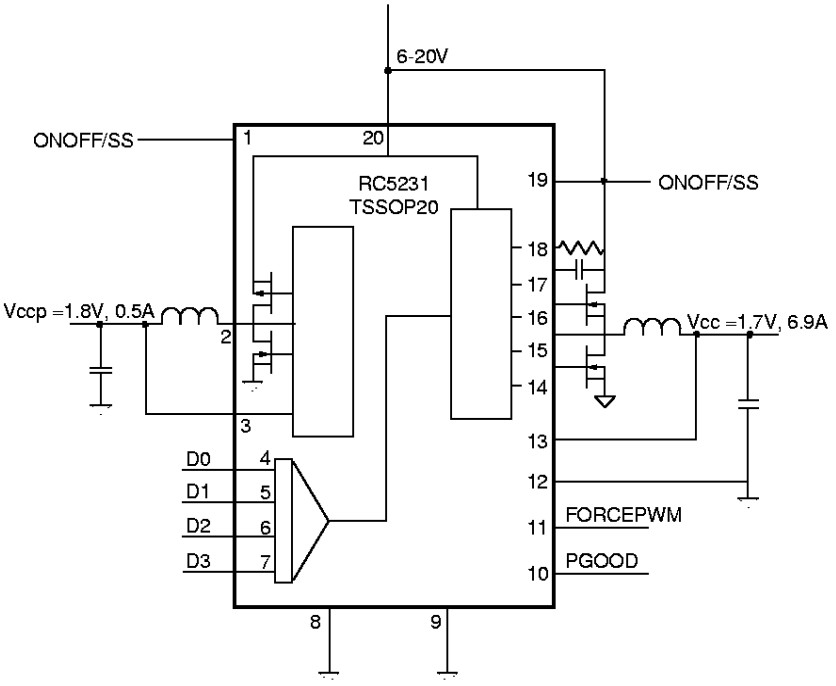


Figure 1

Notes:

Notes:

Notes:

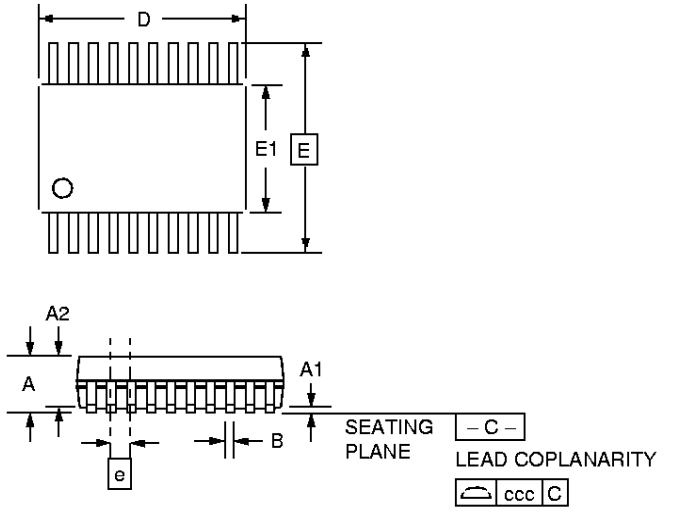
Mechanical Dimensions

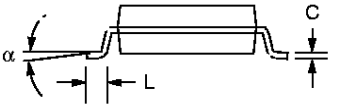
20 Lead TSSOP

Symbol	Inches		Millimeters		Notes
	Min.	Max.	Min.	Max.	
A	—	.047	—	1.20	
A1	.002	.006	0.05	0.15	
A2	.031	.041	0.80	1.05	
B	.007	.012	0.19	0.30	5
C	.004	.008	0.09	0.20	5
D	.250	.257	6.40	6.60	2, 4
E	.240	.264	6.10	6.70	
E1	.168	.176	4.30	4.50	
e	.026 BSC		0.65 BSC		
L	.018	.029	0.45	0.75	3
N	20		20		6
α	0°	10°	0°	10°	
ccc	—	.004	—	0.10	

Notes:

1. Dimensioning and tolerancing per ANSI Y14.5M-1982.
2. "D" and "E1" do not include mold flash. Mold flash or protrusions shall not exceed .010 inch (0.25mm).
3. "L" is the length of terminal for soldering to a substrate.
4. Terminal numbers are shown for reference only.
5. "B" & "C" dimensions include solder finish thickness.
6. Symbol "N" is the maximum number of terminals.





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