ANALOG PRODUCTS

MC33997 FACT SHEET

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POWER MANAGEMENT SWITCHING

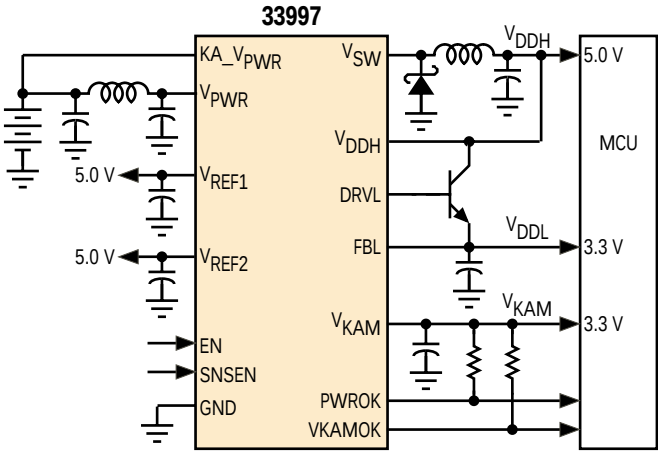
33997 3.3 / 5.0 VOLT SWITCHING POWER SUPPLY

The 33997 is a multiple output, medium power, integrated supply operating from a 6.0 to 26.5 V source. A 5.0 V output is provided by a sensorless current mode step-down switching supply. A 3.3 V output is provided by a linear regulator using an external pass transistor.

An additional 3.3 V output is provided for standby use along with two internally protected low $R_{DS(ON)}$ LDMOS 5.0 V outputs for sensor use. Separate Enable inputs provide main and sensor supply output control with reset and power-on reset delay.

The 33997 provides power supply sequencing for advanced microprocessor architectures such as the Motorola MPC5xx and 683xx microprocessor families.

Simplified Application Diagram



APPLICATIONS

- Automotive Control Module Supply
- Industrial Control Module Supply
- Set Top Boxes
- xDSL Module Supply

CUSTOMER BENEFITS

- Low system cost, optimized performance/cost ratio
- Reduced component count, simple circuit implementation
- Simplified microprocessor power supply design due to proper power sequencing
- Easily used in non-microprocessor applications
- Switching converter improves power efficiency
- Internal safety features with output voltage supervisory circuits

Performance	Typical Values
Operating Voltage	6.0 V – 26.5 V
Output Voltages:	
Buck Converter	
V_{DDH}	5.0 ± 0.1 V @ 1.4 A
Linear Regulator	
V_{DDL}	3.3 ± 0.15 V @ 400 mA
Standby	
V_{KAM}	3.3 ± 0.3 V @ 10 mA
Sensor Supply	
$V_{REF1, 2}$	5.0 V @ 200 mA
PWM Frequency	750 kHz
Operating Temp	$-40°C \le T_A \le 125°C$

FEATURES

- Step-down switching regulator output V_{DDH} = 5.0 V @ 1400 mA utilizing sensorless current mode control with soft start
- Linear regulator with external pass transistor V_{DDL} = 3.3 V
- Low power standby linear regulator V_{KAM} = 3.3 V @ 10 mA
- Two sensor supplies protected against short-to-V_{PWR} and short-to-ground
- Reset signals, power-on reset delay
- Enable pin for main supplies (EN pin)
- Enable pin for sensor supplies (SNSEN pin)
- Power sequencing for advanced microprocessor architectures
- Additional devices available for comparison in Analog Selector Guide SG1002/D

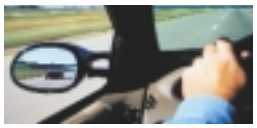
Protection		Detect	Limiting	Shut Down	Auto Retry	Status Reporting
Under Voltage:	V_{DDH}	•		•	•	•
	FBL	•		•	•	•
	V_{KAM}	•				•
Over Voltage:	V_{DDH}	•		Switching		
	FBL	•				
	V_{KAM}	•				
Over Current/SC:	V_{DDH}	•	•			
	FBL	•				
	V_{KAM}	•	•			
	$V_{REF1, 2}$	•		•	•	
Short-to-GND:	V_{DDH}	•		•	•	
Short-to-V_{PWR} (<18 V):	$V_{REF1, 2}$	•		•	•	

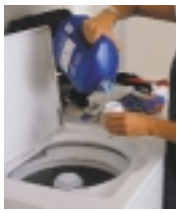
Ordering Information	Package	Ship Method	Motorola Part Number
	24 SOICW	Rail	**33997DW
		T/R	**33997DWR2

Data Sheet Order Number: MC33997/D

Contact Sales for Evaluation Kit Availability

**Prefix Index:
PC = Eng Samples; XC = In Qual; MC = Production





QUESTIONS

- Are you looking for a simple, easy-to-design power supply solution for your embedded system?
- Do you have to design an advanced microcontroller power supply with proper power sequencing and supervisory functions?
- Would reduced power and thermal dissipation be an advantage by using a switching power supply?

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