

# ANALOG PRODUCTS

## PC33394 FACT SHEET



### APPLICATIONS

- Automotive Control Module Supply
- Communications and Networking
- Industrial Control Module Supply
- Set Top Boxes
- xDSL Module Supply

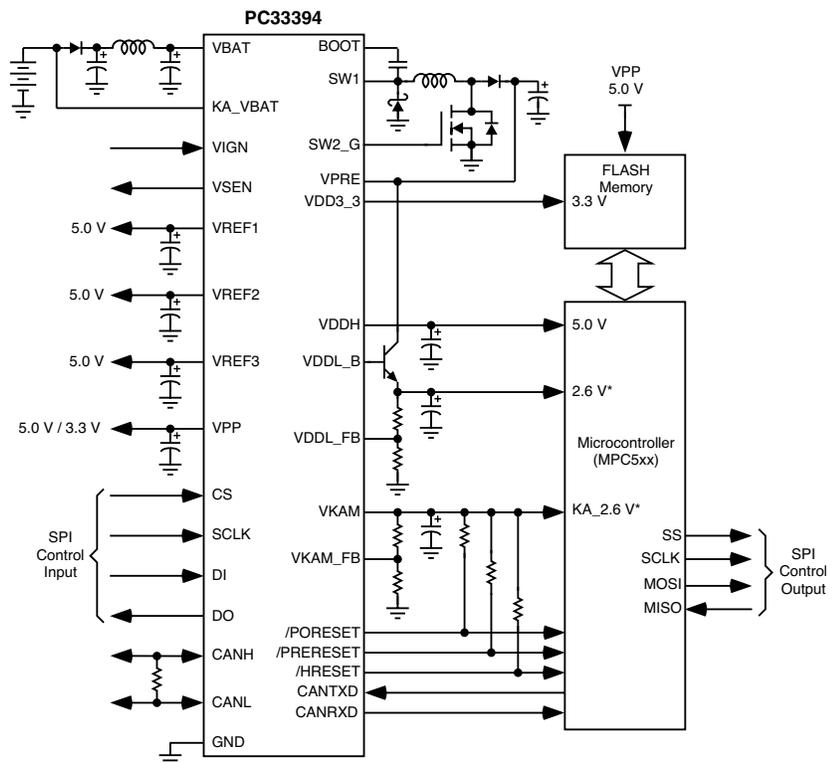
### PC33394 MULTI OUTPUT POWER SUPPLY

The PC33394 is a multi-output power supply device with high speed CAN transceiver. The IC incorporates a step-up/step-down switching pre-regulator, which operates over a wide input voltage range from 3.5 V to 26.5 V with transients up to 45 V.

The following low drop out linear regulators provide several different output voltages to supply the microcontroller core and I/O, FLASH memory, sensors and other circuits.

Active reset circuitry protects the data coherency of the microcontroller any time one of the three core voltages goes out of regulation.

### Simplified Application Diagram



**NOTE:** \* The VDDL and VKAM output voltages of the PC33394 can be adjusted by changing the external FB resistor ratios.

Power sequencing circuitry guarantees the core supply voltages never exceed their limits or polarities during system power up and power down.

A high speed CAN transceiver physical layer interfaces between the microcontroller CMOS outputs. The CAN driver is short circuit protected and tolerant of loss of battery or ground conditions.

PC33394 is designed specifically to meet the needs of modules, which use advanced 32-bit microprocessor architectures like the Motorola MPC5xx and MPC824x microcontroller families.

### CUSTOMER BENEFITS

- Low overall system cost, optimized performance/cost ratio
- Provides complete system supply solution
- Substantially simplified microprocessor power supply design due to proper power sequencing
- Easily used in non-microprocessor applications
- High frequency switching converter improves power efficiency and eliminates need of heat sinking
- Internal safety features with output voltage supervisory circuits

Performance	Typical Values
Operating Voltage	3.5V to 26.5V
Output Voltages:	
$V_{DDH}$	5.0 V @ 400 mA
$V_{DD3\_3}$	3.3 V @ 120 mA
* $V_{DDL}$	2.6 V @ 400 mA
*Standby $V_{KAM}$	2.6 V @ 60 mA
FLASH Programming $V_{PP}$	5.0 V/3.3 V @ 150 mA
Sensor Supply $V_{REF1}$	5.0V @ 100mA
Sensor Supply $V_{REF2}$	5.0V @ 100mA
Sensor Supply $V_{REF3}$	Sensor Supply $V_{REF3}$
Switched Battery $V_{SEN}$	$V_{BAT} - 0.125 V @ 200 mA$
Regulation:	
$V_{DDH}$	$\pm 0.1 V$
$V_{DD3\_3}$	2%
** $V_{DDL}$	2%*
** $V_{KAM}$	2%*
$V_{PP}$	$V_{DDH} \pm 20 mV$
$V_{REF1}, V_{REF2}, V_{REF3}$	$V_{DDH} \pm 20 mV$
PWM Frequency	200 kHz
CAN Transceiver	500 kbits/s
Operating Temp	$-40^{\circ}C \leq T_A \leq 125^{\circ}C$
*Does not include external resistor divider tolerance	
** $V_{DDL}, V_{KAM}$ are adjustable by means of an external resistor divider	

Ordering Information	Package	Ship Method	Motorola Part Number
	44 HSOP	Rail T/R	PC33394DH PC33394DHR2
	44 QFN	Rail T/R	PC33394FC PC33394FCR2
Data Sheet Order Number			PC33394/D

## FEATURES

- Wide operating voltage range 3.5 V up – 26.5 V (45 V transient)
- Step-up/step-down switching pre-regulator
- Multiple linear regulators with current limiting
- Adjustable low voltage linear regulator with external pass transistor
- Adjustable low power keep alive linear regulator
- Three sensor supplies protected against short-to-battery and short-to-ground
- /SLEEP and REGON control pins
- Reset signals, Power On Reset
- Serial peripheral interface for control and diagnostic
- High speed CAN transceiver with wakeup capability
- Accurate power sequencing for advanced microprocessor architectures

Protection	Shut Down	Detect	Limiting	Auto Retry	Status Reporting
Input Under Voltage	●				●
Over Voltage	●	●		●	●
Under Voltage	●	●		●	●
Over Current/SC		●	●	●	●
Short to Battery		●	●	●	●
Over Temperature	●	●	●	●	●

## QUESTIONS

- Do you have a need to reduce system costs of your design?
- Are you looking for a complete, 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?



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