Tiny PMU with 3 channels of 1.5A Synchronous Bucks

DESCRIPTION

The ETA9338 is a Power Management Unit (PMU) with 3 channels of high-efficiency, DC-to-DC step-down switching regulator, capable of delivering up to 1.5A of output current. The devices operate from an input voltage range of 2.6V to 5.5V and provide output voltages from 0.6V to VIN, making the ETA9338 ideal for low voltage power conversions. Running at a fixed frequency of 1.5MHz allows the use of small inductance value and low DCR inductors, thereby achieving higher efficiencies. Other external components, such as ceramic input and output caps, can also be small due to higher switching frequency, while maintaining exceptional low noise output voltages. Built-in EMI reduction circuitry makes this converter ideal power supply for RF applications. Internal soft-start control circuitry reduces inrush current. Short-circuit and thermal-overload protection improves design reliability.

ETA9338 is housed in a tiny DFN3x3-12L package

FEATURES

- Up to 96% Efficiency
- Up to 1A Max Output Current
- 1.5MHz Frequency
- Light Load operation
- Internal Compensation
- Tiny DFN3x3-12L Package

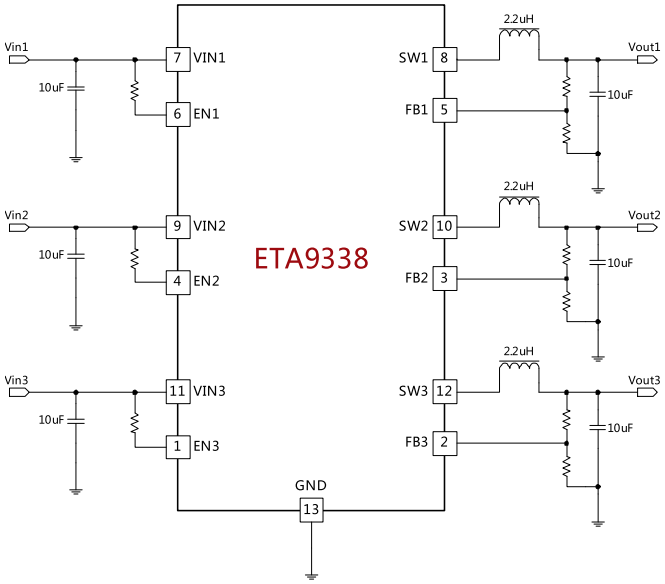
APPLICATIONS

- IP CAM, Security CAM
- MIDs, Tablet PC
- Set Top Boxes
- USB ports/Hubs
- Other Battery Powered Devices

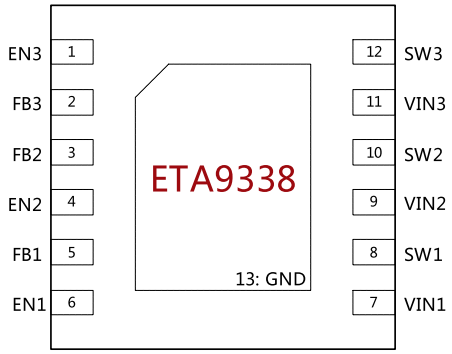
ORDERING INFORMATION

PART #	PACKAGE PIN	TOP MARK
ETA9338D3M	DFN3X3-12	ETA9338 YWW2L

TYPICAL APPLICATION



PIN CONFIGURATION



ABSOLUTE MAXIMUM RATINGS

(Note: Exceeding these limits may damage the device. Exposure to absolute maximum rating conditions for long periods may affect device reliability.)

INs, SWs, FBs, ENs Voltage .....–0.3V to 6.5V
SWs to ground current .....Internally limited
Maximum Power Dissipation.....1200mW
Operating Temperature Range .....–40°C to 85°C
Storage Temperature Range .....–55°C to 150°
Thermal Resistance θ_{JC} θ_{JA}
QFN3X3-12.....3.....48 ..... °C/W
Lead Temperature (Soldering, 10ssec) .....260°C
ESD HBM (Human Body Mode) 2KV
ESD MM (Machine Mode) 200V

ELECTRICAL CHACRACTERISTICS for each single channel

(V_{IN} = 3.6V, unless otherwise specified. Typical values are at TA = 25oC.)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Voltage Range		2.6		5.5	V
Input UVLO	Rising, Hysteresis=90mV		2.31	2.45	V
Input Supply Current	V_{FB} =0.65V		40	70	μA
Input Shutdown Current				1	μA
FB Feedback Voltage	V_{IN} =2.5 to 5V	0.588	0.6	0.612	V
FB Input Current			0.01		μA
Output Voltage Range		0.6		V_{IN}	V
Load Regulation	V_{OUT} =1.8V, I_{OUT} From 0.2A to 0.4A		0.1		%
Line Regulation	V_{IN} =2.7 to 5.5V		0.2		%/V
Switching Frequency			1.5		MHz
NMOS Switch On Resistance	I_{SW} =200mA		200		mΩ
PMOS Switch On Resistance	I_{SW} =200mA		280		mΩ
PMOS Switch Current Limit		1.5			A
SW Leakage Current	V_{IN}=5.5V,V_{SW}=0 or 5.5V,EN= GND			10	μA
EN Input Current				1	μA
EN Input Low Voltage		0.4			V
EN Input High Voltage				1.5	V

PIN DESCRIPTION

PIN #	NAME	DESCRIPTION
1	EN3	Enable pin for the channel 3. Drive this pin to high to enable the part, low to disable.
2	FB3	Feedback Input of Channel 3. Connect an external resistor divider from the Vout3 to FB3 and GND to set the output to a voltage between 0.6V and VIN3

PIN #	NAME	DESCRIPTION
3	FB2	Feedback Input of Channel 2. Connect an external resistor divider from the Vout2 to FB2 and GND to set the output to a voltage between 0.6V and VIN2
4	EN2	Enable pin for the Channel 2. Drive this pin to high to enable the part, low to disable.
5	FB1	Feedback Input of Channel 1. Connect an external resistor divider from the Vout1 to FB1 and GND to set the output to a voltage between 0.6V and VIN1
6	EN1	Enable pin for the IC. Drive this pin to high to enable the part, low to disable.
7	VIN1	Supply Voltage of Channel 1. Bypass with a 10μF ceramic capacitor to GND
8	SW1	Inductor Connection of Channel 1. Connect an inductor Between SW1 and Vout1.
9	VIN2	Supply Voltage of Channel 2. Bypass with a 10μF ceramic capacitor to GND
10	SW2	Inductor Connection of Channel 2. Connect an inductor Between SW2 and Vout2.
11	VIN3	Supply Voltage of Channel 3. Bypass with a 10μF ceramic capacitor to GND
12	SW3	Inductor Connection of Channel 3. Connect an inductor Between SW3 and Vout3.
13 Thermal Pad	GND	Ground