Dual 3A 1.5MHz High Efficiency Synchronous Step-Down DC/DC Converter

DESCRIPTION

The MT3223 are dual 1.5MHz, 3A constant on-time (COT) controlled synchronous step-down converters. MT3223 consumes extremely low 38μA quiescent current hence achieves superior light load efficiency. The 2.5V to 6V input supply range makes the parts ideally suited for single Li-Ion applications. 100% duty cycle capability provides low dropout operation, which extends operating time in battery-operated systems. The constant on-time control scheme simplifies loop compensation and offers excellent load transient response. The high gain error amplifier in the control loop provides excellent load and line regulation. Proprietary adaptive on-time helps MT3223 to achieve nearly constant switching frequency across the continuous conduction load range. MT3223 has cycle-by-cycle current limit and hiccup mode to protect over-load or short circuit fault conditions.

The MT3223 is available in low profile 10 leads DFN 3mmX3mm package.

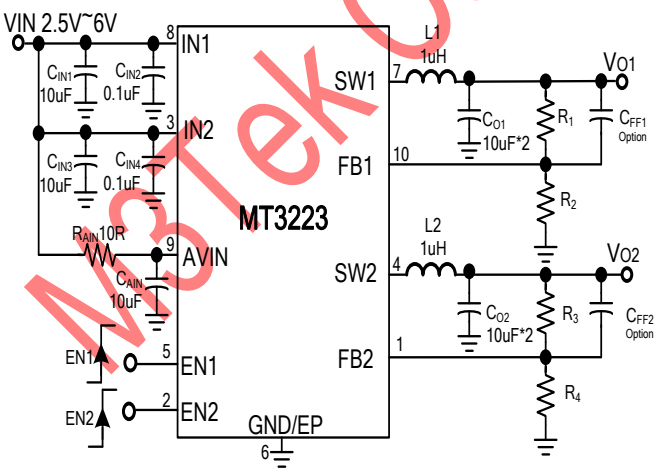
FEATURES

- Dual Outputs operating independently with 2x3A Output Current Capability
- Wide Input Range from 2.5V to 6V
- Adjustable Output Voltages from 0.6V to V_{IN}
- Up to 95% High Efficiency
- Proprietary Fast Transient Constant On Time Architecture Stable with low ESR Ceramic Output Capacitors
- 1.5% 0.6V Feedback Voltage
- 1.5MHz Switching Frequency
- 38μA Low Quiescent Current
- 100% Duty Cycle Operation
- R_{DSON} 100mΩ HS/ 55mΩ LS @VIN=5V
- Internal 1.0msec Soft-Start
- Cycle-by-cycle Current Limit Protection
- Over-Load and Short Circuit Hiccup Mode
- Output Discharging in Shutdown
- Thermal Shutdown Protection
- Available in a DFN 3mmx3mm_10L
- Pb-Free RoHS Compliant

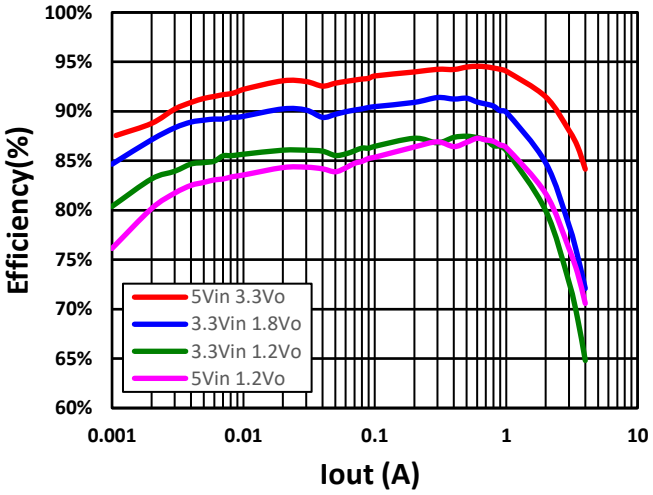
APPLICATIONS

- Solid-State and Hard Disk Drives
- USB TypeC Dock Station
- Smart Phone and Tablets
- WiFi RF Moudules

Typical Applications



Efficiency



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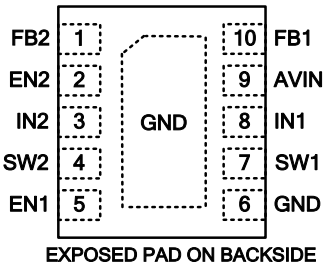
Ordering Information

Part No.	Marking	Temp. Range	Package	MOQ
MT3223NDCR	MT3223 YWWxx	-40°C ~+85°C	DFN3x3_10L	5000/Tape & Reel

Note: Y:Year, W:Week, x:Manfucture Code

Pin Configuration



DFN3x3_10L

Pin Description

Pin No.	Symbol	Description
1	FB2	Channel 2(CH2) Voltage Feedback Input. Connect a resistor divider between channel Output and FB2 to program the output voltage. VFB2 is regulated to 0.6V.
2	EN2	***Channel 2 Enable*** Control Input with accurate 1.21V enable threshold which can be used to build precision R-C turn-on delay and input under-voltage lockout. This pin has a pull-down resistor of typically 1MΩ to GND. • Drive EN above 1.21V to turn on the converter • Drive EN below 1.1V to turn off the converter and discharge output
3	IN2	Channel 2 Input Supply Voltage.
4	SW2	Channel 2 Power Switch Node. Connect SW2 to an inductor.
5	EN1	***Channel 1 Enable*** Control Input with accurate 1.21V enable threshold which can be used to build precision R-C turn-on delay and input under-voltage lockout. This pin has a pull-down resistor of typically 1MΩ to GND. • Drive EN above 1.21V to turn on the converter • Drive EN below 1.1V to turn off the converter and discharge output
6	GND	Ground
7	SW1	Channel 1 Power Switch Node. Connect SW1 to an inductor.
8	IN1	Channel 1 Input Supply Voltage.
9	AVIN	Analog input supply voltage for driver and control circuits. Decouple AVIN with a minimum 2.2µF X7R or X5R ceramic capacitor as close to the pin as possible.
10	FB1	Channel 1(CH1) Voltage Feedback Input. Connect a resistor divider between channel Output and FB1 to program the output voltage. VFB1 is regulated to 0.6V.