

Dual 2.5A 2.5MHz High Efficiency Synchronous Step-Down DC/DC Converter

DESCRIPTION

The MT3253 are dual 2.5MHz, 2.5A constant on-time (COT) controlled synchronous step-down converters. MT3253 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 MT3253 to achieve nearly constant switching frequency across the continuous conduction load range. MT3253 has cycle-by-cycle current limit and hiccup mode to protect over-load or short circuit fault conditions. The MT3253 is available in low profile 8 leads DFN2.5mmX1.5mm small package.

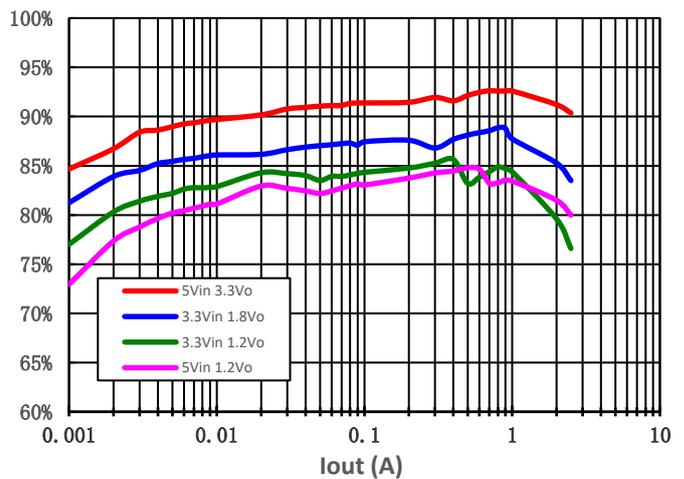
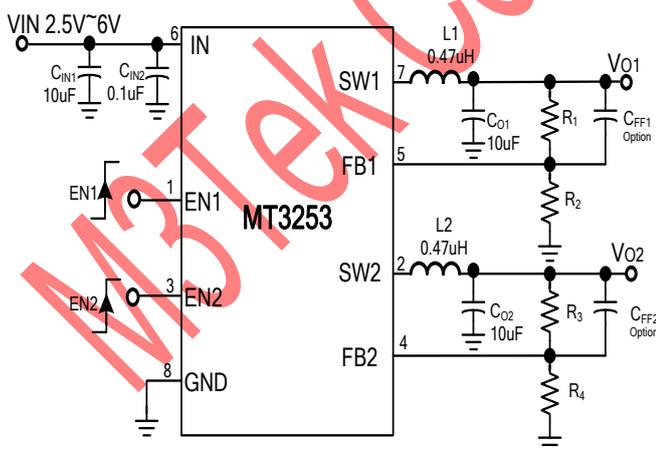
FEATURES

- Dual Outputs operating independently with 2 x 2.5A 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
- 2.5MHz Switching Frequency
- 38µA Low Quiescent Current
- 100% Duty Cycle Operation
- $R_{DS(ON)}$ 65mΩ HS/30mΩ LS @ $V_{IN}=5V$
- 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 2.5mmx1.5mm_8L
- Pb-Free RoHS Compliant

APPLICATIONS

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

Typical Application



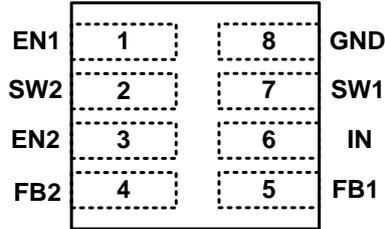
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Ordering Information

| Part No. | Marking | Temp. Range | Package | MOQ |
|------------|--------------|--------------|---------------|------------------|
| MT3253NGBR | 3253 YWxx | -40°C ~+85°C | DFN2.5x1.5_8L | 3000/Tape & Reel |

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

Pin Configuration



DFN2.5x1.5_8L

Pin Description

| Symbol | | Description |
|--------|--------|---|
| 1 | 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. <ul style="list-style-type: none"> • Drive EN above 1.21V to turn on the converter • Drive EN below 1.1V to turn off the converter and discharge output |
| 2 | SW2 | Channel 2 Power Switch Node. Connect SW2 to an inductor. |
| 3 | 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. <ul style="list-style-type: none"> • Drive EN above 1.21V to turn on the converter • Drive EN below 1.1V to turn off the converter and discharge output |
| 4 | 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. |
| 5 | 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. |
| 6 | IN1/IN | Channel 1 Input Supply Voltage. |
| 7 | SW1 | Channel 1 Power Switch Node. Connect SW1 to an inductor. |
| 8 | GND | Ground |