# In eg a ed D i e and MOSFET

The NCP81081 integrates a MOSFET driver, high-side MOSFET and low-side MOSFET into a 6 mm x 6 mm 40-pin QFN package. The driver and MOSFETs have been optimized for high-current DC-DC buck power conversion applications. The NCP81081 integrated solution greatly reduces package parasitics and board space compared to a discrete component solution.

#### Features

• Capable of Switching Frequencies Up to 1 17Hz/F1 1 Tf12 0 0 12 598111 552



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- A = Assembly Location WL = Wafer Lot YY = Year
- WW = Work Week

G

- = Pb-Free Package
- = FD-Flee Fackage

• These are Pb–Free Devices



Figure 1. Application Schematic

#### ORDERING INFORMATION

| Device        | Package            | Shipping <sup>†</sup> |
|---------------|--------------------|-----------------------|
| NCP81081MNR2G | QFN40<br>(Pb-Free) | 2500/Tape & Reel      |

+For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

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| FLECTRICAL CHARACTERISTICS | $(N_{O} = 1) (V_{O} = 5 V_{V} = 12 V_{O} = -$  | $10^{\circ}$ C to $\pm 100^{\circ}$ C unless otherwise noted) |
|----------------------------|--|---|
|                            | (1010 - 1)(1010 - 5)(1010 - 12)(1000 - 12) |   |

| Parameter                  | Symbol | Condition                                | Min | Тур | Max | Unit |
|----------------------------|--------|--|-----|-----|-----|------|
| SUPPLY CURRENT             |        |  |     |     |     |      |
| VCIN Current (normal mode) | -      | DISB# = 5 V, PWM = OSC,<br>FSW = 400 kHz |     | 14  | 20  |      |

## NCP81081

### APPLICATIONS INFORMATION

Theory of Operation

The NCP81081 is an integrated driver and MOSFET module designed for use in a synchronous buck converter topology. A single PWM input signal is all that is required to properly drive the high–side and low–side MOSFETs.

Low Side Driver

The low-side driver is designed to drive a ground-referenced low  $R_{DS(on)}$  N-Channel MOSFET. The voltage rail for the low-side driver is internally connected to VCIN and PGND.

High Side Driver

The high–side driver is designed to drive a floating low RDS(on) N–  $\,$ 



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