# New Product Announcement

## DMTH4M70SPGWQ

# First PowerDI8080-Packaged 40V MOSFET Delivers Industry-Leading Performance

Diodes Incorporated has announced the introduction of the PowerDI®8080-5, an innovative high current, thermally efficient power package that meets the needs of electric vehicle (EV) applications. Its first product to be released in the PowerDI8080-5 package is the DMTH4M70SPGWQ, a 40V automotive-compliant MOSFET that features a typical $R_{DS(ON)}$ of just 0.54mΩ at a gate drive of 10V, while its gate charge is 117nC.

This industry-leading performance enables designers of automotive high-power BLDC motor drives, DC-DC converters, and charging systems to maximize system efficiency while ensuring power dissipation is kept to an absolute minimum.

The PowerDI8080-5 package has a PCB footprint of 64mm$^2$, which is 40% less than that occupied by the TO263 package format. It also has an off-board profile of 1.7mm, which is 63% lower than that of the TO263(D2Pak). The copper clip bonding between the die and the terminals facilitates a low junction to case of 0.36°C/W enabling the PowerDI8080-5 to handle currents up to 460A and deliver a power density that is eight times greater than the TO263 package.

The DMTH4M70SPGWQ is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities. Its gull wing leads facilitate Automated Optical Inspection (AOI), as well as improve temperature cycling reliability

*Automotive compliant –AEC-Q100 grade 1 qualified in IATF 16949 certified manufacturing sites and supports PPAP documentation*




## The DIODES™ Advantage

- **Industry-Leading Figure of Merit**
  Low $R_{DS(on)}$ and Qg minimizes power dissipation and switching losses, improving efficiency
- **Low Rthjc**
  0.35°C/W Rthjc enables drain currents of up to 460A
- **PCB Footprint of 64mm2**
  PowerDI8080-5 occupies just 40% of the TO263's PCB area, facilitating higher power density designs
- **Low Package Inductance**
  Clip design reduces parasitic inductance and improves EMI performance
- **Tin-Plated Gull-Wing Leads**
  Enables visual inspection by using AOI and improves high-temperature cycling reliability

## Applications

- High-power DC-DC converters
- EV charging systems
- High-power BLDC motor controls

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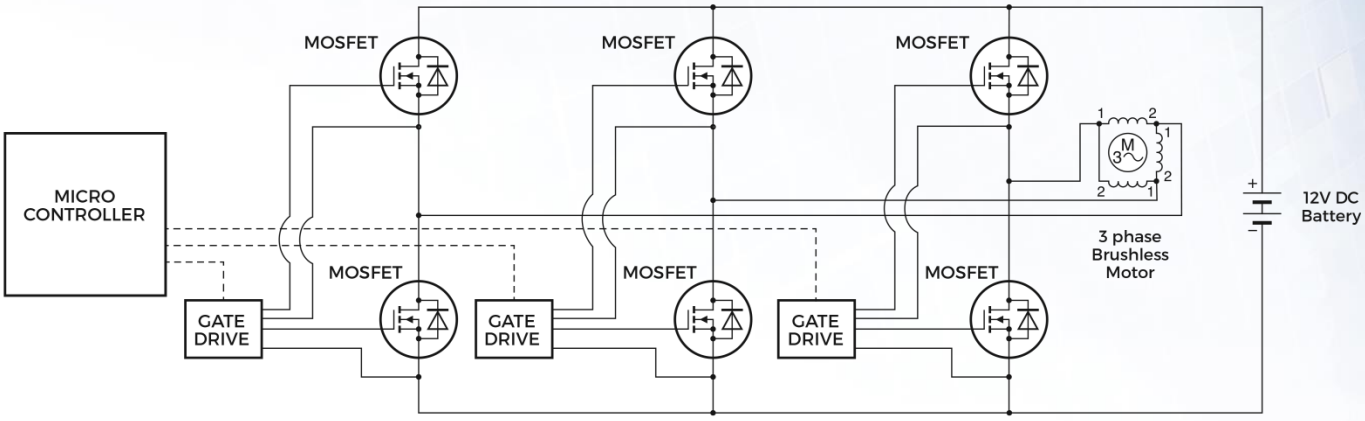
## DMTH4M70SPGWQ

## Typical Application Schematic




## Product Portfolio

| Part Number | Package | $BV_{DSS}$ (V) | VGS (±V) | Continuous Drain Current (A) | | $R_{DS(on)}$ @10Vgs (typ) | $Q_g$ @10Vgs (typ) |
|---|---|---|---|---|---|---|---|
| | | | | @ TC=25°C | @ TC=100°C | (mΩ) | (nC) |
| DMTH4M70SPGWQ | PowerDI8080-5 | 40 | 20 | 460 | 325 | 0.54 | 117.1 |

## Ordering Information

| Orderable Part Number (OPN) | Package | Reel Size (inches) | Tape Width (mm) | Quantity |
|---|---|---|---|---|
| DMTH4M70SPGWQ-13 | PowerDI8080-5 | 13 | 12 | 2000 |

MSL1 pass to meet Industrial/Automotive specifications

## Cross Information

| Part Number | Orderable Part Number (OPN) | Cross Orderable Part Number |
|---|---|---|
| DMTH4M70SPGWQ | DMTH4M70SPGWQ-13 | NVMTS0D7N04C |
| | | BUK7S0R7-40H |
| | | SQJQ144AE |