# SpeedFit 2.0 Design Simulator™

**Welcome to SpeedFit 2.0, the industry's most comprehensive system-level circuit simulator for silicon carbide power applications.**

Accelerate the design process with simulation results you can trust. SpeedFit 2.0 quickly calculates losses and estimates junction temperature for power devices based on lab data for common topologies ranging from simple buck and boost converters to a fully bi-directional totem pole PFC with resonant DC/DC converter.

Using SpeedFit 2.0, you can quickly determine:

- The right product for an application
- Comparative performance for different devices
- How the performance with varies Rg
- How many devices need to be paralleled

Wolfspeed

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| | Variant 1 | Variant 2 |
|---|---|---|
| **Circuit** | CLLC - charging | CLLC - charging |
| **Input voltage** | 380 V | 380 V |
| **Output voltage** | 280 V | 280 V |
| **Rated power** | 3.400 kVA | 3.400 kVA |
| **Switching frequency** | 500 kHz | 500 kHz |
| **Deadtime** | 100.00 ns | 100.00 ns |

| | Variant 1 | Variant 2 |
|---|---|---|
| **MOSFET** | C3M0030090K<br>Request Sample | C3M0065100K<br>Request Sample |
| **Second MOSFET (CLLC)** | C3M0030090K | C3M0065100K |
| **Diode** | | |
| **Module** | | |
| **Second Module (CLLC)** | | |
| **Turn-on gate resistance** | 2.500 | 2.500 |
| **Turn-off gate resistance** | 2.500 | 2.500 |
| **Combined Primary MOSFET conduction losses** | 10.56 W | 18.31 W |
| **Combined Primary MOSFET switching losses** | 35.14 W | 26.85 W |
| **Combined Primary MOSFET total losses** | 45.70 W | 45.16 W |
| **Combined Secondary MOSFET conduction losses** | 10.50 W | 19.55 W |
| **Combined Secondary MOSFET switching losses** | 0 W | 0 W |
| **Combined Secondary MOSFET total losses** | 10.50 W | 19.55 W |
| **Combined diode conduction losses** | — | — |
| **Combined diode switching total losses** | — | — |

| | Variant 1 | Variant 2 |
|---|---|---|
| **Combined diode losses** | — | — |
| **Total converter losses** | 56.20 W | 64.71 W |
| **Efficiency** | 98.35 % | 98.08 % |
| **Primary MOSFET junction temperature** | 62.8 ºC | 68.1 ºC |
| **Secondary MOSFET junction temperature** | 52.9 ºC | 57.8 ºC |
| **Diode junction temperature** | — | — |

Simulation powered by PLECS using WebSIM® patented technology

**I would like a sales representative to contact me**