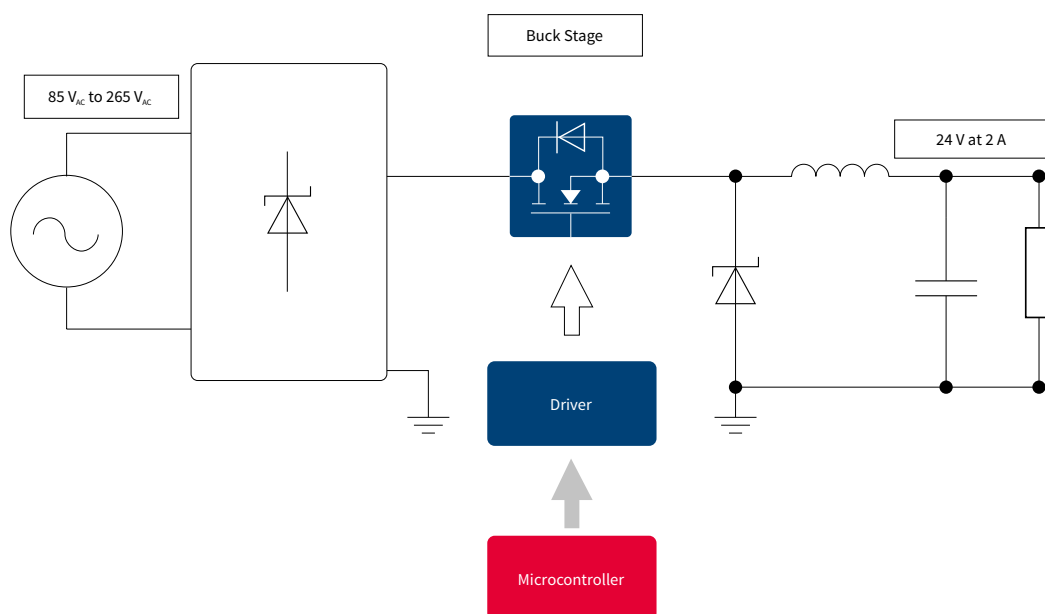


# CoolMOS™ CE – target topologies

## Single Switch Topologies – Buck

Typically used in LED drivers, motor controllers, high power adapter, TV power supply front-end



### Design equations for MOSFET selection

$$V_{DS} = V_{in}$$

$$I_D = I_{out}$$

$$V_{DS\_FET} = 1.5 * V_{DS} \text{ (with derating for all variables on board)}$$

$$R_{DS(on)} \text{ max. } 25^\circ\text{C for acceptable power dissipation in MOSFET package} \\ = (1.5 * P_{device}) / (I_{pk}^2 * D). \text{ I}_{pk} \text{ is derated value of } I_D \text{ to cover all worst case operation conditions}$$

| Input voltage [V]                         | Output load current [A] | Output power [W] | CoolMOS™ CE device options |
|---|-------------------------|------------------|----------------------------|
| 110 V <sub>AC</sub>                       | 7                       | 200              | IPx50R190CE*               |
| 110 V <sub>AC</sub>                       | 6                       | 180              | IPx50R280CE*               |
| 85 V <sub>AC</sub> ...265 V <sub>AC</sub> | 5                       | 150              | IPx60R400CE                |
| 85 V <sub>AC</sub> ...265 V <sub>AC</sub> | 4                       | 120              | IPx60R460CE                |
| 85 V <sub>AC</sub> ...265 V <sub>AC</sub> | 4                       | 100              | IPx60R650CE                |
| 85 V <sub>AC</sub> ...265 V <sub>AC</sub> | 3                       | 75               | IPx60R650CE                |
| 85 V <sub>AC</sub> ...265 V <sub>AC</sub> | 3                       | 50               | IPx60R1k0CE                |
| 85 V <sub>AC</sub> ...265 V <sub>AC</sub> | 2                       | 25               | IPx60R1k5CE                |
| 85 V <sub>AC</sub> ...265 V <sub>AC</sub> | 2                       | 10               | IPx60R2k1CE                |
| 85 V <sub>AC</sub> ...265 V <sub>AC</sub> | 1                       | 5                | IPx60R3k4CE                |

\* Two in parallel