



Product Brief

800 V CoolSET™

AC-DC integrated power stage

Quasi resonant CoolSET™

The quasi resonant CoolSET™ series continues to deliver design agility and miniaturization. Upon the successful F3 CoolSET™, it offers the possibility of higher efficiency and better EMI performance. The digital frequency reduction feature scores a very stable operation with decreasing load change.

Fixed frequency CoolSET™

Infineon's AC-DC integrated power stage 800 V CoolSET™ fixed frequency offers lowest standby power consumption < 300 mW at no load condition and lowest on-resistance for record efficiency levels. 650 V or 800 V avalanche rugged CoolMOS™ Power MOSFET is integrated optionally.

Quasi-resonant CoolSET™ 800 V

$P_{out}^{1)}$ 85 V _{AC} ... 265 V _{AC}	18 W	24 W	37 W	47 W
$R_{DS(on)}$	4.7 Ω	2.2 Ω	1.0 Ω	0.6 Ω
Package	800 V depletion CoolMOS™			
DIP-7	ICE2QR4780Z	ICE2QR2280Z ICE2QR2280Z-1		ICE2QR0680Z
DSO-12	ICE2QR4780G	ICE2QR2280G ICE2QR2280G-1	ICE2QR1080G	ICE2QR0680Z

¹⁾ Output power assume 78–83% efficiency. $T_a = 50^\circ\text{C}$, $T_j = 125^\circ\text{C}$ and no copper area for 650 V device and 232 mm² copper area for 800 V device.

Fixed frequency PWM IC and CoolSET™ 800 V

$P_{out}^{2)}$ 85 V _{AC} ... 265 V _{AC}	11 W	16 W	22 W	30 W	37 W	43 W
$R_{DS(on)}$	10.0 Ω	4.7 Ω	2.2 Ω	1.5 Ω	1.0 Ω	0.6 Ω
Package	800 V depletion CoolMOS™					
DIP-7	ICE3AR10080JZ ICE3AR10080CJZ	ICE3AR4780JZ ICE3AR4780VJZ ICE3AR4780CJZ	ICE3AR2280JZ ICE3AR2280JZ-T ICE3AR2280CJZ ICE3AR2280VJZ ICE3BR2280JZ	ICE3AR1580VJZ	ICE3AR1080VJZ	ICE3AR0680JZ ICE3AR0680VJZ ICE3BR0680JZ
DSO-12		ICE3AR4780JG	ICE3AR2280JG		ICE3AR1080JG	

²⁾ Output power assume 76–83% efficiency. $T_a = 50^\circ\text{C}$, $T_j = 125^\circ\text{C}$ and no copper area

Product highlights

800 V quasi-resonant CoolSET™

- > Digital frequency reduction with decreasing load
- > Cycle-by-cycle current limitation with fold-back correction
- > Built-in digital soft-start
- > Active burst mode for lowest standby power < 50 mW
- > Latch-off mode for short-winding and output voltage
- > Enhanced integrated protection functions

800 V fixed frequency CoolSET™

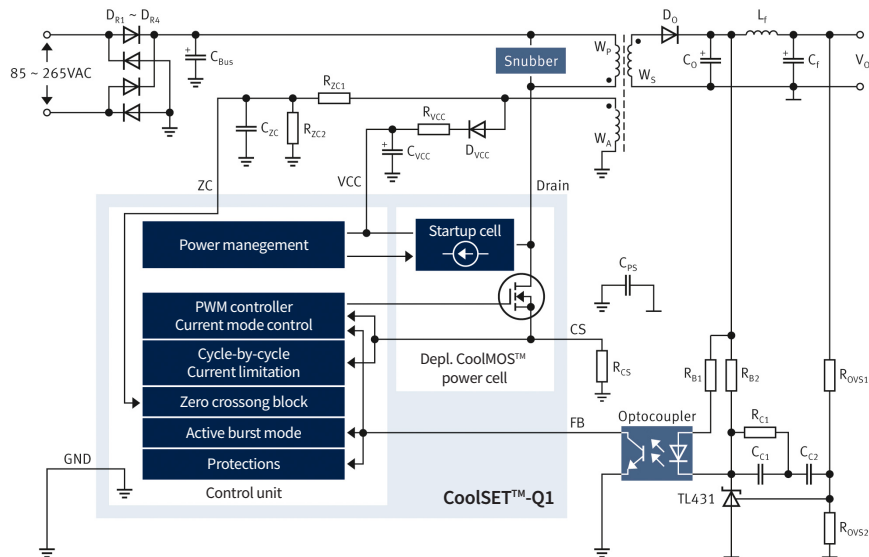
- > 800 V avalanche rugged CoolMOS™ with startup cell
- > Active burst mode to reach the lowest standby power < 100 mW
- > Selectable enter and exit burst mode level
- > Adjustable blanking window for high load jumps
- > Frequency jitter and soft driving for low EMI



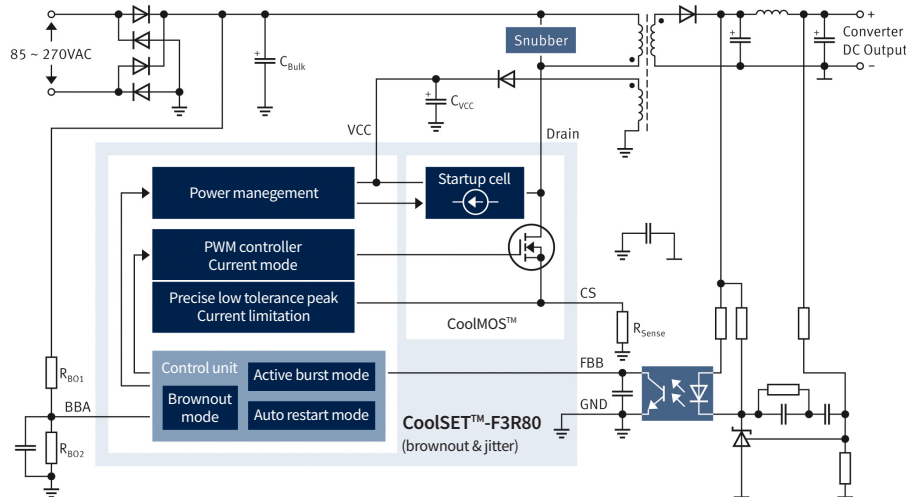
800 V CoolSET™

AC-DC integrated power stage

Application diagram – 800 V quasi-resonant CoolSET™



Application diagram – 800 V fixed frequency CoolSET™



Published by
Infineon Technologies AG
85579 Neubiberg, Germany

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Order Number: B121-H9546-V1-7600-EU-EC-P
Date: 05/2016

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