



600kW THREE-PHASE DUAL INVERTER REFERENCE DESIGN USING THE XM3 POWER MODULE

CRD600DA12E-XM3

HIGH-DENSITY, DOUBLE-SIDED INVERTER

The 600kW three-phase inverter demonstrates system-level power density and efficiency obtained by using six of Wolfspeed's XM3 half-bridge power modules. With half the weight and volume of a standard 62mm module, the XM3 footprint maximizes power density while minimizing loop inductance for low-loss, high-frequency operation with simple power bussing.

Advanced double-sided cold plate and highly-integrated DC Link capacitor reduce component count and increase power density. The three-phase dual inverter has greater than 4x the power density of comparable Si based designs and greater than 98% efficiency.



FEATURES

High performance double-sided cold plate

DC link capacitor with integrated bussing

Sensors and control hardware



BENEFITS

Improves system efficiency and power density

Enables high switching frequency operation with low switching losses

Lower system level cooling requirements



APPLICATIONS

Motor and traction drives

Uninterruptible power supplies

Energy generation and smart grids

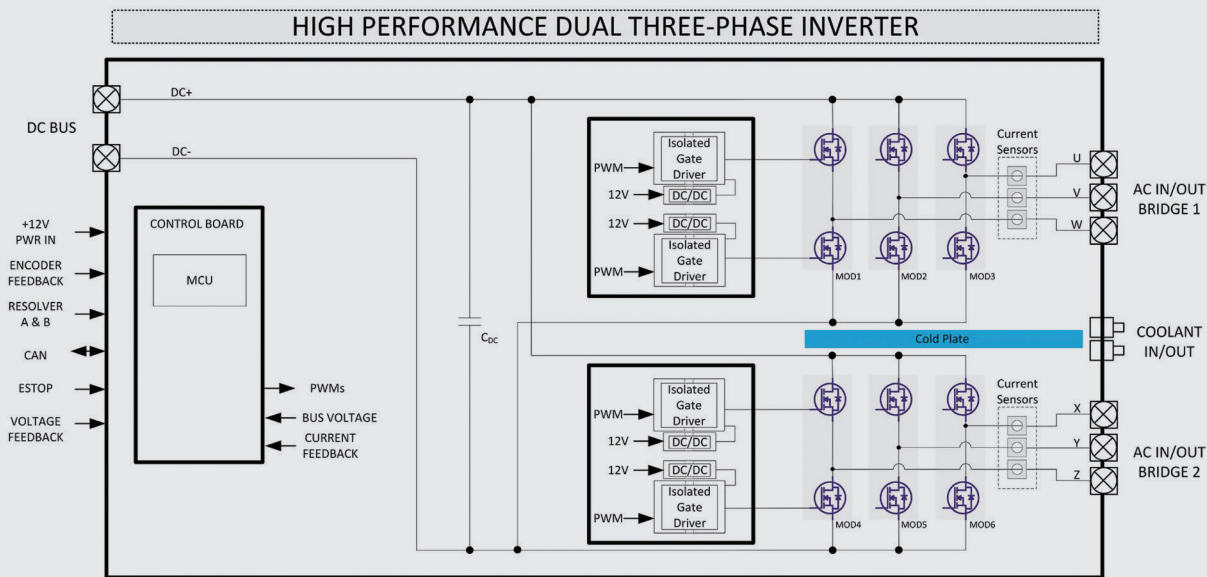
Solar and Wind

Parameter	Specification [Units]	Notes
P_{OUT}	600kW	$T_L = 25^{\circ}C$, 480 VAC PF=1, $F_s = 20$ kHz
V_{DC}	800V _{DC} nominal	900 V Maximum
F_{SW}	>10 kHz	80kHz Gate Driver Limit
I_L	720 A _{AC, RMS}	$T_L = 25^{\circ}C$, 480 VAC PF=1, $F_s = 10$ kHz, Outputs Paralleled
L_{PL}	13 nH	Includes Caps and Bussing

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EAB450M12XM3



CGD12HBXMP

Parameter	CRD300DA12E-XM3	CRD600DA12E-XM3
Application	Motor Drive	Dual Motor Drive
P_{OUT}	300 kW	600 kW
V_{DC}	800 V _{DC}	800 V _{DC}
I_L	360 A _{AC,RMS}	720 A _{AC,RMS} (Paralleled Output)
L_{PL}	5.3 nH	13 nH
Power Density	32 kW/L	70 kW/L
Dimensions	28 cm × 29 cm × 11.5 cm	20.4 cm × 26.7 cm × 15.7 cm
Volume	9.3 L	8.6 L
Weight	6.2 kg	9.7 kg