



# Infineon's High Performance Solution Inverterised Air-conditioning Reference Board

Infineon is renowned for offering best in class discrete devices and ICs - now with the inverterised air conditioning reference board, Infineon can present system expertise in the fast growing inverterised air conditioning market .

### Innovation for Commercial Success

**ASSEMBLY** - Full power electronic SMD assembly example for high capacity production.

**THERMAL BEHAVIOUR** - The inverter stages are driven with best in class current versus package size IGBTs, 15 A duo-packs in a DPAK (TO-252) package are used for driving a 1 kW compressor. Application tests show the case temperature staying below 110°C with an ambient temperature of 65°C. This provides more design freedom and a cost effective opportunity to replace IPMs in the inverter stage of the compressor and fan.

**HIGH EFFICIENCY** - the CCM PFC stage uses the latest generation High Speed 3 IGBT and SiC diode to achieve a PFC efficiency of > 97 %. SMD mounting and high current density high speed IGBT allow for improved PCB area optimisation.

### Applications

- Inverterised outdoor air-conditioning systems

### Features

- 1 kW compressor inverter stage using 15 A RC-Drives IGBT in DPAK (TO-252)
- 200 W outdoor fan inverter stage using 4 A RC-Drives IGBT in DPAK (TO-252)
- 1.5 kW CCM-PFC using 20 A High Speed 3 IGBT and
- 10 A SiC-Diode

### Benefits

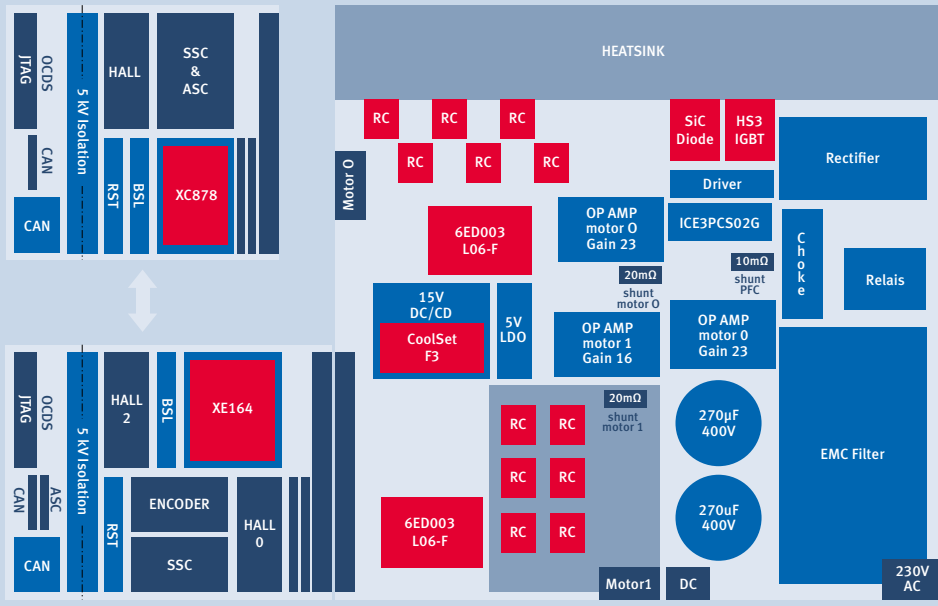
- Size and thermally optimized reference platform for inverterised air-condition systems to drive 2 inverter stages on one PCB
- Innovative cooling method for high power SMD IGBTs
- Displaying > 97 % PFC Eff.

### Application Example



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## What's on the Reference Board (Bill of Material)



Product Type	Product Name	Package
IGBT – RC-Drives	IKD04N60R	DPAK (TO-252)
IGBT – RC-Drives	IKD15N60R	DPAK (TO-252)
IGBT – High Speed 3	IGB30N60H3	D <sup>2</sup> PAK (TO-263)
SiC – Gen 2	IDB10S60C	D <sup>2</sup> PAK (TO-263)
Driver IC- EICEDriver	6ED003L06-F	DSO-28
Coolset	ICE3B0565JG	DSO12
Fixed voltage regulator	TLE4264	SOT223
CCM PFC Controller	ICE3PCS02G	DSO-8
8-bit microcontroller	XC878	LQFP-64
16-bit microcontroller	XE164	LQFP-100



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