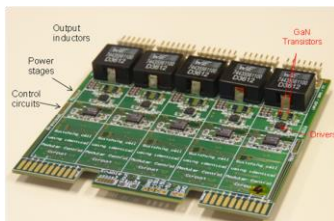


Masterless & decentralised control of converter

The latest converter architectures use associations of switching cells in series and/or parallel to reduce stress on each switch, while providing flexibility. This increasing number of switching cells leads to control issues and a large quantity of wires

DESCRIPTION*

- Decentralized modular solution (real masterless) for parallel and/or serial converter control
- Duplication and integration ("copy/paste") of a unique control module to each switching cell – instead of a centralized control circuit – regardless the number of legs
- Interconnection of control modules in a daisy-chaining configuration providing a balanced and dynamic control system
- Considerable simplification and reduction in wiring of the control of the overall converter
- No service disruption in case of component failure: reconfiguration ability



GaN boards: 5 identical legs managed by the decentralized controller (with eGaN FETS EPC1001, 10.6x10.2cm²)



Multiphase 25-cell GaN interleaved converter (Vin=12-48V Vout=1-12V, 5x75A, Fsw =0.5-3MHz)

Photo: LAPLACE/TTT

COMPETITIVE ADVANTAGES

- Reliability
- Security
- Ease of implementation
- Flexible system architecture
- Space saving
- Costs reduction

APPLICATIONS

- Micro computing
- Data center
- Automotive
- Aeronautics
- Telecommunications

INTELLECTUAL PROPERTY

- Patent pending

DEVELOPMENT STAGE

- Technology validated at lab level



TECHNICAL SPECIFICATIONS

	Generic specs	Prototype specs
Type of converter	AC/DC, DC/DC	DC/DC, 5 x 1,8kW
Topologies	Multi-cellular	Parallel multi-phase
Nb of switching cells	Unlimited	25
Input voltage	Configurable	12V to 48V
Output voltage	Configurable	1V to 28V
Output current	Configurable	5 x 75A (15A by cell)
Efficiency	-	Max 95%
Switching frequency	Configurable	100kHz to 3MHz

LABORATORY

- Statics Converters Group



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