AT&S

ECP®

Embedded Component Packaging

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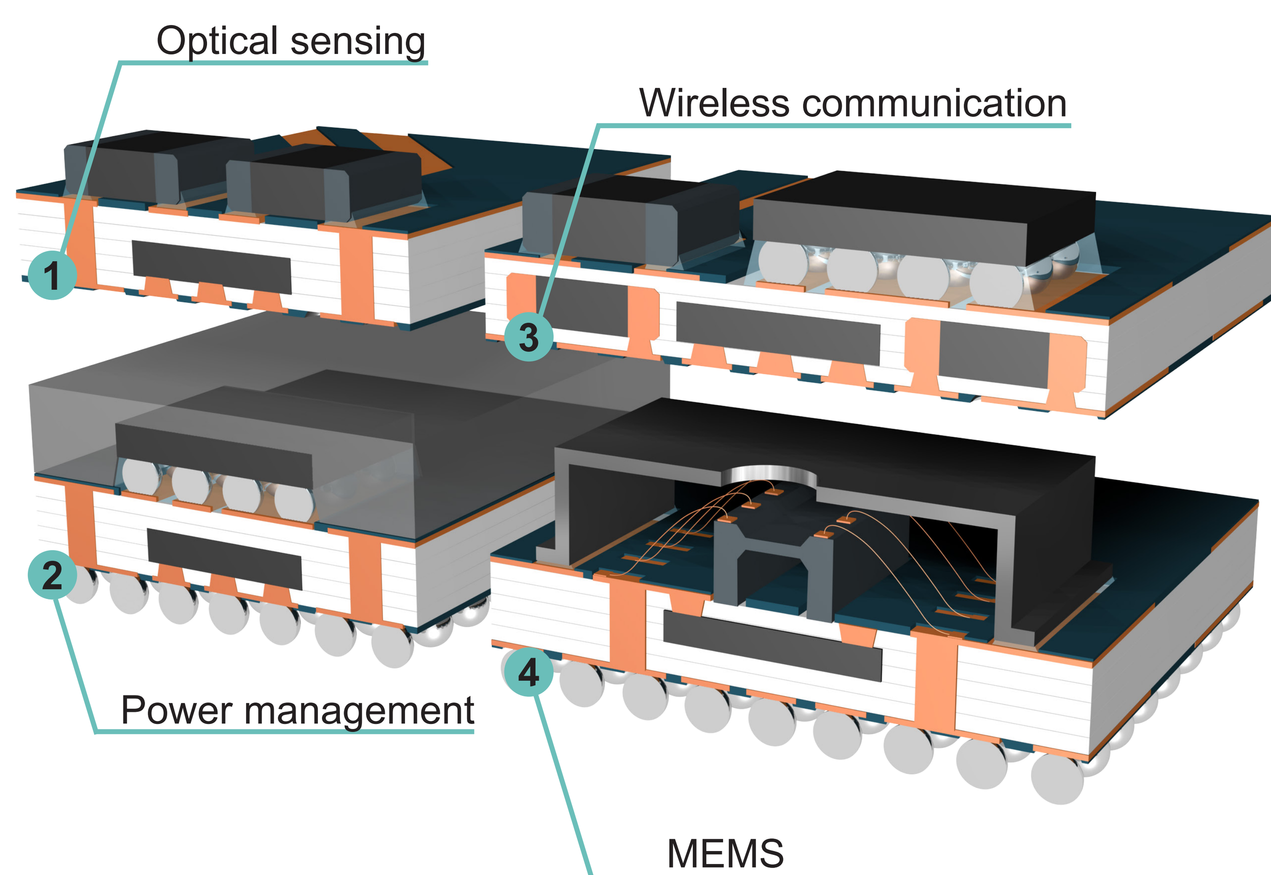
Application

Modules



Benefits

Miniaturization
- Footprint reduction
- Higher degree of component integration (additional assembly layer)

Electrical Performance
- Improved signal performance (higher data rates)
- Reduction of parasitic effects

Mechanical Performance
- Package enables protective enclosure for enhanced durability and reliability
- Excellent drop, shock and vibration resistance

Thermal Management
- Improved heat transfer due to direct copper connection
- Increased heat dissipation in epoxy vs air (compared to SMD)

EMI Shielding
- Partial or full shielding of the embedded package
- Reduced coupling of radio waves, electromagnetic and electrostatic fields

Modularization
- Footprints can be customized and module versions can be realized without separate tooling thanks to digital imaging

Anti-Tamper & Security
- Hidden components help prevent reverse engineering and counterfeiting

Thermal and electrical performance

Standard SMT

Module thickness: 1.3 mm

COMMUTATION LOOP
Loop area: 12.4 mm²
Loop resistance: 2.2 mΩ

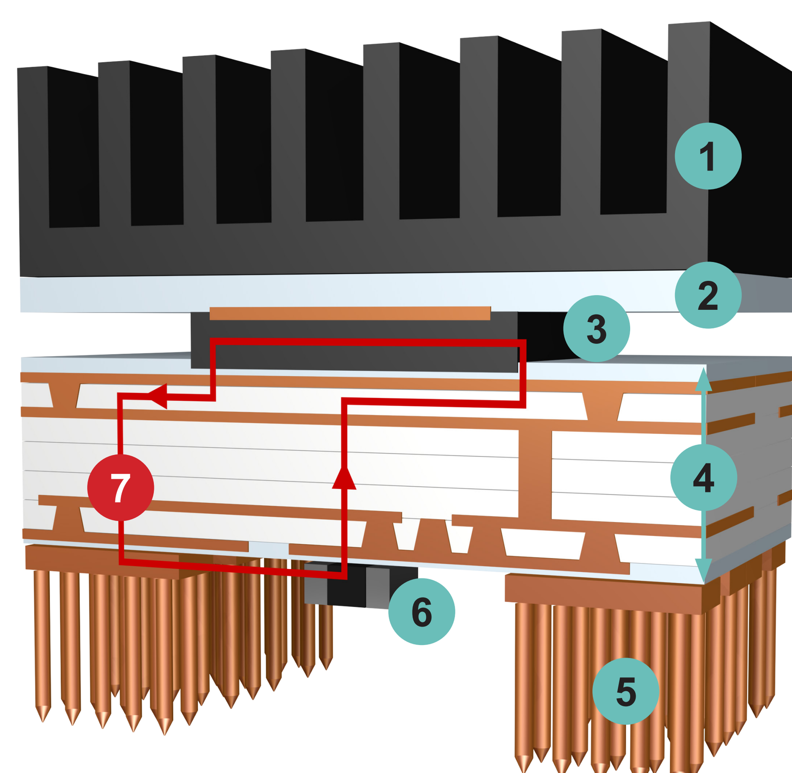
DOUBLE PULSE TEST
Ringing voltage: 17.5 V

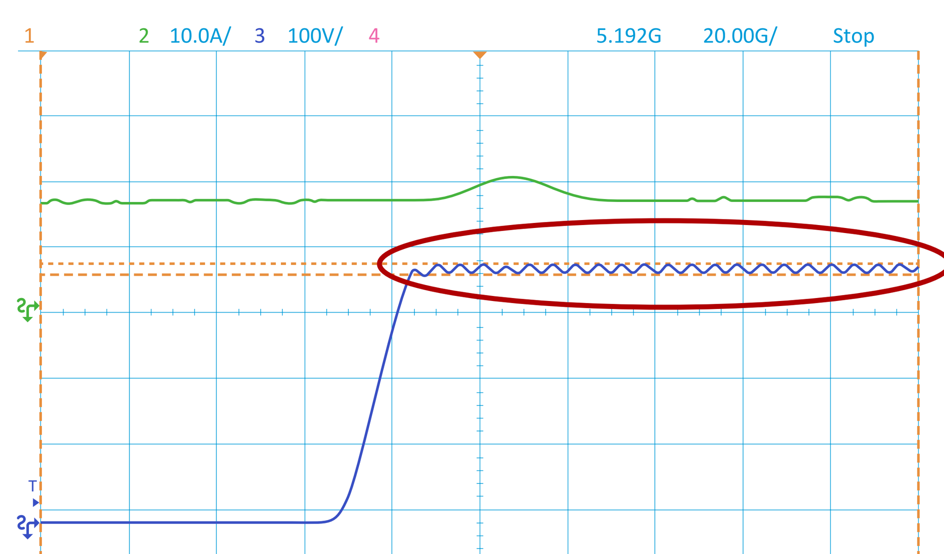
PERFORMANCE
Output power
1385 W

Temperature
47.5°C

Module losses
8.8 W

Thermal conductivity @4 W losses
16.6 W/K





1. Heat sink
2. TIM
3. GaN transistor
4. Printed circuit board
5. Connectors
6. DC-link capacitor
7. Commutation loop

Embedded

Module thickness: 0.75 mm

COMMUTATION LOOP
Loop area: 7.74 mm²
Loop resistance: 1.3 mΩ

DOUBLE PULSE TEST
Ringing voltage: < 1 V

PERFORMANCE
Output power
1385 W

Temperature
42°C

Module losses
5.4 W

Thermal conductivity @4 W losses
13.6 W/K