

# PUBLICLY AVAILABLE SPECIFICATION

PRE-STANDARD

Semiconductor devices – Discrete devices –  
Part 17: Magnetic and capacitive coupler for basic and reinforced isolation



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## PRE-STANDARD

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**Semiconductor devices – Discrete devices –  
Part 17: Magnetic and capacitive coupler for basic and reinforced isolation**

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**SEMICONDUCTOR DEVICES –  
DISCRETE DEVICES –****Part 17: Magnetic and capacitive coupler  
for basic and reinforced isolation**

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## SEMICONDUCTOR DEVICES – DISCRETE DEVICES –

### Part 17: Magnetic and capacitive coupler for basic and reinforced isolation

#### 1 Scope

This PAS gives the terminology, essential ratings, characteristics, safety test and the measuring methods of magnetic and capacitive couplers.

It specifies the principles of magnetic and capacitive coupling across an isolation barrier and the related requirements for basic isolation and reinforced insulation.

#### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-67, *Environmental testing – Part 2-67: Tests – Test Cy: Damp heat, steady state, accelerated test primarily intended for components*

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-17:1994, *Basic environmental testing procedures – Part 2-17: Tests – Test Q: Sealing*

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 + 12 h cycle)*

IEC 60068-2-58:2004, *Environmental testing – Part 2-58: Tests – Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60216-1, *Electrical insulating materials – Properties of thermal endurance – Part 1: Ageing procedures and evaluation of test results*

IEC 60216-2, *Electrical insulating materials – Thermal endurance properties – Part 2: Determination of thermal endurance properties of electrical insulating materials – Choice of test criteria*

IEC 60270:2000, *High-voltage test techniques – Partial discharge measurements*

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60672-2, *Ceramic and glass insulating materials – Part 2: Methods of test*

IEC 60695-11-5, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-8, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-9, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 9: Pulse magnetic field immunity test*

IEC 62539, *Guide for the statistical analysis of electrical insulation breakdown data*

### **3 Magnetic and Capacitive Coupler**

Magnetic and capacitive couplers consist of a transmitter stage and a receiver stage on either side of a galvanic insulation barrier. The device transmits a signal across the insulation boundary where a receiver stage is able to detect the transmitted signal and uses the information to generate the electrical output signal.

In this PAS, magnetic and capacitive couplers are referred to as “coupler”.

This PAS can only be applied to magnetic and capacitive couplers listed under 3.3 ‘Type of coupler’.

#### **3.1 Semiconductor material**

*Input:* Silicon, etc.

*Output:* Silicon, etc.

#### **3.2 Details of outline and encapsulation**

##### **3.2.1 Outline drawing**

For details, see the relevant IEC standards.