Micromodule

Description

The micromodule T5551 is the standard package for TEMIC Semiconductors' contactless identification IC family. This package simplifies the soldering or welding handling and enables smart card applications. The micromodule is 400 µm thin, thus opening the way to contactless card applications. The module includes the IC e5551 and an internal 435 pF capacitor.

Features

- Universal metal leadframe packaging for all identification applications, especially for contactless cards and small coins
- Optimized mechanical stability
- With internal 435 pF capacitor
- Designed for high volumes
- Overall thickness 400 µm

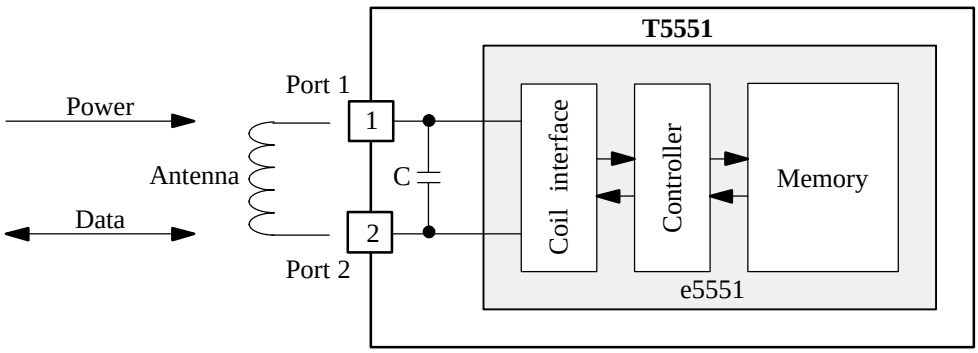


Figure 1. Block diagram

Ordering Information

Extended Type Number	Package	Remarks
T5551-PAE	Micromodule	Reeled (35 mm, 3 rows), 12-15 k per reel

Pin Description

Pin	Symbol	Function
1	Port 1	Power supply and data transmission coil 1
2	Port 2	Power supply and data transmission coil 2

General

The micromodule is a special package suitable for contactless R/W-identification applications. It is a plastic encapsulated package on a copper leadframe substrate and includes:

Read/write IDIC e5551 with EEPROM
Chip capacitor C = 435 pF

The chip capacitor is connected in parallel to coil 1 and coil 2 of the e5551 and to Pin 1 and Pin 2 of the package.

Electrical Characteristics

Absolute Maximum Ratings

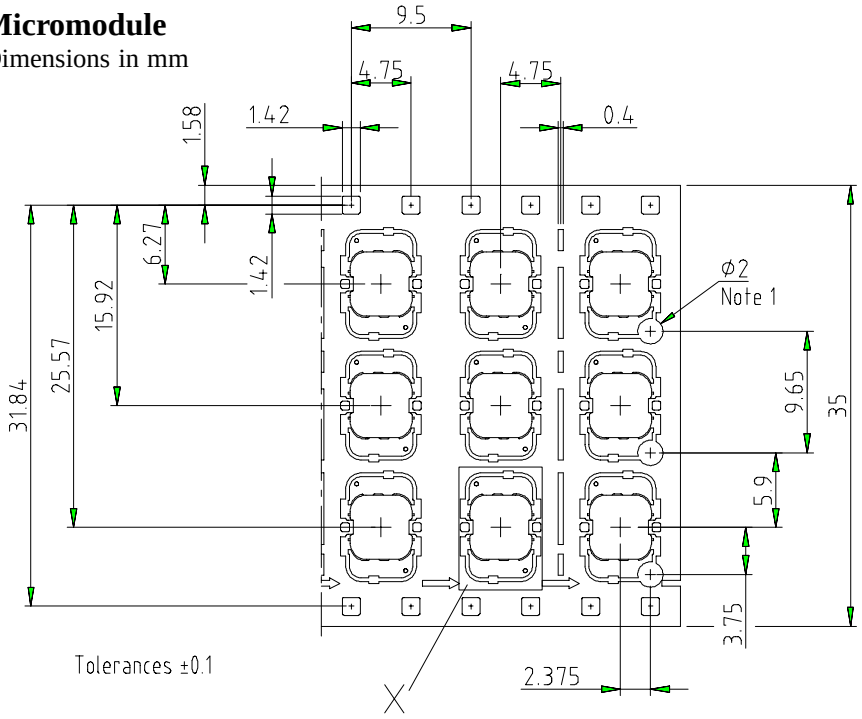
Parameter	Symbol	Value	Unit
Max. DC current into coil 1/ coil 2	I_{coil}	10	mA
Max. AC current into coil 1/ coil 2	i_{coil}	20	mA_{pp}
Power dissipation (dice)	P_{tot}	100	mW
Operating ambient temperature range	T_{amb}	–40 to +85	°C
Storage temperature range	T_{stg}	–40 to +125	°C
Maximum assembly temperature > 5 min	T_{sld}	+150	°C

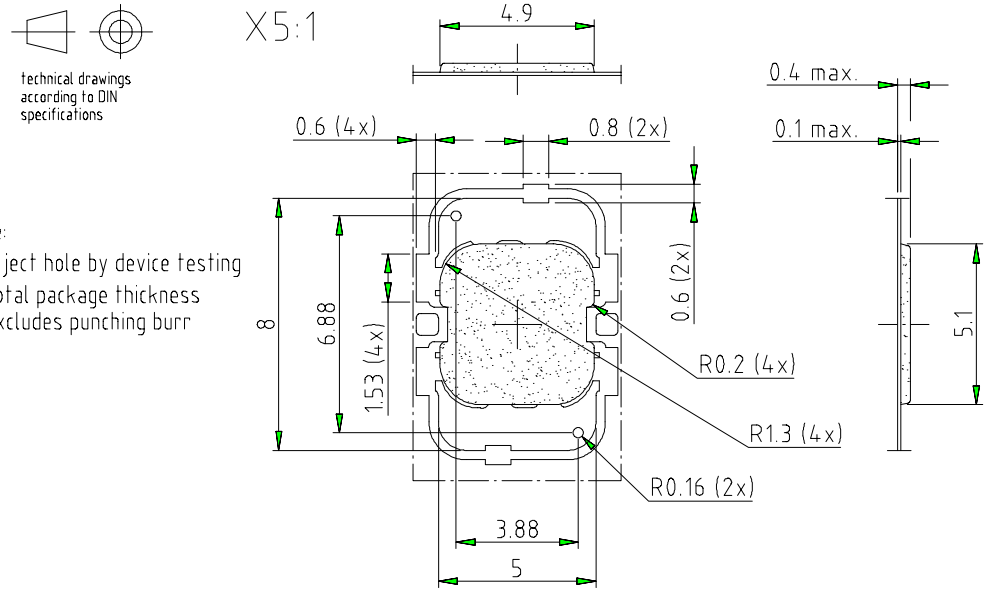
Capacitor Chip

Parameter	Test Conditions / Pins	Symbol	Min.	Typ.	Max.	Unit
Breakdown voltage		V_{BR}	60			V
Capacitance		C		435		pF
Q	500 mV, 125 kHz			300		
Temperature coefficient		ΔT		68		ppm/K

e5551: for electrical characteristics, please refer to the e5551 data sheet

Micromodule
Dimensions in mm





Note:
1. Reject hole by device testing
2. Total package thickness excludes punching burr

Specification

Pitch	9.5 mm
Module size	5 × 8 mm
Mold dimension	5.1 × 4.9 mm
Lead frame	CuSn6 100 µm
Bond pad size	5 × 1.5 mm
Surface plating	2.5 µm Ag
Module thickness	400 µm maximum

Temperature Profile for Processing

150 °C / 5 min
390 °C / 3 s
500 °C / 25 ms

Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC Semiconductor GmbH** to

1. Meet all present and future national and international statutory requirements.

2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively

2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA

3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

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