# ESD Protection Diode Array

Features

- Transient protection for data lines as per
  IEC 1000 - 4 - 2 (ESD) 15 kV (air), 8 kV (contact)
  IEC 1000 - 4 - 4 (EFT) 40 A (tp = 5/50 ns)
  IEC 1000 - 4 - 5 (Lightning) 12 A (tp = 8/20 μs)
- Small package for use in portable electronics
- Bidirectional protection of 4 I/O lines
- Unidirectional protection of 5 I/O lines
- Low leakage current
- Low operating and clamping voltages
- Ideal for cellular handsets, cordless phones, note-books, handhelds and digital cameras
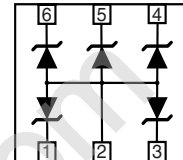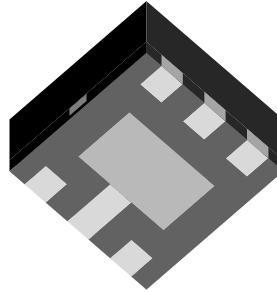
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Mechanical Data

Case: Leadless plastic package with heatsink

Molding Compound Flammability Rating: UL 94 V-0

Terminals: High temperature soldering guaranteed: 250 °C/10 sec. at terminals

Weight: approx. 5.1 mg

Marking Code: TBD

Absolute Maximum Ratings

Parameter	Test condition	Sub type	Symbol	Value	Unit
Peak pulse power	8/20 μs waveform		P_{ppm}	200	W
Peak pulse current	8/20 μs waveform		I_{pp}	12	A

Thermal Characteristics

Parameter	Test condition	Symbol	Value	Unit
Operating temperature		T_j	- 55 to + 125	°C
Storage temperature		T_{STG}	- 55 to + 150	°C
Lead soldering temperature (10 sec.)		T_L	260	°C

Electrical Characteristics

Parameter	Test condition	Sub type	Symbol	Min	Typ.	Max	Unit
Reverse stand-off voltage			V_{RWM}			5	V
Reverse breakdown voltage	I_t = 1 mA		V_{BR}	6			V
Reverse leakage current	V_{RWM} = 5 V		I_R			10	μA
Clamping voltage	I_{PP} = 1 A, 8/20 μs waveform		V_C			9.5	V
	I_{PP} = 12 A, 8/20 μs waveform		V_C			12.5	V
Peak forward voltage	I_F = 1 A, 8/20 μs waveform		V_F		1.5		V
Junction capacitance between I/O pins and Gnd	V_R = 0 V, f = 1 MHz		C_j			150	pF

Typical Characteristics (T_{amb} = 25 °C unless otherwise specified)

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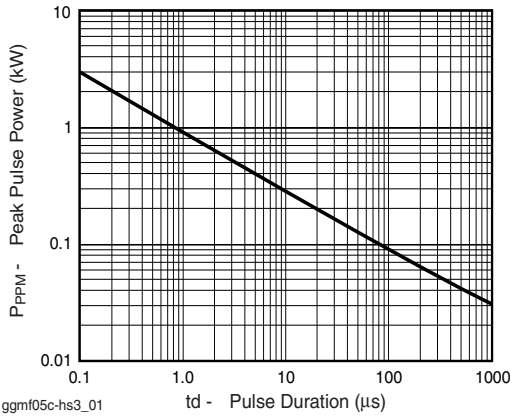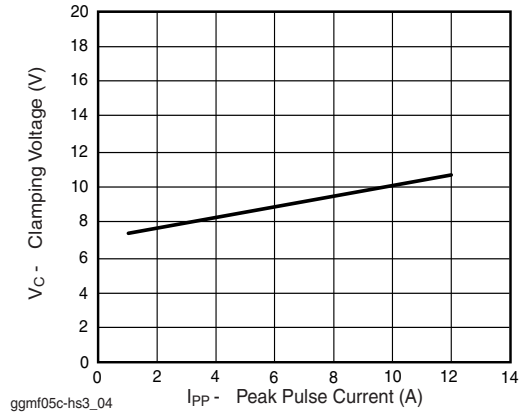
Figure 1. Non -Repetitive Peak Pulse Power vs. Pulse Time

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Figure 4. Clamping Voltage vs. Peak Pulse Current

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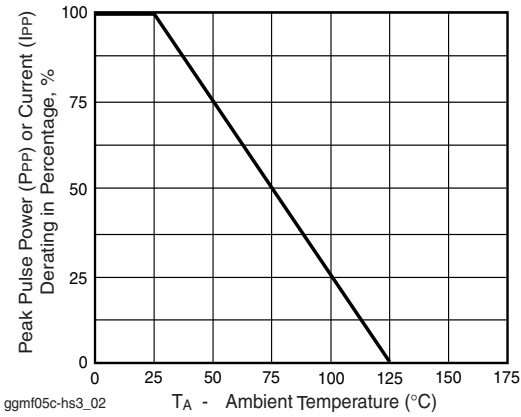
Figure 2. Pulse Derating Curve

Pulse Width (td)
is defined as the point
where the peak current
decays to 50% of I_{PPM}

$t_d = \dfrac{I_{PP}}{2}$

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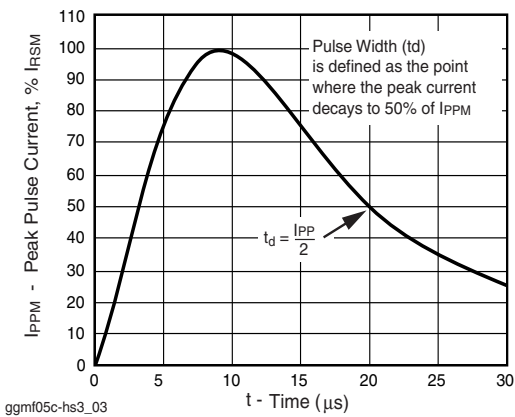
Figure 3. Pulse Waveform

Package Dimensions in mm

Heat Sink

1,6 ±0.07

0.25 ±0.035

0.25 ±0.035

0.25 ±0.035

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ISO Method E

1,6 ±0.07

1 ±0.030

0.5 ±0.030

1

0.25 ±0.035

0,6 0,5

0.7 ±0.05

0.25 ±0.05

0.15
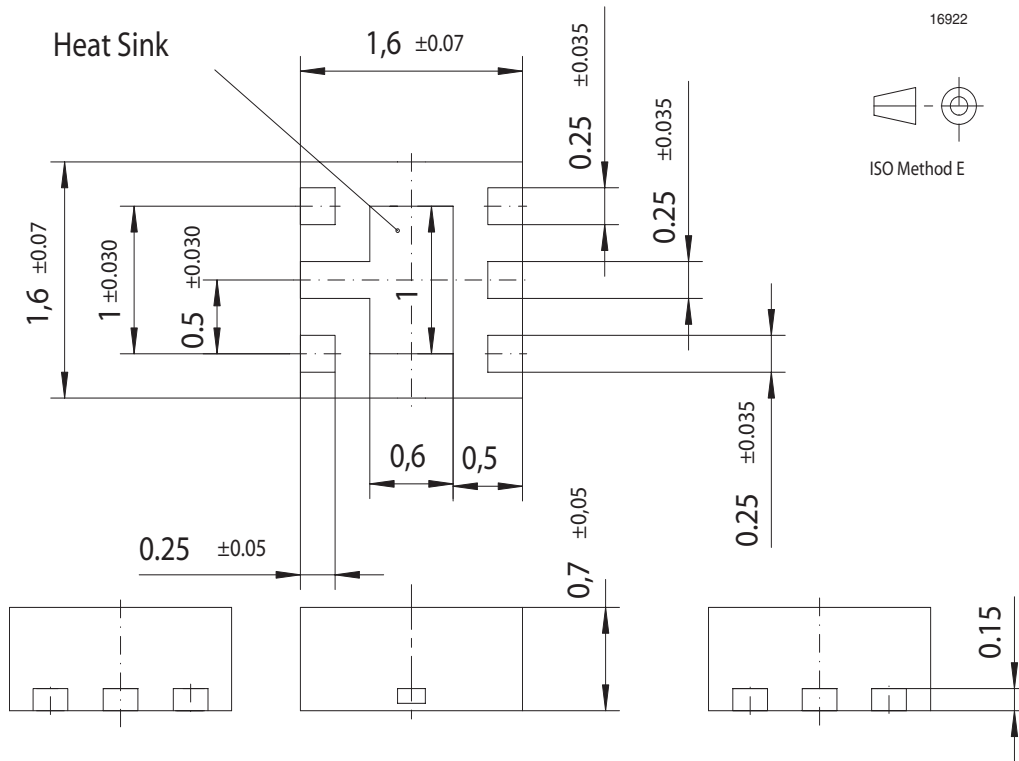
Ozone Depleting Substances Policy Statement

It is the policy of **Vishay 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 operatingsystems 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.

Vishay 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.

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