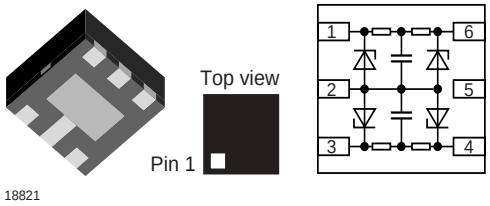
# 2-Line EMI-Filter with ESD -Protection

## Features

- Space saving LLP package
- EMI/RFI filtering with integrated ESD protection for two data lines
- ESD protection to **IEC 61000 - 4 - 2 Level 4**
- ESD protection to **IEC 61000 - 4 - 5 (4 A )**
- Low insertion loss up to 10 MHz
- Good attenuation of high frequency signals
- Low operating voltage (5 V)
- Low clamping voltage
- Low leakage current
- Thin film-on-silicon technology
- Ideal for cell phones, RF communication, and laptop computer applications




**Pinning:**
1 = Input (Output) 1
2 = Ground
3 = Input (Output) 2
4 = Output (Input) 2
5 = not connectect
6 = Output (input) 1

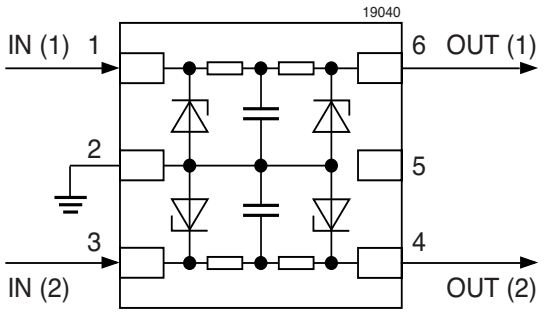
## Mechanical Data

**Case:** LLP75-6A Plastic case

**Molding Compound Flammability Rating:** UL 94 V-0

**Terminals:** High temperature soldering guaranteed: 260 °C/10 sec. at terminals

**Weight:** approx. 5.2 mg




## Parts Table

| Part | Ordering code | Marking | Remarks |
|---|---|---|---|
| GTF701-HS3 | GTF701-HS3-GS08 | T1 | Tape and Reel |

## Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Steady -state power | | P | 100 | mW |
| ESD Air discharge per IEC 61000-4-2 | | $V_{pp}$ | 15 | kV |
| ESD Contact discharge per IEC 61000-4-2 | | $V_{pp}$ | 8 | kV |
| Max. peak pulse current | 8/20 µs waveform | $I_{PPM}$ | 4 | A |

## Thermal Characteristics

Ratings at 25 °C, ambient temperature unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Operating temperature | | $T_j$ | - 40 to + 125 | °C |
| Storage temperature | | $T_{STG}$ | - 55 to + 150 | °C |

## Electrical Characteristics

Ratings at 25 °C, ambient temperature unless otherwise specified

| Parameter | Test condition | Symbol | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse stand-off voltage | | $V_{RWM}$ | | | 5 | V |
| Reverse breakdown voltage | $I_R$ = 1 mA | $V_{BR}$ | 6 | | | V |
| Reverse leakage current | $V_R$ = 5 V | $I_R$ | | | 1 | µA |
| | $V_R$ = 3.3 V | $I_R$ | | | 0.4 | µA |
| Total series resistance | $I_M$ = 1 mA | R | 45 | 50 | 55 | Ω |
| Total capacitance | $V_R$ = 0 V, f = 1 MHz btw. I/O and GND | $C_{tot}$ | | 120 | | pF |
| Clamping voltage | $I_{PP}$ = 4 A, 8/20 µs waveform | $V_C$ | | | 15 | V |

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

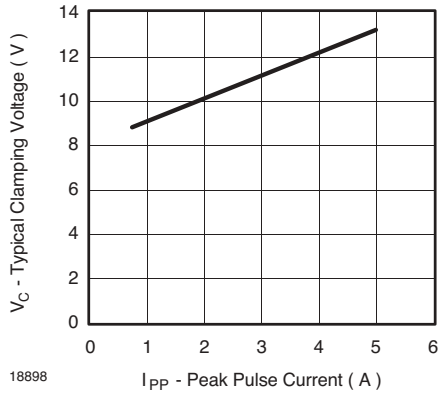



Figure 1. Typical Clamping Voltage vs. Peak Pulse Current

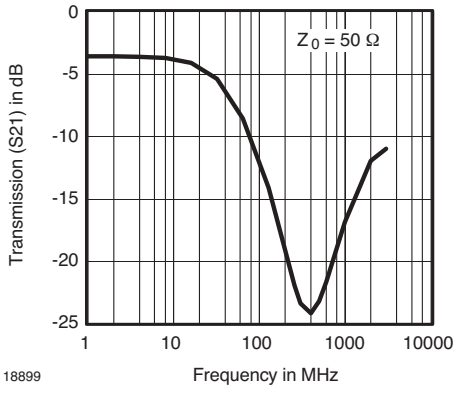



Figure 2. Typical Insertion Loss Characteristic

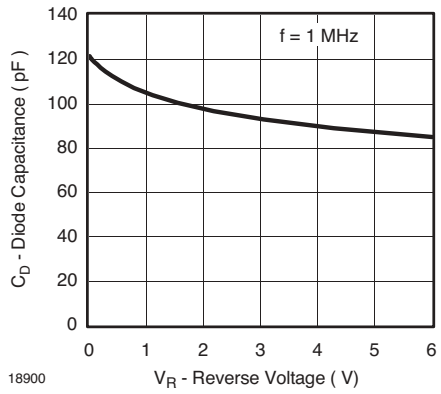



Figure 3. Typical Capacitance vs. Reverse Voltage

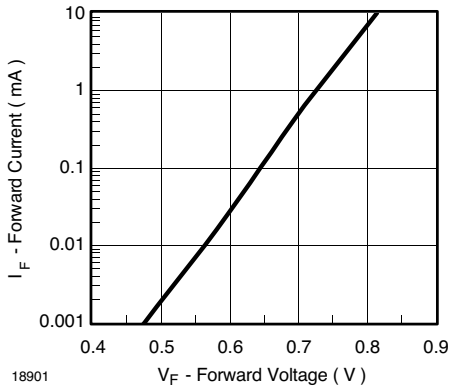



Figure 4. Forward Current vs. Forward Voltage

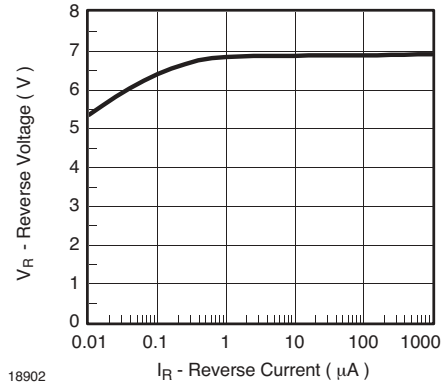
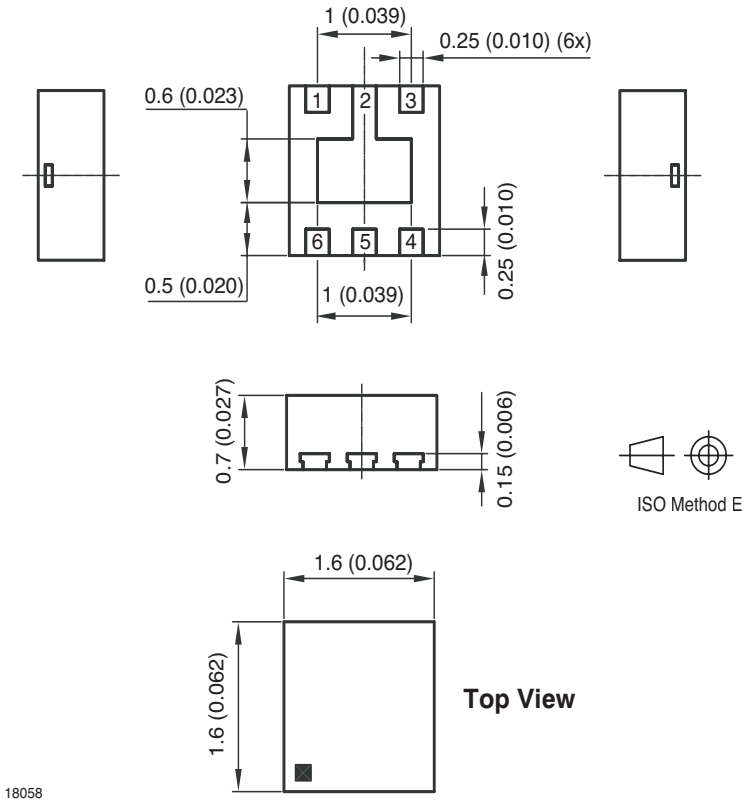



Figure 5. Typical Reverse Voltage vs. Reverse Current

## Package Dimensions in mm (Inches)



## 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.



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