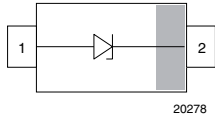
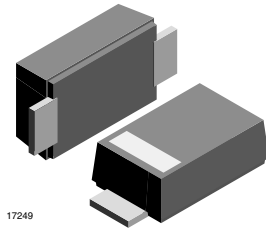


Surface Mount ESD Protection Diodes

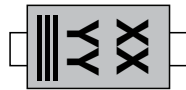


20278



17249

MARKING (example only)



22623

Bar = cathode marking

YY = type code (see table below)

XX = date code

FEATURES

- For surface mounted applications
- Low-profile package
- Optimized for LAN protection applications
- Ideal for ESD protection of data lines in accordance with IEC 61000-4-2 (IEC 801-2)
- Ideal for EFT protection of data lines in accordance with IEC 61000-4-4 (IEC 801-4)
- ESD-protection acc. IEC 61000-4-2
± 30 kV contact discharge
± 30 kV air discharge
- Low incremental surge resistance, excellent clamping capability
- 200 W peak pulse power capability with a 10/1000 µs waveform, repetition rate (duty cycle): 0.01 %
- “Low-Noise” technology - very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- e3 - Sn
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



ORDERING INFORMATION

| PART NUMBER (EXAMPLE) | ENVIRONMENTAL AND QUALITY CODE | | | TIN PLATED | PACKAGING CODE | | ORDERING CODE (EXAMPLE) |
|-----------------------|--------------------------------|--|--------------|------------|---|---|-------------------------|
| | AEC-Q101 QUALIFIED | RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS | | | 3K PER 7" REEL (8 mm TAPE), 30K/BOX = MOQ | 10K PER 13" REEL (8 mm TAPE), 50K/BOX = MOQ | |
| | | STANDARD | HALOGEN-FREE | | | | |
| SMF5V0A- | | E | | 3 | -08 | | SMF5V0A-E3-08 |
| SMF5V0A- | | | M | 3 | -08 | | SMF5V0A-M3-08 |
| SMF5V0A- | H | E | | 3 | -08 | | SMF5V0A-HE3-08 |
| SMF5V0A- | H | | M | 3 | -08 | | SMF5V0A-HM3-08 |
| SMF5V0A- | | E | | 3 | | -18 | SMF5V0A-E3-18 |
| SMF5V0A- | | | M | 3 | | -18 | SMF5V0A-M3-18 |
| SMF5V0A- | H | E | | 3 | | -18 | SMF5V0A-HE3-18 |
| SMF5V0A- | H | | M | 3 | | -18 | SMF5V0A-HM3-18 |

PACKAGE DATA

| PACKAGE NAME | MOLDING COMPOUND | WEIGHT (mg) | HEIGHT MAX. (mm) | LENGTH MAX. (mm) | WIDTH MAX. (mm) | MOLDING COMPOUND | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
|----------------|--------------------------|-------------|------------------|------------------|-----------------|------------------|-----------------------------------|--------------------------|
| SMF (DO-219AB) | Standard Halogen-free | 15 | 1.08 | 3.9 | 1.9 | UL 94 V-0 | MSL level 1 (according J-STD-020) | 260 °C/10 s at terminals |



| ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|---|--|-------------------|----------------------------------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT |
| Peak pulse current | t _p = 10/1000 μs waveform | I _{PPM} | see "Electrical Characteristics" | A |
| Peak pulse power | t _p = 8/20 μs waveform acc. IEC 61000-4-5 | P _{PP} | 1000 | W |
| | t _p = 10/1000 μs waveform | | 200 | W |
| Peak forward surge current | 8.3 ms single half sine-wave | I _{FSM} | 50 | A |
| ESD immunity | Contact discharge acc. IEC 61000-4-2; 10 pulses | V _{ESD} | ± 30 | kV |
| | Air discharge acc. IEC 61000-4-2; 10 pulses | | ± 30 | kV |
| Thermal resistance | Mounted on epoxy glass PCB with 3 mm x 3 mm, Cu pads (≥ 40 μm thick) | R _{thJA} | 180 | K/W |
| Forward clamping voltage | I _F = 50A, t _p = 400 μs | V _F | 2.5 | V |
| Operating temperature | Junction temperature | T _J | - 55 to + 150 | °C |
| Storage temperature | | T _{STG} | - 55 to + 150 | °C |

| ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | | | | | | | |
|---|-----------|--------------|---|---------------------|-------------------------|-------------------------------------|--|--|--|----------------------|
| PART NUMBER | TYPE CODE | | REVERSE BREAKDOWN VOLTAGE at I _T , t _p = 5 ms | TEST CURRENT | REVERSE WORKING VOLTAGE | REVERSE CURRENT at V _{RWM} | PEAK PULSE CURRENT at I _{PPM} , t _p = 10/1000 μs | REVERSE CLAMPING VOLTAGE at I _{PPM} | CAPACITANCE at V _R = 0 V, f = 1 MHz | PROTECTION PATHS |
| | STD. | HALOGEN-FREE | V _{BR} MIN. (V) | I _T (mA) | V _{RWM} (V) | I _R (μA) | I _{PPM} (A) | V _C MAX. (V) | C _D TYP. (pF) | N _{channel} |
| SMF5V0A | AE | NE | 6.40 | 10 | 5 | 5 | 21.7 | 9.2 | 1120 | 1 |
| SMF6V0A | AG | NG | 6.67 | 10 | 6 | 26 | 19.4 | 10.3 | 1063 | 1 |
| SMF6V5A | AK | NK | 7.22 | 10 | 6.5 | 20 | 17.9 | 11.2 | 938 | 1 |
| SMF7V0A | AM | NM | 7.78 | 10 | 7 | 3 | 16.7 | 12 | 843 | 1 |
| SMF7V5A | AP | NP | 8.33 | 1 | 7.5 | 0.1 | 15.5 | 12.9 | 773 | 1 |
| SMF8V0A | AR | NR | 8.89 | 1 | 8 | 0.1 | 14.7 | 13.6 | 706 | 1 |
| SMF8V5A | AT | NT | 9.44 | 1 | 8.5 | 0.1 | 13.9 | 14.4 | 674 | 1 |
| SMF9V0A | AV | NV | 10 | 1 | 9 | 0.1 | 13.5 | 15.4 | 640 | 1 |
| SMF10A | AX | NX | 11.1 | 1 | 10 | 0.1 | 11.8 | 17 | 562 | 1 |
| SMF11A | AZ | NZ | 12.2 | 1 | 11 | 0.1 | 11 | 18.2 | 509 | 1 |
| SMF12A | BE | OE | 13.3 | 1 | 12 | 0.1 | 10.1 | 19.9 | 483 | 1 |
| SMF13A | BG | OG | 14.4 | 1 | 13 | 0.1 | 9.3 | 21.5 | 423 | 1 |
| SMF14A | BK | OK | 15.6 | 1 | 14 | 0.1 | 8.6 | 23.2 | 392 | 1 |
| SMF15A | BM | OM | 16.7 | 1 | 15 | 0.1 | 8.2 | 24.4 | 367 | 1 |
| SMF16A | BP | OP | 17.8 | 1 | 16 | 0.1 | 7.7 | 26 | 343 | 1 |
| SMF17A | BR | OR | 18.9 | 1 | 17 | 0.1 | 7.2 | 27.6 | 324 | 1 |
| SMF18A | BT | OT | 20 | 1 | 18 | 0.1 | 6.8 | 29.2 | 320 | 1 |
| SMF20A | BV | OV | 22.2 | 1 | 20 | 0.1 | 6.2 | 32.4 | 283 | 1 |
| SMF22A | BX | OX | 24.4 | 1 | 22 | 0.1 | 5.6 | 35.5 | 271 | 1 |
| SMF24A | BZ | OZ | 26.7 | 1 | 24 | 0.1 | 5.1 | 38.9 | 244 | 1 |
| SMF26A | CE | PE | 28.9 | 1 | 26 | 0.1 | 4.8 | 42.1 | 230 | 1 |
| SMF28A | CG | PG | 31.1 | 1 | 28 | 0.1 | 4.4 | 45.4 | 227 | 1 |
| SMF30A | CK | PK | 33.3 | 1 | 30 | 0.1 | 4.1 | 48.4 | 207 | 1 |
| SMF33A | CM | PM | 36.7 | 1 | 33 | 0.1 | 3.8 | 53.3 | 198 | 1 |
| SMF36A | CP | PP | 40 | 1 | 36 | 0.1 | 3.4 | 58.1 | 178 | 1 |
| SMF40A | CR | PR | 44.4 | 1 | 40 | 0.1 | 3.1 | 64.5 | 172 | 1 |
| SMF43A | CT | PT | 47.8 | 1 | 43 | 0.1 | 2.9 | 69.4 | 165 | 1 |
| SMF45A | CV | PV | 50 | 1 | 45 | 0.1 | 2.8 | 72.7 | 162 | 1 |
| SMF48A | CX | PX | 53.3 | 1 | 48 | 0.1 | 2.6 | 77.4 | 161 | 1 |
| SMF51A | CZ | PZ | 56.7 | 1 | 51 | 0.1 | 2.4 | 82.4 | 151 | 1 |
| SMF54A | CA | PA | 60 | 1 | 54 | 0.1 | 2.25 | 88 | 148 | 1 |
| SMF58A | CC | PC | 64.4 | 1 | 58 | 0.1 | 2.1 | 95 | 144 | 1 |

TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

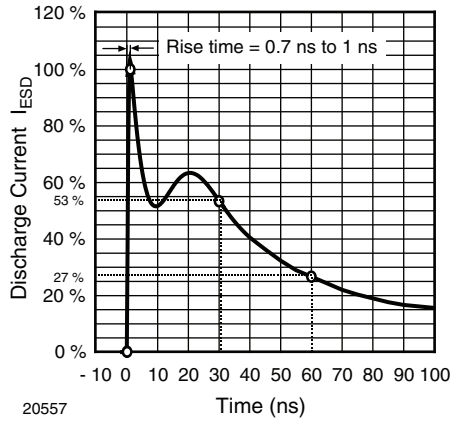


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω /150pF)

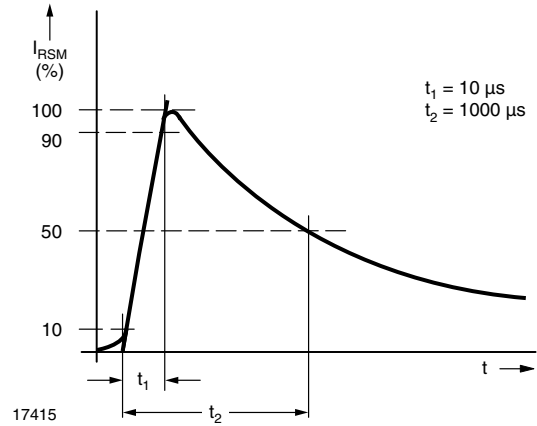


Fig. 4 - Pulse Waveform

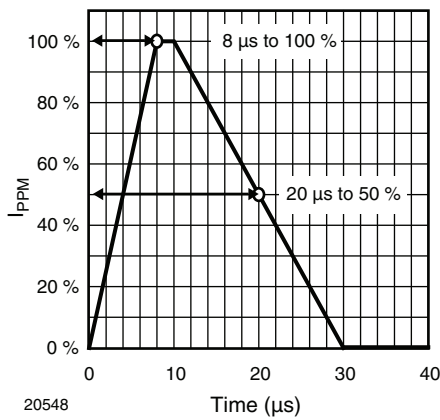


Fig. 2 - 8/20 μs Peak Pulse Current Wave Form acc. IEC 61000-4-5

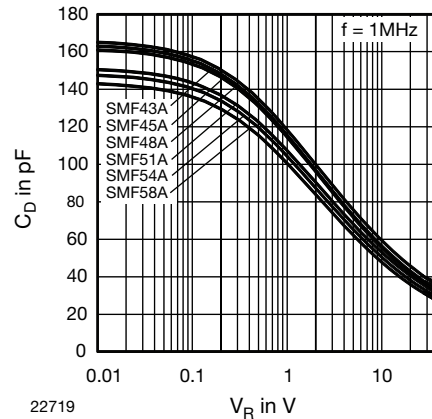


Fig. 5 - Typical Capacitance C_D vs. Reverse Voltage V_R

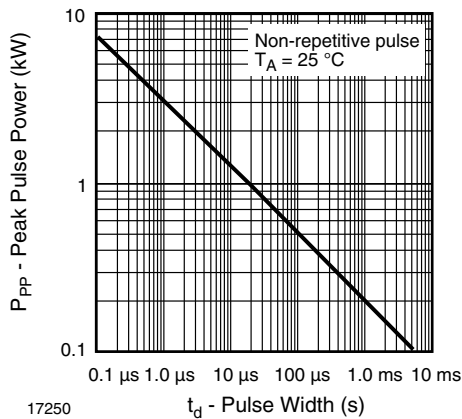


Fig. 3 - Peak Pulse Power Rating

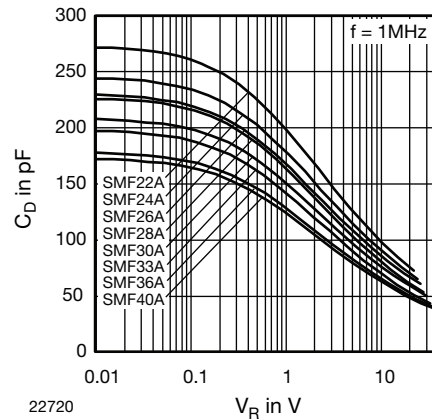


Fig. 6 - Typical Capacitance C_D vs. Reverse Voltage V_R

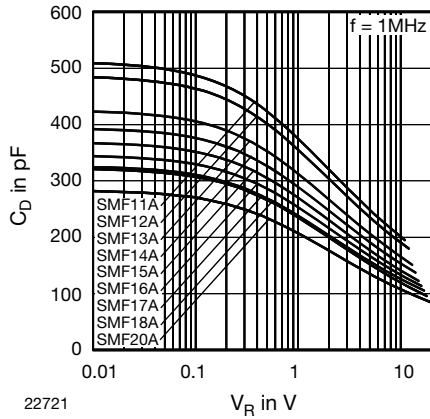


Fig. 7 - Typical Capacitance C_D vs. Reverse Voltage V_R

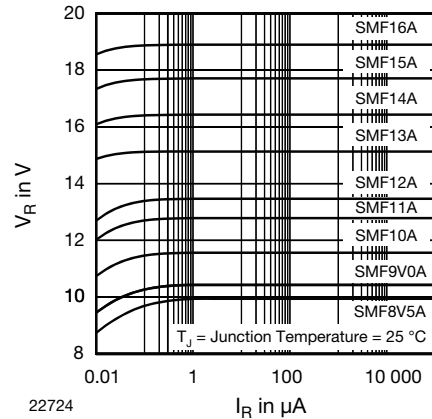


Fig. 10 - Typical Reverse Voltage V_R vs. Reverse Current I_R

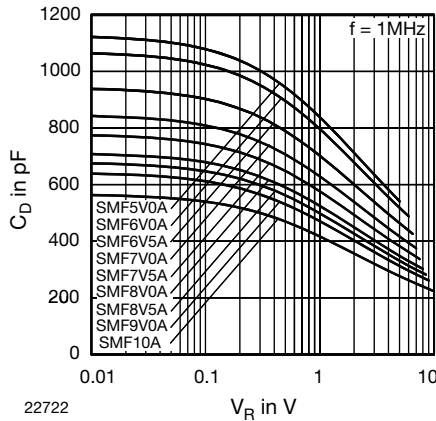


Fig. 8 - Typical Capacitance C_D vs. Reverse Voltage V_R

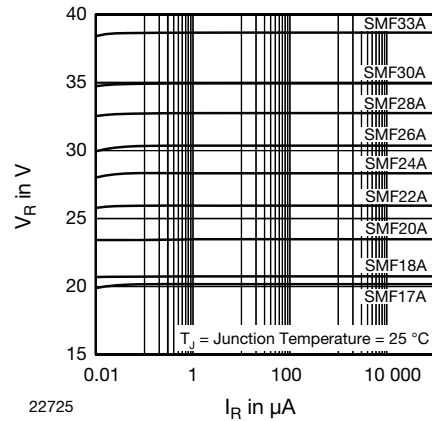


Fig. 11 - Typical Reverse Voltage V_R vs. Reverse Current I_R

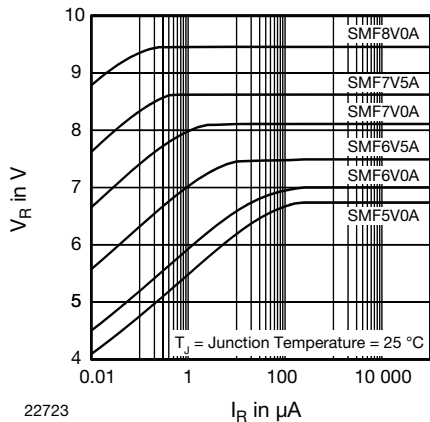


Fig. 9 - Typical Reverse Voltage V_R vs. Reverse Current I_R

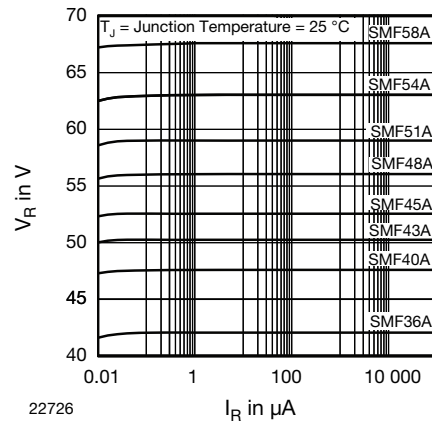
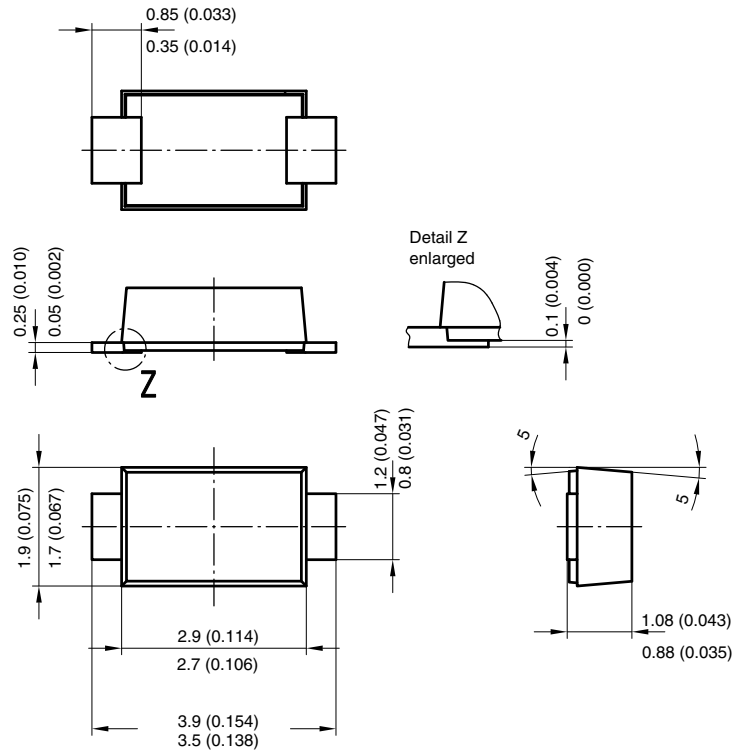


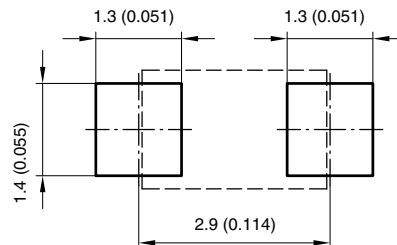
Fig. 12 - Typical Reverse Voltage V_R vs. Reverse Current I_R



PACKAGE DIMENSIONS in millimeters (inches): **SMF**



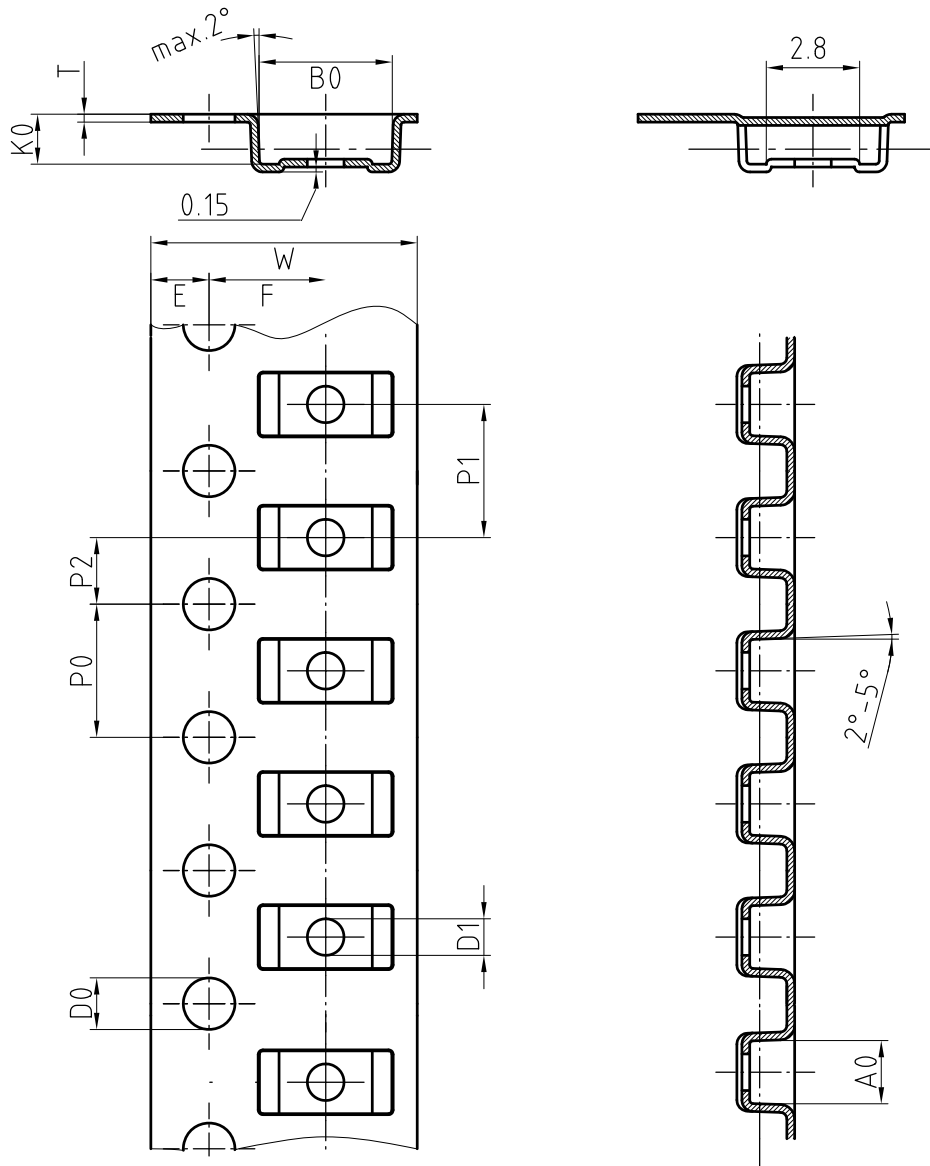
Foot print recommendation:



Created - Date: 15. February 2005
 Rev. 3 - Date: 13. March 2007
 Document no.:S8-V-3915.01-001 (4)
 17247



BLISTERTAPE DIMENSIONS in millimeters (inches)



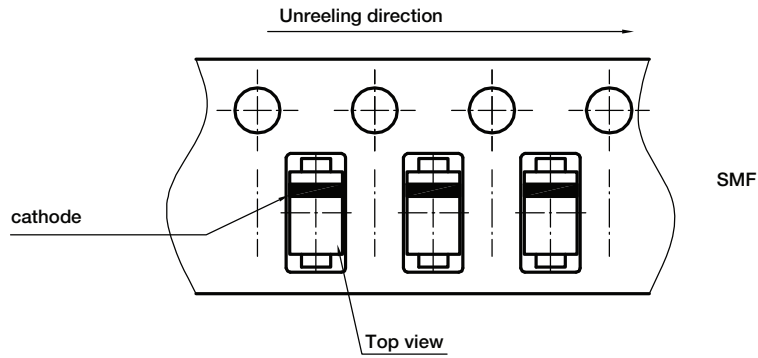
| Mat: | A0 | B0 | K0 | W | T | P0 | P2 | P1 | D0 | D1 | E | F |
|------|-----|-----|-----|-----|-------|-----|-----|-----|-----|----|------|-----|
| PS | 1.9 | 4.0 | 1.5 | 8.0 | 0.235 | 4.0 | 2.0 | 4.0 | 1.5 | 1 | 1.75 | 3.5 |

Document-No.: S8-V-3717.02-001 (3)

18513



ORIENTATION IN CARRIER TAPE - SMF



Document no.: S8-V-3717.02-003 (4)
Created - Date: 09. Feb. 2010
22670



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