

**ELECTRICAL SPECIFICATIONS**

| PARAMETER                       | SYMBOL      | TEST CONDITIONS                | VALUES | UNITS      |
|---------------------------------|-------------|--------------------------------|--------|------------|
| Maximum forward voltage drop    | $V_{FM}$    | 20 A, $T_J = 25^\circ\text{C}$ | 1.0    | V          |
|                                 |             | 40 A, $T_J = 25^\circ\text{C}$ | 1.1    |            |
| Forward slope resistance        | $r_t$       | $T_J = 150^\circ\text{C}$      | 7.16   | m $\Omega$ |
| Threshold voltage               | $V_{F(TO)}$ |                                | 0.74   | V          |
| Maximum reverse leakage current | $I_{RM}$    | $T_J = 25^\circ\text{C}$       | 0.1    | mA         |
|                                 |             | $T_J = 150^\circ\text{C}$      | 1.0    |            |

**THERMAL - MECHANICAL SPECIFICATIONS**

| PARAMETER                                       | SYMBOL         | TEST CONDITIONS                            | VALUES      | UNITS                  |
|-------------------------------------------------|----------------|--------------------------------------------|-------------|------------------------|
| Maximum junction and storage temperature range  | $T_J, T_{Stg}$ |                                            | -40 to +150 | $^\circ\text{C}$       |
| Maximum thermal resistance, junction to case    | $R_{thJC}$     | DC operation                               | 0.6         | $^\circ\text{C/W}$     |
| Maximum thermal resistance, junction to ambient | $R_{thJA}$     |                                            | 40          |                        |
| Typical thermal resistance, case to heatsink    | $R_{thCS}$     | Mounting surface, flat, smooth and greased | 0.2         |                        |
| Approximate weight                              |                |                                            | 6           | g                      |
|                                                 |                |                                            | 0.21        | oz.                    |
| Mounting torque                                 | minimum        |                                            | 6 (5)       | kgf · cm<br>(lbf · in) |
|                                                 | maximum        |                                            | 12 (10)     |                        |
| Marking device                                  |                | Case style TO-247AC modified (JEDEC)       | 40EPS08     |                        |
|                                                 |                |                                            | 40EPS12     |                        |

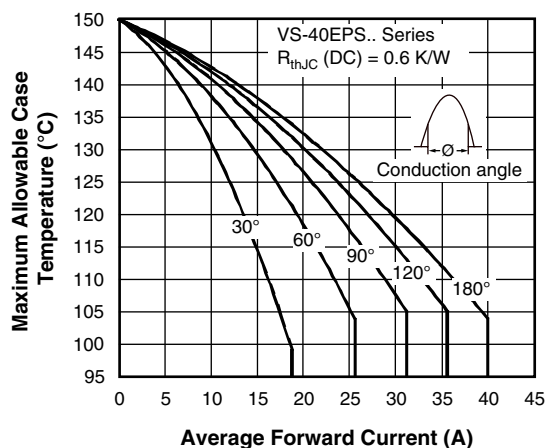


Fig. 1 - Current Rating Characteristics

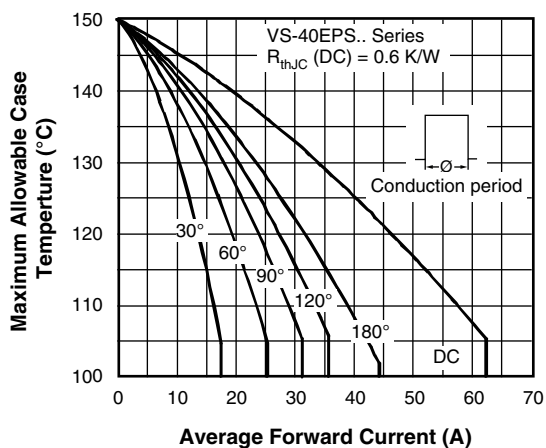


Fig. 2 - Current Rating Characteristics

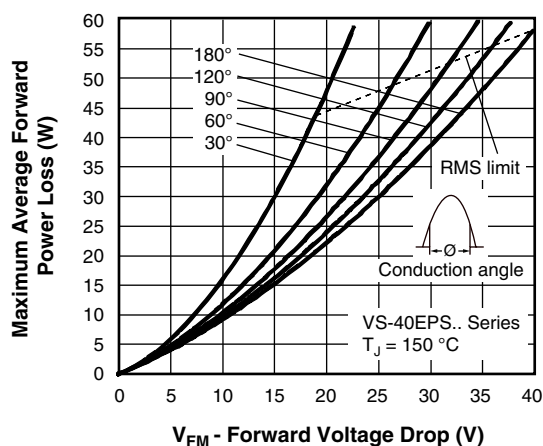


Fig. 3 - Forward Power Loss Characteristics

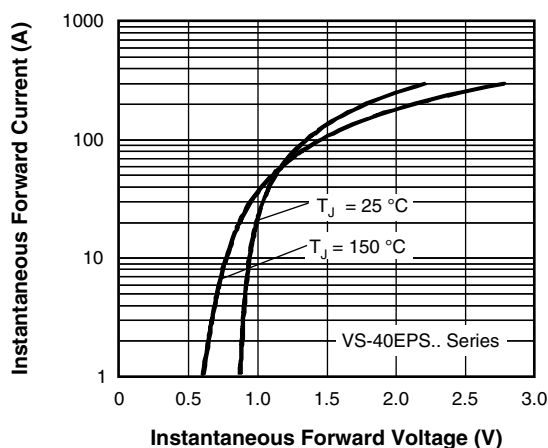


Fig. 5 - Forward Voltage Drop Characteristics

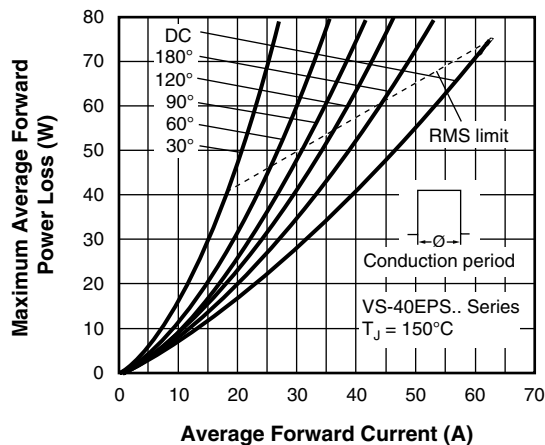


Fig. 4 - Forward Power Loss Characteristics

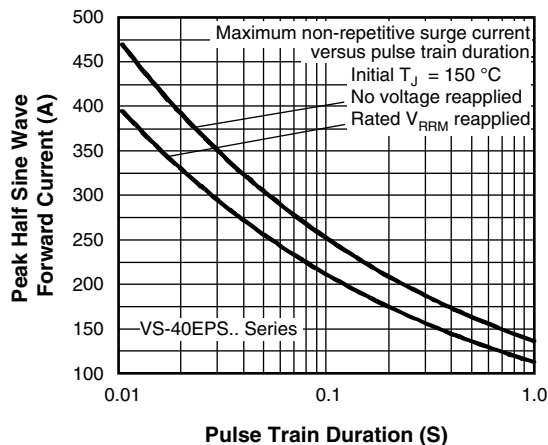


Fig. 6 - Maximum Non-Repetitive Surge Current

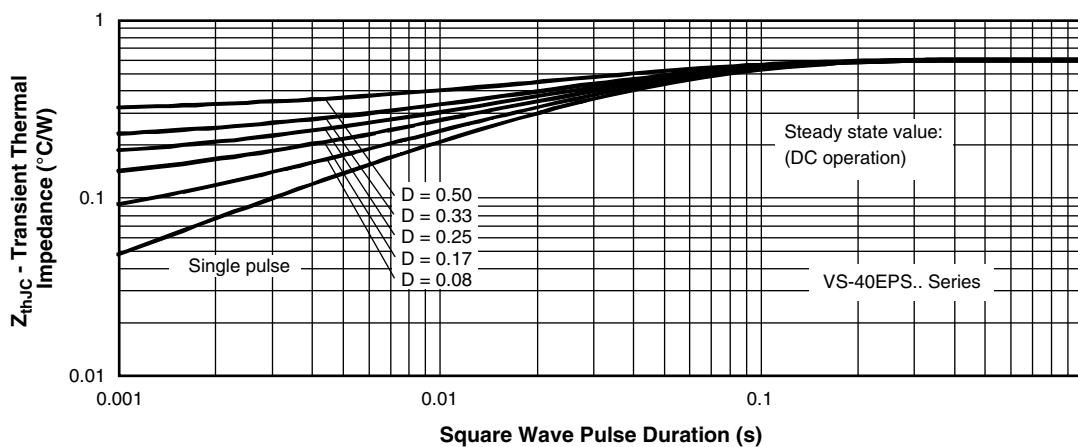


Fig. 7 - Thermal Impedance  $Z_{thJC}$  Characteristics

**ORDERING INFORMATION TABLE**

| Device code | VS-                                                                                                                                      | 40 | E | P | S | 12 | PbF |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|---|----|-----|
|             | 1                                                                                                                                        | 2  | 3 | 4 | 5 | 6  | 7   |
| 1           | - Vishay Semiconductors product                                                                                                          |    |   |   |   |    |     |
| 2           | - Current rating (40 = 40 A)                                                                                                             |    |   |   |   |    |     |
| 3           | - Circuit configuration:<br>E = single diode                                                                                             |    |   |   |   |    |     |
| 4           | - Package:<br>P = TO-247AC modified                                                                                                      |    |   |   |   |    |     |
| 5           | - Type of silicon:<br>S = standard recovery rectifier                                                                                    |    |   |   |   |    |     |
| 6           | - Voltage rating                                                                                                                         |    |   |   |   |    |     |
| 7           | - Environmental digit:<br>PbF = lead (Pb)-free and RoHS-compliant<br>-M3 = halogen-free, RoHS-compliant, and terminations lead (Pb)-free |    |   |   |   |    |     |

08 = 800 V  
12 = 1200 V

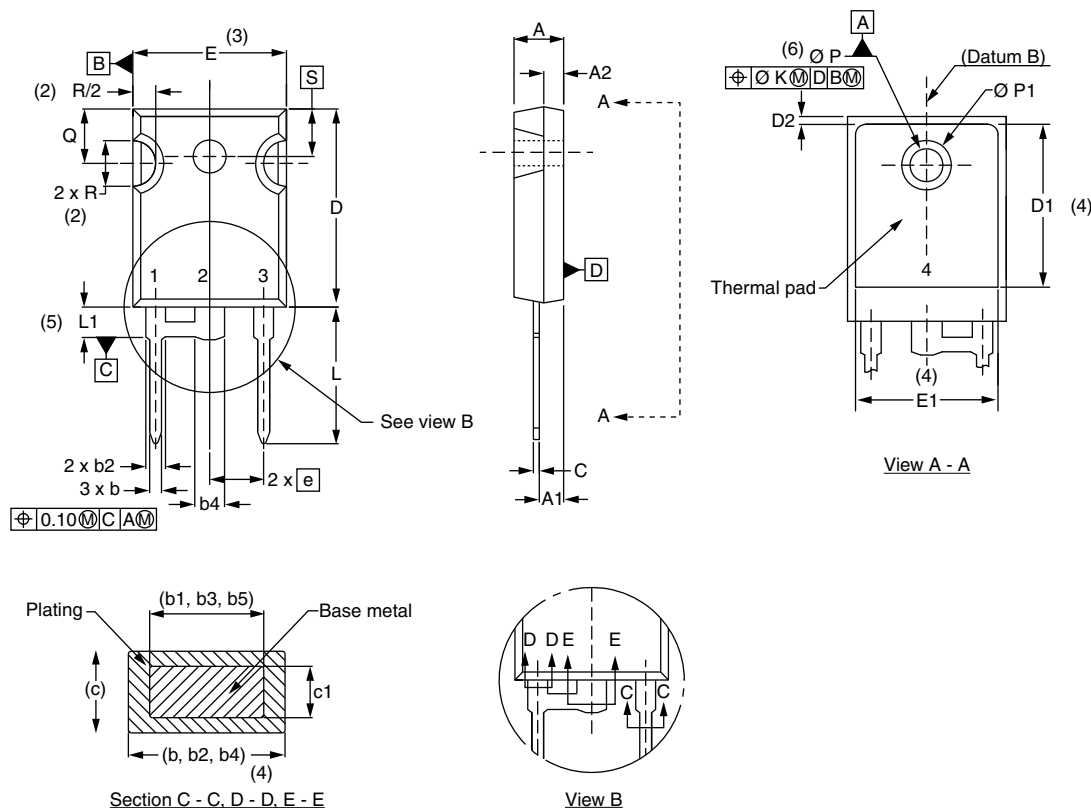
| ORDERING INFORMATION (Example) |                  |                        |                          |
|--------------------------------|------------------|------------------------|--------------------------|
| PREFERRED P/N                  | QUANTITY PER T/R | MINIMUM ORDER QUANTITY | PACKAGING DESCRIPTION    |
| VS-40EPS08PbF                  | 25               | 500                    | Antistatic plastic tubes |
| VS-40EPS08-M3                  | 25               | 500                    | Antistatic plastic tubes |
| VS-40EPS12PbF                  | 25               | 500                    | Antistatic plastic tubes |
| VS-40EPS12-M3                  | 25               | 500                    | Antistatic plastic tubes |

| LINKS TO RELATED DOCUMENTS |                                                                                                 |
|----------------------------|-------------------------------------------------------------------------------------------------|
| Dimensions                 | <a href="http://www.vishay.com/doc?95541">www.vishay.com/doc?95541</a>                          |
| Part marking information   | TO-247AC modified PbF<br><a href="http://www.vishay.com/doc?95255">www.vishay.com/doc?95255</a> |
|                            | TO-247AC modified -M3<br><a href="http://www.vishay.com/doc?95442">www.vishay.com/doc?95442</a> |
| SPIICE model               | <a href="http://www.vishay.com/doc?96047">www.vishay.com/doc?96047</a>                          |



## TO-247AC modified - 50 mils L/F

DIMENSIONS in millimeters and inches



| SYMBOL | MILLIMETERS |       | INCHES |       | NOTES |
|--------|-------------|-------|--------|-------|-------|
|        | MIN.        | MAX.  | MIN.   | MAX.  |       |
| A      | 4.65        | 5.31  | 0.183  | 0.209 |       |
| A1     | 2.21        | 2.59  | 0.087  | 0.102 |       |
| A2     | 1.17        | 1.37  | 0.046  | 0.054 |       |
| b      | 0.99        | 1.40  | 0.039  | 0.055 |       |
| b1     | 0.99        | 1.35  | 0.039  | 0.053 |       |
| b2     | 1.65        | 2.39  | 0.065  | 0.094 |       |
| b3     | 1.65        | 2.34  | 0.065  | 0.092 |       |
| b4     | 2.59        | 3.43  | 0.102  | 0.135 |       |
| b5     | 2.59        | 3.38  | 0.102  | 0.133 |       |
| c      | 0.38        | 0.89  | 0.015  | 0.035 |       |
| c1     | 0.38        | 0.84  | 0.015  | 0.033 |       |
| D      | 19.71       | 20.70 | 0.776  | 0.815 | 3     |
| D1     | 13.08       | -     | 0.515  | -     | 4     |

| SYMBOL | MILLIMETERS |       | INCHES    |       | NOTES |
|--------|-------------|-------|-----------|-------|-------|
|        | MIN.        | MAX.  | MIN.      | MAX.  |       |
| D2     | 0.51        | 1.35  | 0.020     | 0.053 |       |
| E      | 15.29       | 15.87 | 0.602     | 0.625 | 3     |
| E1     | 13.46       | -     | 0.53      | -     |       |
| e      | 5.46 BSC    |       | 0.215 BSC |       |       |
| Ø K    | 0.254       |       | 0.010     |       |       |
| L      | 14.20       | 16.10 | 0.559     | 0.634 |       |
| L1     | 3.71        | 4.29  | 0.146     | 0.169 |       |
| Ø P    | 3.56        | 3.66  | 0.14      | 0.144 |       |
| Ø P1   | -           | 7.39  | -         | 0.291 |       |
| Q      | 5.31        | 5.69  | 0.209     | 0.224 |       |
| R      | 4.52        | 5.49  | 0.178     | 0.216 |       |
| S      | 5.51 BSC    |       | 0.217 BSC |       |       |

## Notes

- Dimensioning and tolerance per ASME Y14.5M-1994
- Contour of slot optional
- Dimension D and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outermost extremes of the plastic body
- Thermal pad contour optional with dimensions D1 and E1
- Lead finish uncontrolled in L1
- Ø P to have a maximum draft angle of 1.5 to the top of the part with a maximum hole diameter of 3.91 mm (0.154")
- Outline conforms to JEDEC® outline TO-247 with exception of dimension c and Q



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