

# RKZ-KU Series

## Silicon Planar Zener Diode for Stabilized Power Supply

REJ03G1771-0100

Rev.1.00

Jul 13, 2009

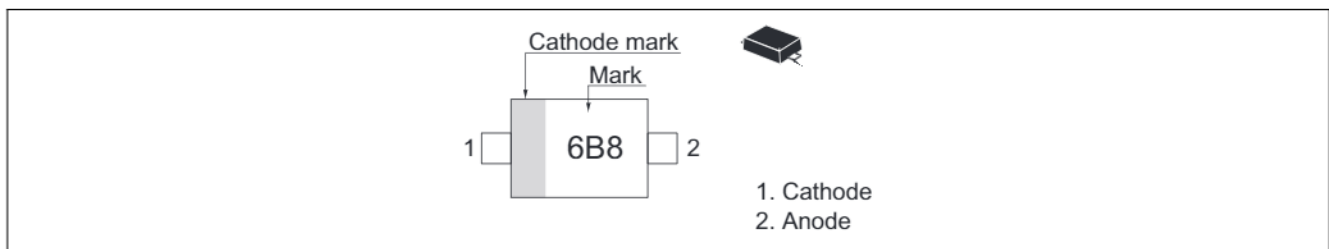
### Features

- Small outline yet high-power permitting 500 mW power dissipation.
- Halogen free, Environmental friendly Package includes Conformity to RoHS Directive.
- Thin Ultra small Resin Package (TURP-FM) is suitable for high density surface mounting and high speed assembly.

### Ordering Information

| Part No.                           | Laser Mark       | Package Name | Package Code | Taping Abbreviation (Quantity)               |
|------------------------------------|------------------|--------------|--------------|----------------------------------------------|
| RKZ-KU Series P<br>RKZ-KU Series R | Let to Mark Code | TURP-FM      | PUSF0002ZD-A | P (4,000 pcs / reel)<br>R (8,000 pcs / reel) |

### Pin Arrangement



### Absolute Maximum Ratings

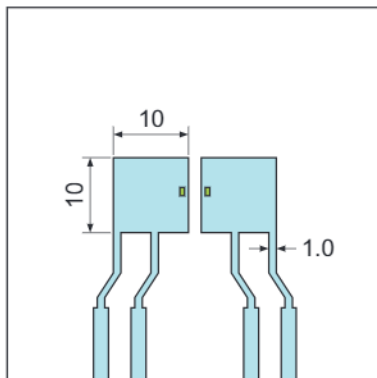
(Ta = 25°C)

| Item                 | Symbol | Value       | Unit |
|----------------------|--------|-------------|------|
| Power dissipation    | Pd     | 500         | mW   |
| Junction temperature | Tj     | 150         | °C   |
| Storage temperature  | Tstg   | -55 to +150 | °C   |

Notes: 1. Device mounted on glass-epoxy board (50 × 50 mm, t = 1.6 mm)

2. Solder land (10 × 10 mm)

50h × 50w × 1.6t (mm)



## Electrical Characteristics

(Ta = 25°C)

| Part No.  | Zener Voltage                     |       |                     | Reverse Current     |                    | Dynamic Resistance |                      | ESD-Capability      |
|-----------|-----------------------------------|-------|---------------------|---------------------|--------------------|--------------------|----------------------|---------------------|
|           | V <sub>Z</sub> (V) * <sup>1</sup> |       | Test Condition      | I <sub>R</sub> (μA) | Test Condition     | r <sub>d</sub> (Ω) | Test Condition       | (kV) * <sup>2</sup> |
|           | Min                               | Max   | I <sub>Z</sub> (mA) | Max                 | V <sub>R</sub> (V) | Max                | I <sub>ZT</sub> (mA) | Min                 |
| RKZ2.4AKU | 2.33                              | 2.52  | 20                  | 120                 | 1                  | 100                | 20                   | 30                  |
| RKZ2.4BKU | 2.43                              | 2.63  |                     |                     |                    |                    |                      |                     |
| RKZ2.7AKU | 2.54                              | 2.75  | 20                  | 120                 | 1                  | 110                | 20                   | 30                  |
| RKZ2.7BKU | 2.69                              | 2.91  |                     |                     |                    |                    |                      |                     |
| RKZ3.0AKU | 2.85                              | 3.07  | 20                  | 50                  | 1                  | 120                | 20                   | 30                  |
| RKZ3.0BKU | 3.01                              | 3.22  |                     |                     |                    |                    |                      |                     |
| RKZ3.3AKU | 3.16                              | 3.38  | 20                  | 20                  | 1                  | 130                | 20                   | 30                  |
| RKZ3.3BKU | 3.32                              | 3.53  |                     |                     |                    |                    |                      |                     |
| RKZ3.6AKU | 3.45                              | 3.69  | 20                  | 10                  | 1                  | 130                | 20                   | 30                  |
| RKZ3.6BKU | 3.60                              | 3.84  |                     |                     |                    |                    |                      |                     |
| RKZ3.9AKU | 3.74                              | 4.01  | 20                  | 10                  | 1                  | 130                | 20                   | 30                  |
| RKZ3.9BKU | 3.89                              | 4.16  |                     |                     |                    |                    |                      |                     |
| RKZ4.3AKU | 4.04                              | 4.29  | 20                  | 10                  | 1                  | 130                | 20                   | 30                  |
| RKZ4.3BKU | 4.17                              | 4.43  |                     |                     |                    |                    |                      |                     |
| RKZ4.3CKU | 4.30                              | 4.57  | 20                  | 10                  | 1                  | 130                | 20                   | 30                  |
| RKZ4.7AKU | 4.44                              | 4.68  |                     |                     |                    |                    |                      |                     |
| RKZ4.7BKU | 4.55                              | 4.80  | 20                  | 10                  | 1                  | 130                | 20                   | 30                  |
| RKZ4.7CKU | 4.68                              | 4.93  |                     |                     |                    |                    |                      |                     |
| RKZ5.1AKU | 4.81                              | 5.07  | 20                  | 7.5                 | 2                  | 130                | 20                   | 30                  |
| RKZ5.1BKU | 4.94                              | 5.20  |                     |                     |                    |                    |                      |                     |
| RKZ5.1CKU | 5.09                              | 5.37  | 20                  | 7.5                 | 2                  | 80                 | 20                   | 30                  |
| RKZ5.6AKU | 5.28                              | 5.55  |                     |                     |                    |                    |                      |                     |
| RKZ5.6BKU | 5.45                              | 5.73  | 20                  | 7.5                 | 3                  | 50                 | 20                   | 30                  |
| RKZ5.6CKU | 5.61                              | 5.91  |                     |                     |                    |                    |                      |                     |
| RKZ6.2AKU | 5.78                              | 6.09  | 20                  | 7.5                 | 4                  | 30                 | 20                   | 30                  |
| RKZ6.2BKU | 5.96                              | 6.27  |                     |                     |                    |                    |                      |                     |
| RKZ6.2CKU | 6.12                              | 6.44  | 20                  | 7.5                 | 4                  | 30                 | 20                   | 30                  |
| RKZ6.8AKU | 6.29                              | 6.63  |                     |                     |                    |                    |                      |                     |
| RKZ6.8BKU | 6.49                              | 6.83  | 20                  | 7.5                 | 4                  | 30                 | 20                   | 30                  |
| RKZ6.8CKU | 6.66                              | 7.01  |                     |                     |                    |                    |                      |                     |
| RKZ7.5AKU | 6.85                              | 7.22  | 20                  | 7.5                 | 4                  | 30                 | 20                   | 30                  |
| RKZ7.5BKU | 7.07                              | 7.45  |                     |                     |                    |                    |                      |                     |
| RKZ7.5CKU | 7.29                              | 7.67  | 20                  | 7.5                 | 7.15               | 30                 | 20                   | 30                  |
| RKZ8.2AKU | 7.53                              | 7.92  |                     |                     | 7.39               |                    |                      |                     |
| RKZ8.2BKU | 7.78                              | 8.19  | 20                  | 7.5                 | 7.63               | 30                 | 20                   | 30                  |
| RKZ8.2CKU | 8.03                              | 8.45  |                     |                     | 7.88               |                    |                      |                     |
| RKZ9.1AKU | 8.29                              | 8.73  | 20                  | 7.5                 | 8.14               | 30                 | 20                   | 30                  |
| RKZ9.1BKU | 8.57                              | 9.01  |                     |                     | 8.39               |                    |                      |                     |
| RKZ9.1CKU | 8.83                              | 9.30  | 20                  | 7.5                 | 8.66               | 30                 | 20                   | 30                  |
| RKZ10AKU  | 9.12                              | 9.59  |                     |                     | 8.94               |                    |                      |                     |
| RKZ10BKU  | 9.41                              | 9.90  | 20                  | 7.5                 | 9.22               | 30                 | 20                   | 30                  |
| RKZ10CKU  | 9.70                              | 10.20 |                     |                     | 9.44               |                    |                      |                     |
| RKZ10DKU  | 9.94                              | 10.44 |                     |                     |                    |                    |                      |                     |

Notes: 1. Tested with pulse (P<sub>W</sub> = 40 ms)2. C = 150 pF, R = 330 Ω, Both forward and reverse direction 10 pulse  
Failure criterion ; According to IR spec

| Part No. | Zener Voltage                     |       | Reverse Current     |                | Dynamic Resistance |                | ESD-Capability      |    |
|----------|-----------------------------------|-------|---------------------|----------------|--------------------|----------------|---------------------|----|
|          | V <sub>Z</sub> (V) * <sup>1</sup> |       | I <sub>R</sub> (μA) | Test Condition | r <sub>d</sub> (Ω) | Test Condition | (kV) * <sup>2</sup> |    |
|          | Min                               | Max   |                     |                |                    |                |                     |    |
| RKZ11AKU | 10.18                             | 10.71 | 10                  | 0.07           | 9.67               | 30             | 10                  | 30 |
| RKZ11BKU | 10.50                             | 11.05 |                     |                | 9.98               |                |                     |    |
| RKZ11CKU | 10.82                             | 11.38 |                     |                | 10.28              |                |                     |    |
| RKZ12AKU | 11.13                             | 11.71 | 10                  | 0.07           | 10.6               | 35             | 10                  | 30 |
| RKZ12BKU | 11.44                             | 12.03 |                     |                | 10.9               |                |                     |    |
| RKZ12CKU | 11.74                             | 12.35 |                     |                | 11.2               |                |                     |    |
| RKZ13AKU | 12.11                             | 12.75 | 10                  | 0.07           | 11.5               | 35             | 10                  | 30 |
| RKZ13BKU | 12.55                             | 13.21 |                     |                | 11.9               |                |                     |    |
| RKZ13CKU | 12.99                             | 13.66 |                     |                | 12.3               |                |                     |    |
| RKZ15AKU | 13.44                             | 14.13 | 10                  | 0.07           | 12.8               | 40             | 10                  | 30 |
| RKZ15BKU | 13.89                             | 14.62 |                     |                | 13.2               |                |                     |    |
| RKZ15CKU | 14.35                             | 15.09 |                     |                | 13.6               |                |                     |    |
| RKZ16AKU | 14.80                             | 15.57 | 10                  | 0.07           | 14.1               | 40             | 10                  | 30 |
| RKZ16BKU | 15.25                             | 16.04 |                     |                | 14.5               |                |                     |    |
| RKZ16CKU | 15.69                             | 16.51 |                     |                | 14.9               |                |                     |    |
| RKZ18AKU | 16.22                             | 17.06 | 10                  | 0.07           | 15.4               | 45             | 10                  | 30 |
| RKZ18BKU | 16.82                             | 17.70 |                     |                | 16.0               |                |                     |    |
| RKZ18CKU | 17.42                             | 18.33 |                     |                | 16.5               |                |                     |    |
| RKZ20AKU | 18.05                             | 18.96 | 10                  | 0.07           | 17.1               | 50             | 10                  | 30 |
| RKZ20BKU | 18.63                             | 19.59 |                     |                | 17.7               |                |                     |    |
| RKZ20CKU | 19.23                             | 20.22 |                     |                | 18.3               |                |                     |    |
| RKZ20DKU | 19.72                             | 20.72 |                     |                | 18.7               |                |                     |    |
| RKZ22AKU | 20.15                             | 21.20 | 5                   | 0.07           | 19.1               | 55             | 5                   | 30 |
| RKZ22BKU | 20.64                             | 21.71 |                     |                | 19.6               |                |                     |    |
| RKZ22CKU | 21.08                             | 22.17 |                     |                | 20.0               |                |                     |    |
| RKZ22DKU | 21.52                             | 22.63 |                     |                | 20.4               |                |                     |    |
| RKZ24AKU | 22.05                             | 23.18 | 5                   | 0.07           | 20.9               | 60             | 5                   | 30 |
| RKZ24BKU | 22.61                             | 23.77 |                     |                | 21.5               |                |                     |    |
| RKZ24CKU | 23.12                             | 24.31 |                     |                | 22.0               |                |                     |    |
| RKZ24DKU | 23.63                             | 24.85 |                     |                | 22.4               |                |                     |    |
| RKZ27AKU | 24.26                             | 25.52 | 5                   | 0.07           | 23.0               | 70             | 5                   | 30 |
| RKZ27BKU | 24.97                             | 26.26 |                     |                | 23.7               |                |                     |    |
| RKZ27CKU | 25.63                             | 26.95 |                     |                | 24.3               |                |                     |    |
| RKZ27DKU | 26.29                             | 27.64 |                     |                | 25.0               |                |                     |    |
| RKZ30AKU | 26.99                             | 28.39 | 5                   | 0.07           | 25.6               | 80             | 5                   | 30 |
| RKZ30BKU | 27.70                             | 29.13 |                     |                | 26.0               |                |                     |    |
| RKZ30CKU | 28.36                             | 29.82 |                     |                | 26.9               |                |                     |    |
| RKZ30DKU | 29.02                             | 30.51 |                     |                | 27.6               |                |                     |    |
| RKZ33AKU | 29.68                             | 31.22 | 5                   | 0.07           | 28.2               | 80             | 5                   | 25 |
| RKZ33BKU | 30.32                             | 31.88 |                     |                | 28.8               |                |                     |    |
| RKZ33CKU | 30.90                             | 32.50 |                     |                | 29.4               |                |                     |    |
| RKZ33DKU | 31.49                             | 33.11 |                     |                | 29.9               |                |                     |    |
| RKZ36AKU | 32.14                             | 33.79 | 5                   | 0.07           | 30.5               | 90             | 5                   | 20 |
| RKZ36BKU | 32.79                             | 34.49 |                     |                | 31.2               |                |                     |    |
| RKZ36CKU | 33.40                             | 35.13 |                     |                | 31.7               |                |                     |    |
| RKZ36DKU | 34.01                             | 35.77 |                     |                | 32.3               |                |                     |    |

Notes: 1. Tested with pulse (P<sub>W</sub> = 40 ms)2. C = 150 pF, R = 330 Ω, Both forward and reverse direction 10 pulse  
Failure criterion ; According to IR spec

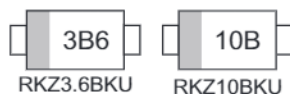
**Mark Code**

| Part No.  | Mark No. |
|-----------|----------|
| RKZ2.4AKU | 2A4      |
| RKZ2.4BKU | 2B4      |
| RKZ2.7AKU | 2A7      |
| RKZ2.7BKU | 2B7      |
| RKZ3.0AKU | 3A0      |
| RKZ3.0BKU | 3B0      |
| RKZ3.3AKU | 3A3      |
| RKZ3.3BKU | 3B3      |
| RKZ3.6AKU | 3A6      |
| RKZ3.6BKU | 3B6      |
| RKZ3.9AKU | 3A9      |
| RKZ3.9BKU | 3B9      |
| RKZ4.3AKU | 4A3      |
| RKZ4.3BKU | 4B3      |
| RKZ4.3CKU | 4C3      |
| RKZ4.7AKU | 4A7      |
| RKZ4.7BKU | 4B7      |
| RKZ4.7CKU | 4C7      |
| RKZ5.1AKU | 5A1      |
| RKZ5.1BKU | 5B1      |
| RKZ5.1CKU | 5C1      |
| RKZ5.6AKU | 5A6      |
| RKZ5.6BKU | 5B6      |
| RKZ5.6CKU | 5C6      |
| RKZ6.2AKU | 6A2      |
| RKZ6.2BKU | 6B2      |
| RKZ6.2CKU | 6C2      |
| RKZ6.8AKU | 6A8      |
| RKZ6.8BKU | 6B8      |
| RKZ6.8CKU | 6C8      |
| RKZ7.5AKU | 7A5      |
| RKZ7.5BKU | 7B5      |
| RKZ7.5CKU | 7C5      |

| Part No.  | Mark No. |
|-----------|----------|
| RKZ8.2AKU | 8A2      |
| RKZ8.2BKU | 8B2      |
| RKZ8.2CKU | 8C2      |
| RKZ9.1AKU | 9A1      |
| RKZ9.1BKU | 9B1      |
| RKZ9.1CKU | 9C1      |
| RKZ10AKU  | 10A      |
| RKZ10BKU  | 10B      |
| RKZ10CKU  | 10C      |
| RKZ10DKU  | 10D      |
| RKZ11AKU  | 11A      |
| RKZ11BKU  | 11B      |
| RKZ11CKU  | 11C      |
| RKZ12AKU  | 12A      |
| RKZ12BKU  | 12B      |
| RKZ12CKU  | 12C      |
| RKZ13AKU  | 13A      |
| RKZ13BKU  | 13B      |
| RKZ13CKU  | 13C      |
| RKZ15AKU  | 15A      |
| RKZ15BKU  | 15B      |
| RKZ15CKU  | 15C      |
| RKZ16AKU  | 16A      |
| RKZ16BKU  | 16B      |
| RKZ16CKU  | 16C      |
| RKZ18AKU  | 18A      |
| RKZ18BKU  | 18B      |
| RKZ18CKU  | 18C      |
| RKZ20AKU  | 20A      |
| RKZ20BKU  | 20B      |
| RKZ20CKU  | 20C      |
| RKZ20DKU  | 20D      |

| Part No. | Mark No. |
|----------|----------|
| RKZ22AKU | 22A      |
| RKZ22BKU | 22B      |
| RKZ22CKU | 22C      |
| RKZ22DKU | 22D      |
| RKZ24AKU | 24A      |
| RKZ24BKU | 24B      |
| RKZ24CKU | 24C      |
| RKZ24DKU | 24D      |
| RKZ27AKU | 27A      |
| RKZ27BKU | 27B      |
| RKZ27CKU | 27C      |
| RKZ27DKU | 27D      |
| RKZ30AKU | 30A      |
| RKZ30BKU | 30B      |
| RKZ30CKU | 30C      |
| RKZ30DKU | 30D      |
| RKZ33AKU | 33A      |
| RKZ33BKU | 33B      |
| RKZ33CKU | 33C      |
| RKZ33DKU | 33D      |
| RKZ36AKU | 36A      |
| RKZ36BKU | 36B      |
| RKZ36CKU | 36C      |
| RKZ36DKU | 36D      |

Note: 1. Example of Marking



## Main Characteristics

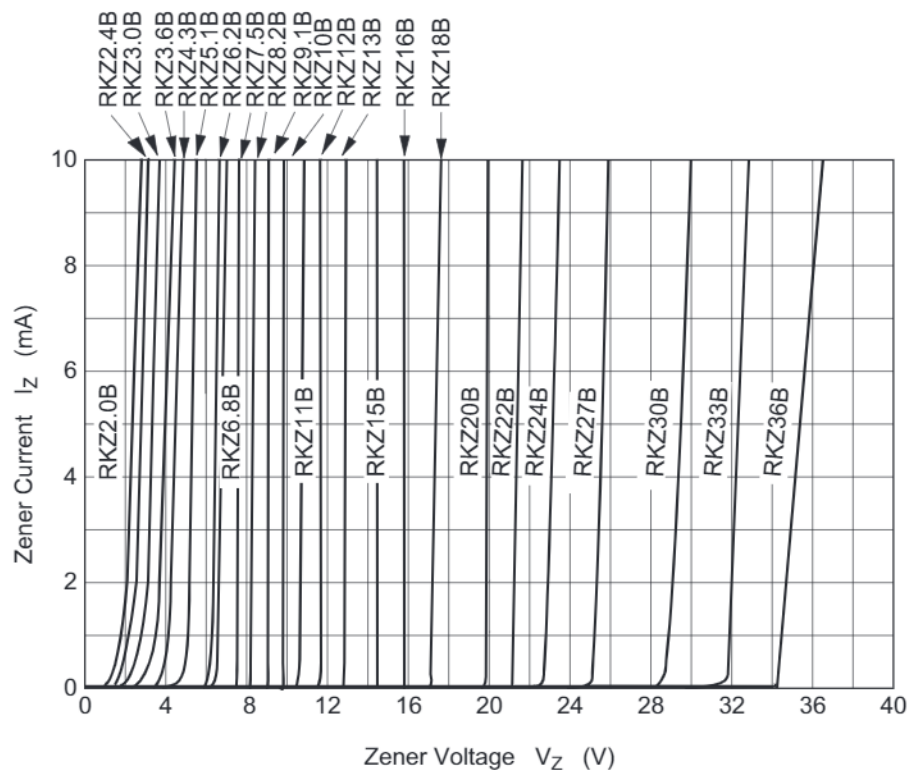


Fig.1 Zener current vs. Zener voltage

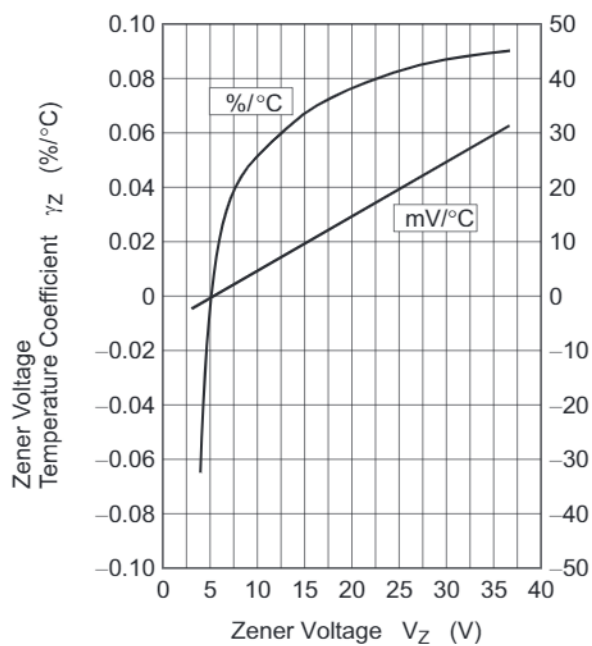


Fig.2 Temperature Coefficient vs. Zener voltage

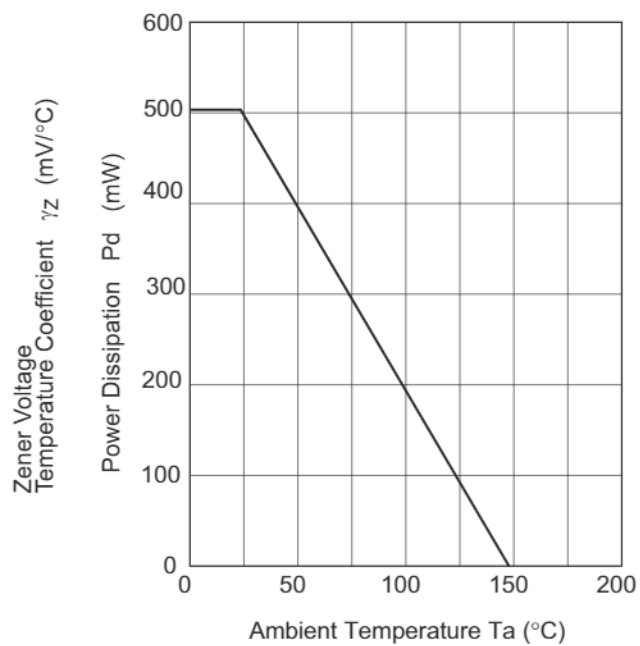
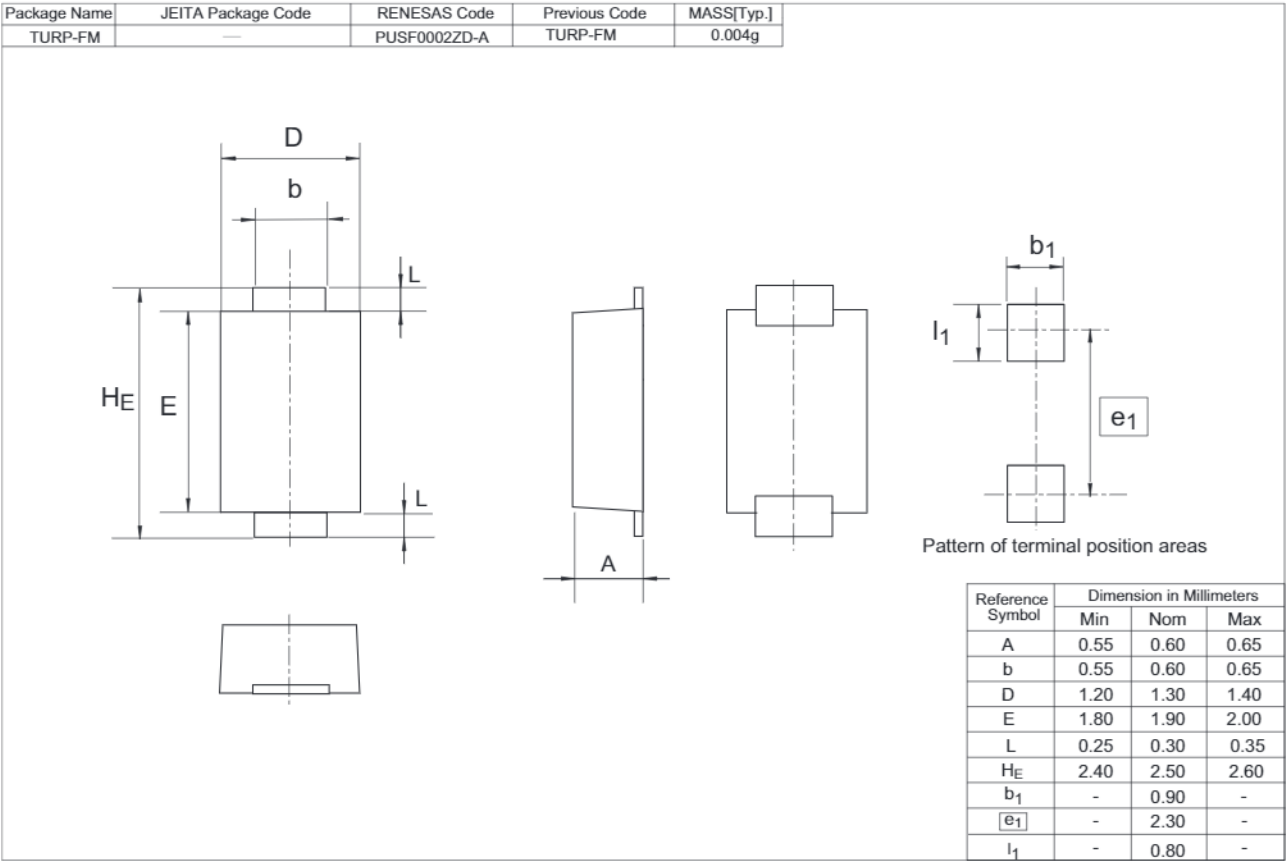


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions



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