

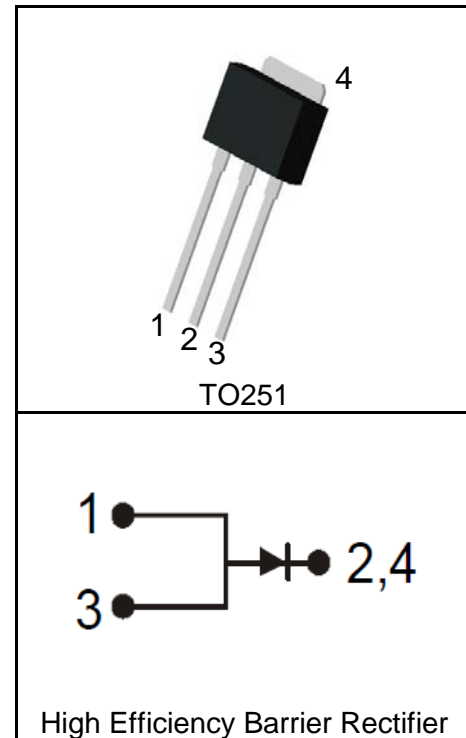
Features

- $V_{RRM} = 45V$
 $I_{F(AV)} = 10A$
- HEBR[®] Technology
- Ultra-Low Forward Voltage Drop
- Low Power Loss and High Efficiency
- High Surge Capability
- Low Leakage Current
- Lead Free and Green Devices Available

Applications

- Rectifiers in SMPS
- Free Wheeling Diode
- DC-DC Converters

Pin Description



Absolute Maximum Ratings

| Symbol | Parameter | Rating | Unit |
|--|--|------------|--------------|
| Common Ratings ($T_C = 25^\circ C$ Unless Otherwise Noted) | | | |
| $V_{RRM}^{①}$ | Maximum Repetitive Reverse Voltage | 45 | V |
| $V_R^{①}$ | Maximum DC Reverse Voltage | 45 | V |
| $V_{R(RMS)}^{①}$ | RMS Reverse Voltage | 32 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current, $T_C = 130^\circ C$ | 10 | A |
| I_{FSM} | Peak Forward Surge Current, 8.3ms Half Sine Wave | 150 | A |
| T_{STG} | Storage Temperature Range | -55 to 150 | $^\circ C$ |
| T_J | Operating Junction Temperature Range | -55 to 150 | $^\circ C$ |
| Mounted on Large Heat Sink | | | |
| $R_{\theta JC}$ | Thermal Resistance-Junction to Case | 2 | $^\circ C/W$ |
| $R_{\theta JA}$ | Thermal Resistance-Junction to Ambient | 100 | $^\circ C/W$ |

Electrical Characteristics ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)

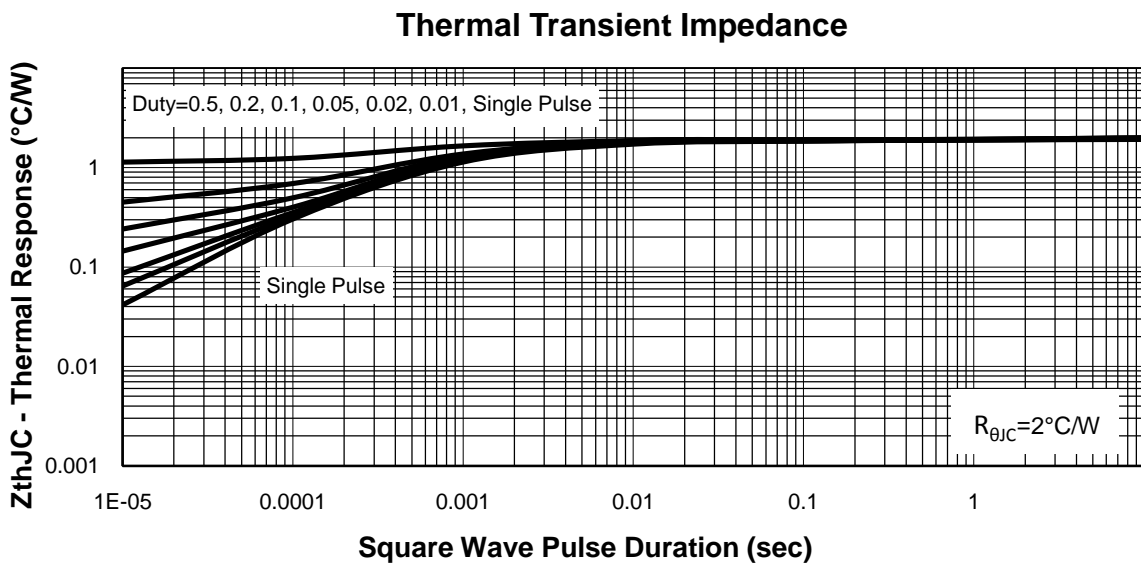
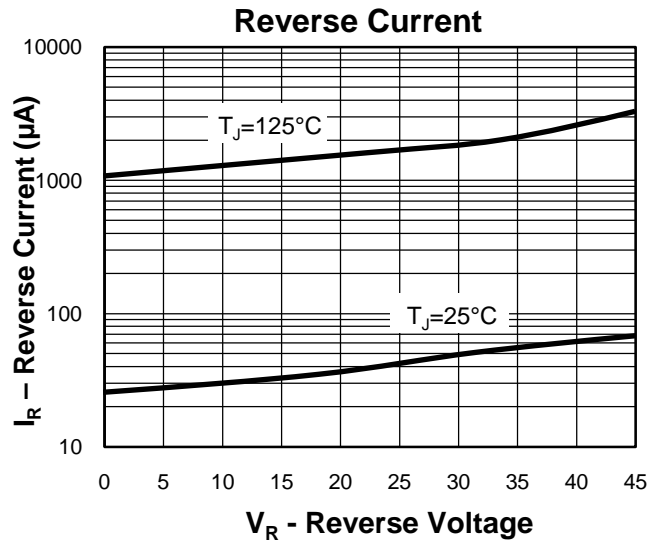
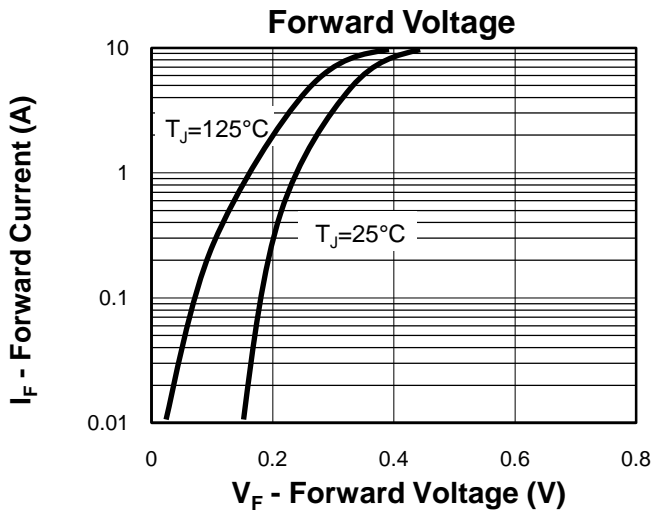
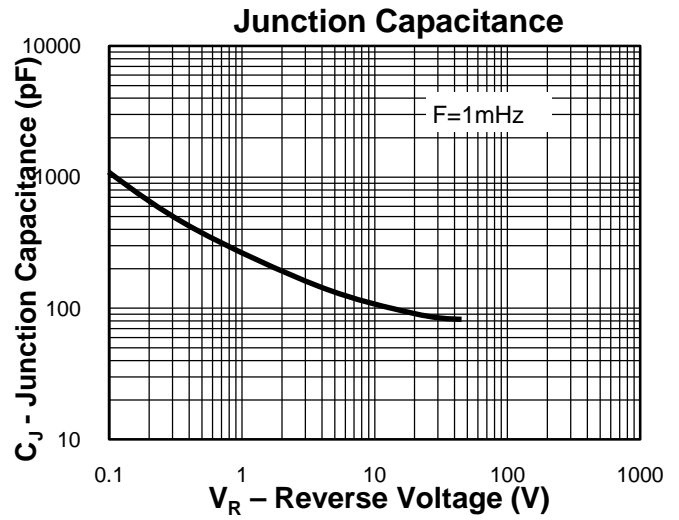
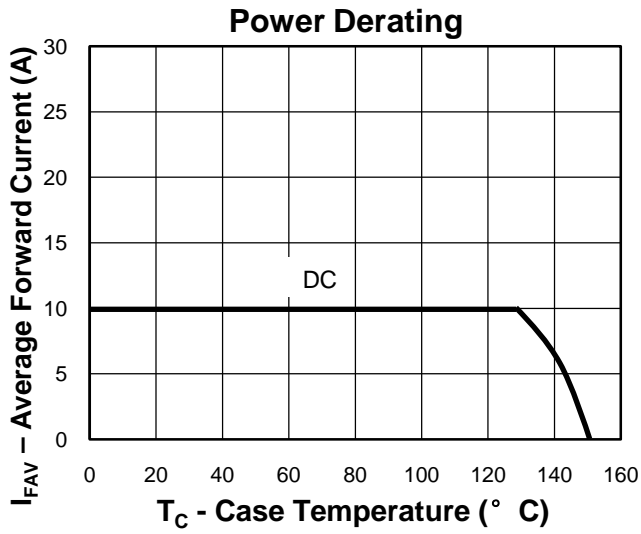
| Symbol | Parameter | Test Condition | RUS4510K | | | Unit |
|-------------------------------|---------------------------|---|----------|------|------|---------------|
| | | | Min. | Typ. | Max. | |
| Static Characteristics | | | | | | |
| $V_{(BR)R}^{②}$ | Reverse Breakdown Voltage | $I_R=300\mu\text{A}$ | 45 | | | V |
| $I_R^{②}$ | Reverse Leakage Current | $V_R=45\text{V}, T_C=25^\circ\text{C}$ | | | 300 | μA |
| | | $V_R=45\text{V}, T_C=125^\circ\text{C}$ | | | 5 | mA |
| $V_F^{②}$ | Forward Voltage Drop | $I_F=2\text{A}, T_C=25^\circ\text{C}$ | | 0.3 | 0.33 | V |
| | | $I_F=5\text{A}, T_C=25^\circ\text{C}$ | | 0.36 | 0.4 | V |
| | | $I_F=10\text{A}, T_C=25^\circ\text{C}$ | | 0.42 | 0.48 | V |
| | | $I_F=10\text{A}, T_C=125^\circ\text{C}$ | | 0.37 | 0.43 | V |

- Notes: ① For $T_A > 25^\circ\text{C}$ the derating of V_R and I_F has to be considered.
 ② Pulse test, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

Ordering and Marking Information

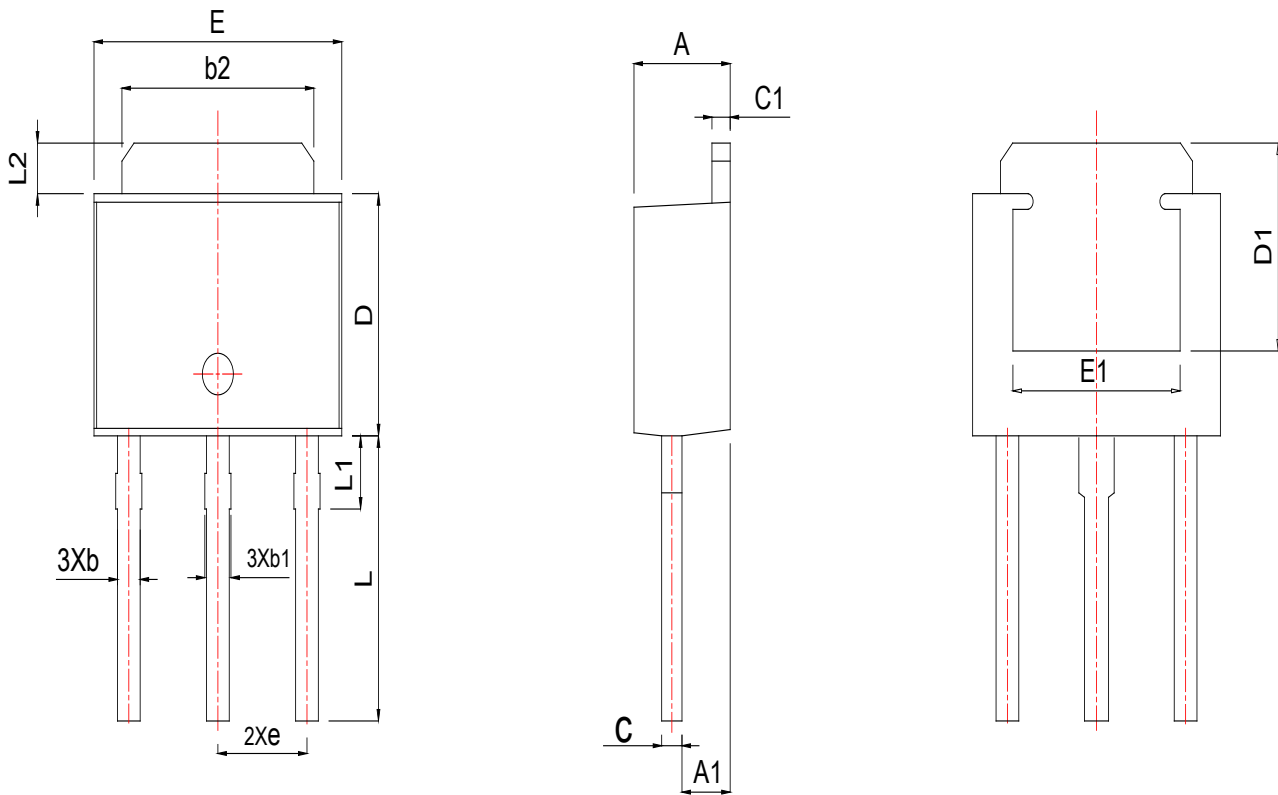
| Device | Marking | Package | Packaging | Quantity | Reel Size | Tape width |
|---------------|----------------|----------------|------------------|-----------------|------------------|-------------------|
| RUS4510K | RUS4510K | TO251 | Tube | 75 | - | - |

Typical Characteristics



Package Information

TO251



| SYMBOL | MM | | | INCH | | |
|--------|-----------|-------|-------|-----------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 2.220 | 2.320 | 2.420 | 0.087 | 0.091 | 0.095 |
| A1 | 0.890 | 1.015 | 1.140 | 0.035 | 0.040 | 0.045 |
| b | 0.550 | 0.610 | 0.670 | 0.022 | 0.024 | 0.026 |
| b1 | 0.760 | 0.860 | 0.960 | 0.030 | 0.034 | 0.038 |
| b2 | 5.200 | 5.300 | 5.400 | 0.205 | 0.209 | 0.213 |
| c | 0.460 | 0.515 | 0.570 | 0.018 | 0.020 | 0.022 |
| c1 | 0.450 | 0.500 | 0.550 | 0.018 | 0.020 | 0.022 |
| D | 5.950 | 6.100 | 6.250 | 0.234 | 0.240 | 0.246 |
| D1 | 4.200 | 4.350 | 4.500 | 0.165 | 0.171 | 0.177 |
| E | 6.400 | 6.550 | 6.700 | 0.252 | 0.258 | 0.264 |
| E1 | 4.750 | 4.800 | 4.850 | 0.187 | 0.189 | 0.191 |
| e | 2.280 REF | | | 0.090 REF | | |
| L | 8.900 | 9.200 | 9.500 | 0.350 | 0.362 | 0.374 |
| L1 | 1.900 | 2.095 | 2.290 | 0.075 | 0.082 | 0.090 |
| L2 | 0.900 | 0.950 | 1.000 | 0.035 | 0.037 | 0.039 |

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