



P4KE SERIES

瞬变电压抑制二极管 Transient Voltage Suppressor Diodes

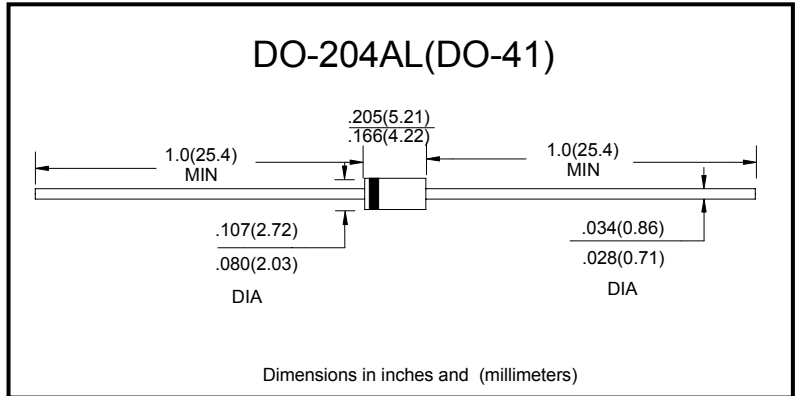
■特征 Features

- P_{PP} 400W
- V_{BR} 6.8V-540V

■用途 Applications

- 箝位电压用 Clamping Voltage

■外形尺寸和印记 Outline Dimensions and Mark



■极限值 (绝对最大额定值)

Limiting Values (Absolute Maximum Rating)

| 参数名称 Item | 符号 Symbol | 单位 Unit | 条件 Conditions | 最大值 Max |
|---|--------------|------------|--|-------------------------|
| 最大损耗功率 Peak power dissipation | PPPM | W | 在10/1000us 波形下测试 with a 10/1000us waveform | 400 |
| 最大脉冲电流 Peak pulse current | IPPM | A | 在10/1000us 波形下测试 with a 10/1000us waveform | 见下面表格 See Next Table |
| 功率损耗 Power dissipation | PD | W | 无限散热片@ TL=75°C on infinite heat sink at TL=75°C | 1.5 |
| 最大正向浪涌电流 Peak forward surge current | IFSM | A | 8.3ms 正弦半波, 仅单向型 8.3 ms single half sine-wave unidirectional only | 40 |
| 工作结温和存储温度范围 Operating junction and storage temperature range | TJ, TSTG | °C | | -55 to +175 |

■电特性 (Ta=25°C 除非另有规定)

Electrical Characteristics (Ta=25°C Unless otherwise specified)

| 参数名称 Item | 符号 Symbol | 单位 Unit | 条件 Conditions | 最大值 Max |
|---|-----------------|------------|--|------------|
| 最大瞬间正向电压 (1) Maximum instantaneous forward Voltage (1) | VF | V | 在25A下测试, 仅单向型 at 25A for unidirectional only | 3.5/5.0 |
| 典型热阻 Thermal resistance | $R_{\theta JL}$ | °C/W | 结到引线 junction to lead | 66 |
| | $R_{\theta JA}$ | °C/W | 结到环境, 均引线10mm处 junction to ambient, L _{Lead} = 10 mm | 100 |

备注: Notes:

1. VF=3.5V适用于P4KE220(A)及其以下型号; VF=5.0V适用于P4KE250(A)及其以上型号

VF = 3.5 V for P4KE220(A) and below; VF = 5.0 V for P4KE250(A) and above



■电性参数 (T_A=25℃ 除非另有规定)

Electrical Characteristics (T_A=25℃ unless otherwise noted)

| 产品型号 (单向) Part Number(Uni) | 产品型号 (双向) Part Number(Bi) | 击穿电压 V _{BR} @I _T Breakdown Voltage V _{BR} @I _T | | | 最大反向漏电流 I _R Maximum Reverse Leakage I _R @ V _{WM} (μA) | 最大工作电压 V _{RWM} Working Peak Reverse Voltage V _{RWM} (V) | 最大反向浪涌 电流 IPP Maximum Reverse Surge Current IPP (A) | 最大箝位电压 Maximum Clamping Voltage V _c @ I _{PP} (V) | 最大温度系数 Maximum Temperature Coefficient of V _{BR} (%/°C) |
|-------------------------------------|------------------------------------|---|---------------|---------------------------------|--|--|--|---|--|
| | | 最小 Min(V) | 最大 Max (V) | 测试电 流 I _T (mA) | | | | | |
| P4KE6.8 | P4KE6.8C | 6.12 | 7.48 | 10 | 1000 | 5.5 | 37 | 10.8 | 0.057 |
| P4KE6.8A | P4KE6.8CA | 6.45 | 7.14 | 10 | 1000 | 5.8 | 38.1 | 10.5 | 0.057 |
| P4KE7.5 | P4KE7.5C | 6.75 | 8.25 | 10 | 500 | 6.05 | 34.2 | 11.7 | 0.061 |
| P4KE7.5A | P4KE7.5CA | 7.13 | 7.88 | 10 | 500 | 6.4 | 35.4 | 11.3 | 0.061 |
| P4KE8.2 | P4KE8.2C | 7.38 | 9.02 | 10 | 200 | 6.63 | 32 | 12.5 | 0.065 |
| P4KE8.2A | P4KE8.2CA | 7.79 | 8.61 | 10 | 200 | 7.02 | 33.1 | 12.1 | 0.060 |
| P4KE9.1 | P4KE9.1C | 8.19 | 10 | 1 | 50 | 7.37 | 29 | 13.8 | 0.068 |
| P4KE9.1A | P4KE9.1CA | 8.65 | 9.55 | 1 | 50 | 7.78 | 29.9 | 13.4 | 0.068 |
| P4KE10 | P4KE10C | 9 | 11 | 1 | 10 | 8.1 | 26.7 | 15 | 0.073 |
| P4KE10A | P4KE10CA | 9.5 | 10.5 | 1 | 10 | 8.55 | 27.6 | 14.5 | 0.073 |
| P4KE11 | P4KE11C | 9.9 | 12.1 | 1 | 5 | 8.92 | 24.7 | 16.2 | 0.075 |
| P4KE11A | P4KE11CA | 10.5 | 11.6 | 1 | 5 | 9.4 | 25.6 | 15.6 | 0.075 |
| P4KE12 | P4KE12C | 10.8 | 13.2 | 1 | 1 | 9.72 | 23.1 | 17.3 | 0.076 |
| P4KE12A | P4KE12CA | 11.4 | 12.6 | 1 | 1 | 10.2 | 24 | 16.7 | 0.078 |
| P4KE13 | P4KE13C | 11.7 | 14.3 | 1 | 1 | 10.5 | 21.1 | 19 | 0.081 |
| P4KE13A | P4KE13CA | 12.4 | 13.7 | 1 | 1 | 11.1 | 22 | 18.2 | 0.081 |
| P4KE15 | P4KE15C | 13.5 | 16.5 | 1 | 1 | 12.1 | 18.2 | 22 | 0.084 |
| P4KE15A | P4KE15CA | 14.3 | 15.8 | 1 | 1 | 12.8 | 18.9 | 21.2 | 0.084 |
| P4KE16 | P4KE16C | 14.4 | 17.6 | 1 | 1 | 12.9 | 17 | 23.5 | 0.086 |
| P4KE16A | P4KE16CA | 15.2 | 16.8 | 1 | 1 | 13.6 | 17.8 | 22.5 | 0.086 |
| P4KE18 | P4KE18C | 16.2 | 19.8 | 1 | 1 | 14.5 | 15.1 | 26.5 | 0.088 |
| P4KE18A | P4KE18CA | 17.1 | 18.9 | 1 | 1 | 15.3 | 15.9 | 25.2 | 0.088 |
| P4KE20 | P4KE20C | 18 | 22 | 1 | 1 | 16.2 | 13.7 | 29.1 | 0.090 |
| P4KE20A | P4KE20CA | 19 | 21 | 1 | 1 | 17.1 | 14.4 | 27.7 | 0.090 |
| P4KE22 | P4KE22C | 19.8 | 24.2 | 1 | 1 | 17.8 | 12.5 | 31.9 | 0.092 |
| P4KE22A | P4KE22CA | 20.9 | 23.1 | 1 | 1 | 18.8 | 13.1 | 30.6 | 0.092 |
| P4KE24 | P4KE24C | 21.6 | 26.4 | 1 | 1 | 19.4 | 11.5 | 34.7 | 0.094 |
| P4KE24A | P4KE24CA | 22.8 | 25.2 | 1 | 1 | 20.5 | 12 | 33.2 | 0.094 |
| P4KE27 | P4KE27C | 24.3 | 29.7 | 1 | 1 | 21.8 | 10.2 | 39.1 | 0.096 |
| P4KE27A | P4KE27CA | 25.7 | 28.4 | 1 | 1 | 23.1 | 10.7 | 37.5 | 0.096 |
| P4KE30 | P4KE30C | 27 | 33 | 1 | 1 | 24.3 | 9.2 | 43.5 | 0.097 |
| P4KE30A | P4KE30CA | 28.5 | 31.5 | 1 | 1 | 25.6 | 9.7 | 41.4 | 0.097 |
| P4KE33 | P4KE33C | 29.7 | 36.3 | 1 | 1 | 26.8 | 8.4 | 47.7 | 0.098 |
| P4KE33A | P4KE33CA | 31.4 | 34.7 | 1 | 1 | 28.2 | 8.8 | 45.7 | 0.098 |
| P4KE36 | P4KE36C | 32.4 | 39.6 | 1 | 1 | 29.1 | 7.7 | 52 | 0.099 |
| P4KE36A | P4KE36CA | 34.2 | 37.8 | 1 | 1 | 30.8 | 8 | 49.9 | 0.099 |



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Electrical Characteristics (TA=25℃ unless otherwise noted)

| 产品型号 (单向) Part Number(Uni) | 产品型号 (双向) Part Number(Bi) | 击穿电压 $V_{BR@I_T}$ Breakdown Voltage $V_{BR@I_T}$ | | | 最大反向漏电流 I_R Maximum Reverse Leakage $I_R @$ $V_{RWM} (\mu A)$ | 最大工作电压 V_{RWM} Working Peak Reverse Voltage $V_{RWM} (V)$ | 最大反向浪涌 电流 IPP Maximum Reverse Surge Current IPP (A) | 最大箝位电压 Maximum Clamping Voltage V_c @ I_{PP} (V) | 最大温度系数 Maximum Temperature Coefficient of V_{BR} (%/°C) |
|-------------------------------------|------------------------------------|---|---------------|--------------------|---|--|--|---|---|
| | | 最小 Min(V) | 最大 Max (V) | 测试电 流 IT(mA) | | | | | |
| P4KE39 | P4KE39C | 35.1 | 42.9 | 1 | 1 | 31.6 | 7.1 | 56.4 | 0.100 |
| P4KE39A | P4KE39CA | 37.1 | 41 | 1 | 1 | 33.3 | 7.4 | 53.9 | 0.100 |
| P4KE43 | P4KE43C | 38.7 | 47.3 | 1 | 1 | 34.8 | 6.5 | 61.9 | 0.101 |
| P4KE43A | P4KE43CA | 40.9 | 45.2 | 1 | 1 | 36.8 | 6.7 | 59.3 | 0.101 |
| P4KE47 | P4KE47C | 42.3 | 51.7 | 1 | 1 | 38.1 | 5.9 | 67.8 | 0.101 |
| P4KE47A | P4KE47CA | 44.7 | 49.4 | 1 | 1 | 40.2 | 6.2 | 64.8 | 0.101 |
| P4KE51 | P4KE51C | 45.9 | 56.1 | 1 | 1 | 41.3 | 5.4 | 73.5 | 0.102 |
| P4KE51A | P4KE51CA | 48.5 | 53.6 | 1 | 1 | 43.6 | 5.7 | 70.1 | 0.102 |
| P4KE56 | P4KE56C | 50.4 | 61.6 | 1 | 1 | 45.4 | 5 | 80.5 | 0.103 |
| P4KE56A | P4KE56CA | 53.2 | 58.8 | 1 | 1 | 47.8 | 5.2 | 77 | 0.103 |
| P4KE62 | P4KE62C | 55.8 | 68.2 | 1 | 1 | 50.2 | 4.5 | 89 | 0.104 |
| P4KE62A | P4KE62CA | 58.9 | 65.1 | 1 | 1 | 53 | 4.7 | 85 | 0.104 |
| P4KE68 | P4KE68C | 61.2 | 74.8 | 1 | 1 | 55.1 | 4.1 | 98 | 0.104 |
| P4KE68A | P4KE68CA | 64.6 | 71.4 | 1 | 1 | 58.1 | 4.3 | 92 | 0.104 |
| P4KE75 | P4KE75C | 67.5 | 82.5 | 1 | 1 | 60.7 | 3.7 | 108 | 0.105 |
| P4KE75A | P4KE75CA | 71.3 | 78.8 | 1 | 1 | 64.1 | 3.9 | 103 | 0.105 |
| P4KE82 | P4KE82C | 73.8 | 90.2 | 1 | 1 | 66.4 | 3.4 | 118 | 0.105 |
| P4KE82A | P4KE82CA | 77.9 | 86.1 | 1 | 1 | 70.1 | 3.5 | 113 | 0.105 |
| P4KE91 | P4KE91C | 81.9 | 100 | 1 | 1 | 73.7 | 3.1 | 131 | 0.106 |
| P4KE91A | P4KE91CA | 86.5 | 95.5 | 1 | 1 | 77.8 | 3.2 | 125 | 0.106 |
| P4KE100 | P4KE100C | 90 | 110 | 1 | 1 | 81 | 2.8 | 144 | 0.106 |
| P4KE100A | P4KE100CA | 95 | 105 | 1 | 1 | 85.5 | 2.9 | 137 | 0.106 |
| P4KE110 | P4KE110C | 99 | 121 | 1 | 1 | 89.2 | 2.5 | 158 | 0.107 |
| P4KE110A | P4KE110CA | 105 | 116 | 1 | 1 | 94 | 2.6 | 152 | 0.107 |
| P4KE120 | P4KE120C | 108 | 132 | 1 | 1 | 97.2 | 2.3 | 173 | 0.107 |
| P4KE120A | P4KE120CA | 114 | 126 | 1 | 1 | 102 | 2.4 | 165 | 0.107 |
| P4KE130 | P4KE130C | 117 | 143 | 1 | 1 | 105 | 2.1 | 187 | 0.107 |
| P4KE130 | P4KE130CA | 124 | 137 | 1 | 1 | 111 | 2.2 | 179 | 0.107 |
| P4KE150 | P4KE150C | 135 | 165 | 1 | 1 | 121 | 1.9 | 215 | 0.108 |
| P4KE150A | P4KE150CA | 143 | 158 | 1 | 1 | 128 | 1.9 | 207 | 0.108 |
| P4KE160 | P4KE160C | 144 | 176 | 1 | 1 | 130 | 1.7 | 230 | 0.108 |
| P4KE160A | P4KE160CA | 152 | 168 | 1 | 1 | 136 | 1.8 | 219 | 0.108 |
| P4KE170 | P4KE170C | 153 | 187 | 1 | 1 | 138 | 1.6 | 244 | 0.108 |
| P4KE170A | P4KE170CA | 162 | 179 | 1 | 1 | 145 | 1.7 | 234 | 0.108 |
| P4KE180 | P4KE180C | 162 | 198 | 1 | 1 | 146 | 1.6 | 258 | 0.108 |
| P4KE180A | P4KE180CA | 171 | 189 | 1 | 1 | 154 | 1.6 | 246 | 0.108 |

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|-------------------------------------|------------------------------------|---|---------------|--------------------|--|--|--|---|---|
| | | 最小 Min(V) | 最大 Max (V) | 测试电 流 IT(mA) | | | | | |
| P4KE200 | P4KE200C | 180 | 220 | 1 | 1 | 162 | 1.4 | 287 | 0.108 |
| P4KE200A | P4KE200CA | 190 | 210 | 1 | 1 | 171 | 1.5 | 274 | 0.108 |
| P4KE220 | P4KE220C | 198 | 242 | 1 | 1 | 175 | 1.2 | 344 | 0.108 |
| P4KE220A | P4KE220CA | 209 | 231 | 1 | 1 | 185 | 1.2 | 328 | 0.108 |
| P4KE250 | P4KE250C | 225 | 275 | 1 | 1 | 202 | 1.1 | 360 | 0.110 |
| P4KE250A | P4KE250CA | 237 | 263 | 1 | 1 | 214 | 1.2 | 344 | 0.110 |
| P4KE300 | P4KE300C | 270 | 330 | 1 | 1 | 243 | 0.93 | 430 | 0.110 |
| P4KE300A | P4KE300CA | 285 | 315 | 1 | 1 | 256 | 1 | 414 | 0.110 |
| P4KE350 | P4KE350C | 315 | 385 | 1 | 1 | 284 | 0.79 | 504 | 0.110 |
| P4KE350A | P4KE350CA | 333 | 368 | 1 | 1 | 300 | 0.83 | 482 | 0.110 |
| P4KE400 | P4KE400C | 360 | 440 | 1 | 1 | 324 | 0.7 | 574 | 0.110 |
| P4KE400A | P4KE400CA | 380 | 420 | 1 | 1 | 342 | 0.73 | 548 | 0.110 |
| P4KE440 | P4KE440C | 396 | 484 | 1 | 1 | 356 | 0.63 | 631 | 0.110 |
| P4KE440A | P4KE440CA | 418 | 462 | 1 | 1 | 376 | 0.66 | 602 | 0.110 |
| P4KE480 | P4KE480C | 432 | 528 | 1 | 1 | 389 | 0.58 | 686 | 0.110 |
| P4KE480A | P4KE480CA | 456 | 504 | 1 | 1 | 408 | 0.61 | 658 | 0.110 |
| P4KE510 | P4KE510C | 459 | 561 | 1 | 1 | 413 | 0.55 | 729 | 0.110 |
| P4KE510A | P4KE510CA | 485 | 535 | 1 | 1 | 434 | 0.57 | 698 | 0.110 |
| P4KE540 | P4KE540C | 486 | 594 | 1 | 1 | 437 | 0.52 | 772 | 0.110 |
| P4KE540A | P4KE540CA | 513 | 567 | 1 | 1 | 459 | 0.54 | 740 | 0.110 |



■特性曲线 (典型) Characteristics(Typical)

图1: 最大脉冲功率曲线

FIG1: Peak Pulse Power Rating Curve

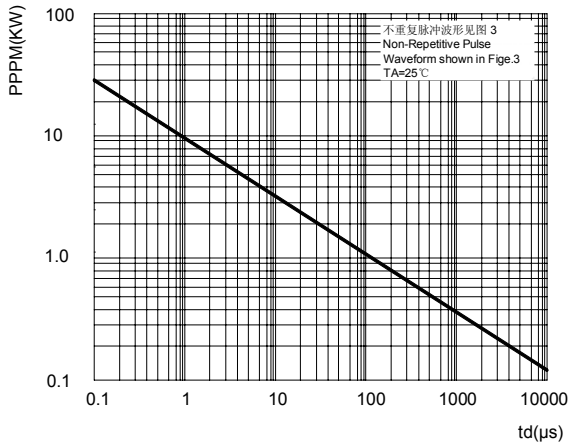


图2: 脉冲功率或电流与结温关系

FIG2: Pulse Power or Current vs. Initial Junction Temperature

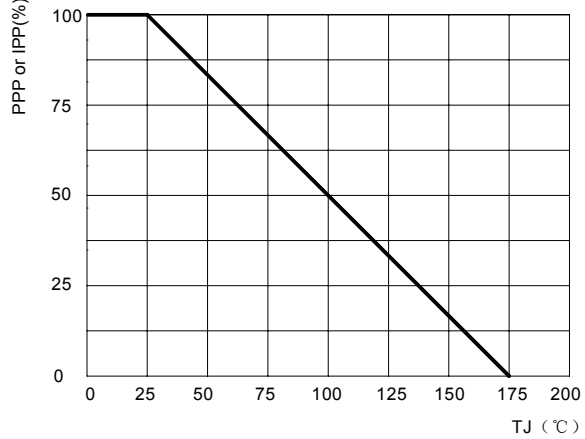


图3: 脉冲波形

FIG3: Pulse Waveform

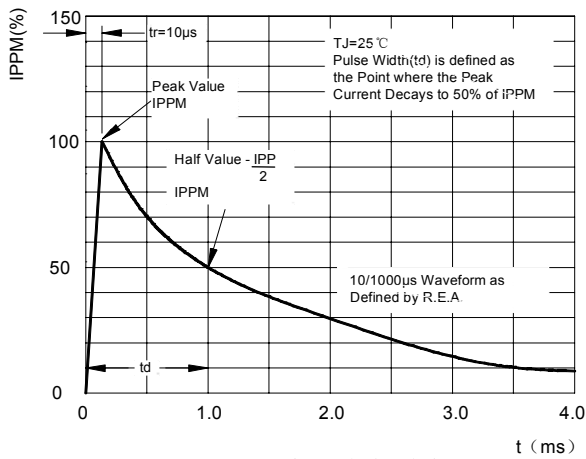


图4: 功率降额曲线

FIG4: Power Derating Curve

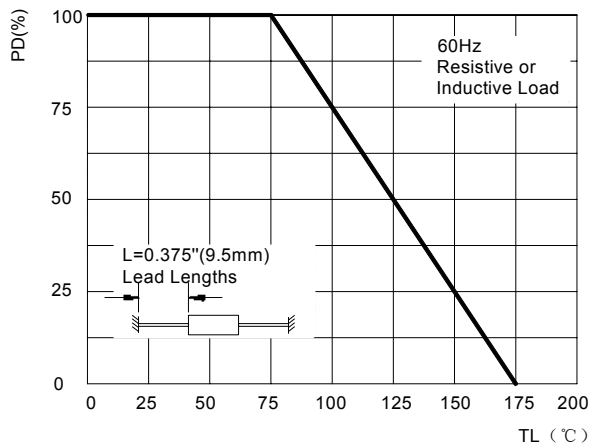


图5: 最大不重复浪涌电流

FIG5: Maximum Non-Repetitive Surge Current

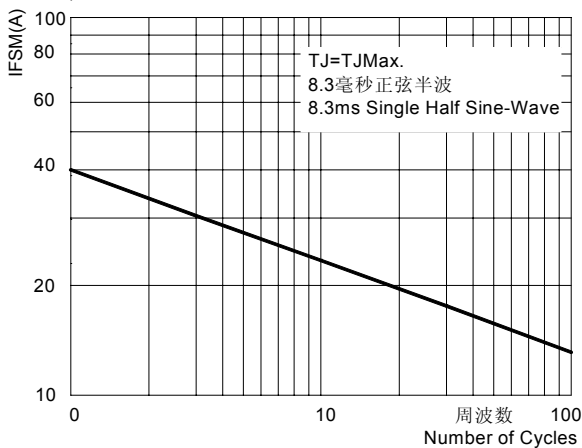


图6: 典型瞬态热阻

FIG6: Typical Transient Thermal Impedance

