

FEATURES

- | Plastic package
- | Glass passivated chip junction in DO-201 Package
- | 1500W peak pulse power capability on 10/1000us waveform
- | Excellent clamping capability
- | Low zener impedance
- | Fast response time: typically less than 1.0ps from 0 Volts to V_{BR} Min
- | Typical IR less than 1uA above 12V
- | Case: JEDEC DO-201 Molded Plastic
- | Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- | Polarity: Color band denoted cathode except bidirectional
- | Mounting Position: Any



DO-201



Bi-directional



Uni-directional

Schematic Symbol

APPROVALS

| | |
|-------------|------------------------------------|
| RoHS | Compliance with 2011/65/EU |
| HF | Compliance with IEC61249-2-21:2003 |

MAXIMUM RATINGS AND CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

| Parameter | Symbol | Value | Unit |
|---|-----------------|-------------|-----------------------------|
| Peak pulse power dissipation at 10/1000 μ s waveform | P_{PP} | 1500 | W |
| Steady state power dissipation at $T_L=75^{\circ}\text{C}$ | P_D | 6.5 | |
| Peak Pulse Current of on 10/1000us waveform(Note1) | I_{PPM} | See Table | A |
| Peak forward surge current, 8.3ms single half sine-wave for unidirectional only | I_{FSM} | 200 | |
| Typical thermal resistance, junction to ambient | $R_{\theta JA}$ | 75 | $^{\circ}\text{C}/\text{W}$ |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | $^{\circ}\text{C}$ |

ELECTRICAL CHARACTERISTICS (T_A=25°C)

| Part Number | | Marking Code | | V _R | V _{BR} @I _T | | I _T | V _C @I _{PP} | I _{PP} ^① | I _R @V _R |
|-------------|------------|--------------|------------|----------------|---------------------------------|---------|----------------|---------------------------------|------------------------------|--------------------------------|
| Uni-Polar | Bi-Polar | Uni-Polar | Bi-Polar | V | Min(V) | Max (V) | mA | V | A | Max(μA) |
| 1.5KE6.8A | 1.5KE6.8CA | 1.5KE6.8A | 1.5KE6.8CA | 5.8 | 6.45 | 7.14 | 10 | 10.5 | 145 | 1000 |
| 1.5KE7.5A | 1.5KE7.5CA | 1.5KE7.5A | 1.5KE7.5CA | 6.4 | 7.13 | 7.88 | 10 | 11.3 | 135 | 500 |
| 1.5KE8.2A | 1.5KE8.2CA | 1.5KE8.2A | 1.5KE8.2CA | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 126 | 200 |
| 1.5KE9.1A | 1.5KE9.1CA | 1.5KE9.1A | 1.5KE9.1CA | 7.78 | 8.65 | 9.5 | 1 | 13.4 | 113 | 50 |
| 1.5KE10A | 1.5KE10CA | 1.5KE10A | 1.5KE10CA | 8.55 | 9.5 | 10.3 | 1 | 14.5 | 105 | 10 |
| 1.5KE11A | 1.5KE11CA | 1.5KE11A | 1.5KE11CA | 9.4 | 10.5 | 11.6 | 1 | 15.6 | 97.4 | 5 |
| 1.5KE12A | 1.5KE12CA | 1.5KE12A | 1.5KE12CA | 10.2 | 11.4 | 12.6 | 1 | 16.7 | 91.0 | 5 |
| 1.5KE13A | 1.5KE13CA | 1.5KE13A | 1.5KE13CA | 11.1 | 12.4 | 13.7 | 1 | 18.2 | 83.5 | 1 |
| 1.5KE15A | 1.5KE15CA | 1.5KE15A | 1.5KE15CA | 12.8 | 14.3 | 15.8 | 1 | 21.2 | 71.7 | 1 |
| 1.5KE16A | 1.5KE16CA | 1.5KE16A | 1.5KE16CA | 13.6 | 15.2 | 16.8 | 1 | 22.5 | 67.6 | 1 |
| 1.5KE18A | 1.5KE18CA | 1.5KE18A | 1.5KE18CA | 15.3 | 17.1 | 18.9 | 1 | 25.2 | 60.3 | 1 |
| 1.5KE20A | 1.5KE20CA | 1.5KE20A | 1.5KE20CA | 17.1 | 19.0 | 21.0 | 1 | 27.7 | 54.9 | 1 |
| 1.5KE22A | 1.5KE22CA | 1.5KE22A | 1.5KE22CA | 18.8 | 20.9 | 23.1 | 1 | 30.6 | 49.7 | 1 |
| 1.5KE24A | 1.5KE24CA | 1.5KE24A | 1.5KE24CA | 20.5 | 22.8 | 25.2 | 1 | 33.2 | 45.8 | 1 |
| 1.5KE27A | 1.5KE27CA | 1.5KE27A | 1.5KE27CA | 23.1 | 25.7 | 28.4 | 1 | 37.5 | 40.5 | 1 |
| 1.5KE30A | 1.5KE30CA | 1.5KE30A | 1.5KE30CA | 25.6 | 28.5 | 31.5 | 1 | 41.4 | 36.7 | 1 |
| 1.5KE33A | 1.5KE33CA | 1.5KE33A | 1.5KE33CA | 28.2 | 31.4 | 34.7 | 1 | 45.7 | 33.3 | 1 |
| 1.5KE36A | 1.5KE36CA | 1.5KE36A | 1.5KE36CA | 30.8 | 34.2 | 37.8 | 1 | 49.9 | 30.5 | 1 |
| 1.5KE39A | 1.5KE39CA | 1.5KE39A | 1.5KE39CA | 33.3 | 37.1 | 41.0 | 1 | 53.9 | 28.2 | 1 |
| 1.5KE43A | 1.5KE43CA | 1.5KE43A | 1.5KE43CA | 36.8 | 40.9 | 45.2 | 1 | 59.3 | 25.6 | 1 |
| 1.5KE47A | 1.5KE47CA | 1.5KE47A | 1.5KE47CA | 40.2 | 44.7 | 49.4 | 1 | 64.8 | 23.5 | 1 |
| 1.5KE51A | 1.5KE51CA | 1.5KE51A | 1.5KE51CA | 43.6 | 48.5 | 53.6 | 1 | 70.1 | 21.7 | 1 |
| 1.5KE56A | 1.5KE56CA | 1.5KE56A | 1.5KE56CA | 47.8 | 53.2 | 58.8 | 1 | 77.0 | 19.7 | 1 |
| 1.5KE62A | 1.5KE62CA | 1.5KE62A | 1.5KE62CA | 53.0 | 58.9 | 65.1 | 1 | 85.0 | 17.9 | 1 |

| Part Number | | Marking Code | | V_R | $V_{BR}@I_T$ | | I_T | $V_C@I_{PP}$ | $I_{PP}^{①}$ | $I_R@V_R$ |
|-------------|------------|--------------|------------|-------|--------------|---------|-------|--------------|--------------|-----------|
| Uni-Polar | Bi-Polar | Uni-Polar | Bi-Polar | V | Min(V) | Max (V) | mA | V | A | Max(μA) |
| 1.5KE68A | 1.5KE68CA | 1.5KE68A | 1.5KE68CA | 58.1 | 64.6 | 71.4 | 1 | 92.0 | 16.5 | 1 |
| 1.5KE75A | 1.5KE75CA | 1.5KE75A | 1.5KE75CA | 64.1 | 71.3 | 78.8 | 1 | 103 | 14.8 | 1 |
| 1.5KE82A | 1.5KE82CA | 1.5KE82A | 1.5KE82CA | 70.1 | 77.9 | 86.1 | 1 | 113 | 13.5 | 1 |
| 1.5KE91A | 1.5KE91CA | 1.5KE91A | 1.5KE91CA | 77.8 | 86.5 | 95.5 | 1 | 125 | 12.2 | 1 |
| 1.5KE100A | 1.5KE100CA | 1.5KE100A | 1.5KE100CA | 85.5 | 95.0 | 105 | 1 | 137 | 11.1 | 1 |
| 1.5KE110A | 1.5KE110CA | 1.5KE110A | 1.5KE110CA | 94.0 | 105 | 116 | 1 | 152 | 10.0 | 1 |
| 1.5KE120A | 1.5KE120CA | 1.5KE120A | 1.5KE120CA | 102 | 114 | 126 | 1 | 165 | 9.2 | 1 |
| 1.5KE130A | 1.5KE130CA | 1.5KE130A | 1.5KE130CA | 111 | 124 | 137 | 1 | 179 | 8.5 | 1 |
| 1.5KE150A | 1.5KE150CA | 1.5KE150A | 1.5KE150CA | 128 | 143 | 158 | 1 | 207 | 7.3 | 1 |
| 1.5KE160A | 1.5KE160CA | 1.5KE160A | 1.5KE160CA | 136 | 152 | 168 | 1 | 219 | 6.9 | 1 |
| 1.5KE170A | 1.5KE170CA | 1.5KE170A | 1.5KE170CA | 145 | 162 | 179 | 1 | 234 | 6.5 | 1 |
| 1.5KE180A | 1.5KE180CA | 1.5KE180A | 1.5KE180CA | 154 | 171 | 189 | 1 | 246 | 6.2 | 1 |
| 1.5KE200A | 1.5KE200CA | 1.5KE200A | 1.5KE200CA | 171 | 190 | 210 | 1 | 274 | 5.5 | 1 |
| 1.5KE220A | 1.5KE220CA | 1.5KE220A | 1.5KE220CA | 185 | 209 | 231 | 1 | 328 | 4.6 | 1 |
| 1.5KE250A | 1.5KE250CA | 1.5KE250A | 1.5KE250CA | 214 | 237 | 263 | 1 | 344 | 4.4 | 1 |
| 1.5KE300A | 1.5KE300CA | 1.5KE300A | 1.5KE300CA | 258 | 285 | 315 | 1 | 414 | 3.7 | 1 |
| 1.5KE350A | 1.5KE350CA | 1.5KE350A | 1.5KE350CA | 300 | 332 | 368 | 1 | 482 | 3.2 | 1 |
| 1.5KE400A | 1.5KE400CA | 1.5KE400A | 1.5KE400CA | 342 | 380 | 420 | 1 | 548 | 2.8 | 1 |
| 1.5KE440A | 1.5KE440CA | 1.5KE440A | 1.5KE440CA | 376 | 418 | 462 | 1 | 602 | 2.5 | 1 |
| 1.5KE480A | 1.5KE480CA | 1.5KE480A | 1.5KE480CA | 408 | 456 | 504 | 1 | 658 | 2.3 | 1 |
| 1.5KE510A | 1.5KE510CA | 1.5KE510A | 1.5KE510CA | 434 | 485 | 535 | 1 | 698 | 2.1 | 1 |
| 1.5KE530A | 1.5KE530CA | 1.5KE530A | 1.5KE530CA | 451 | 503 | 557 | 1 | 725 | 2.1 | 1 |
| 1.5KE540A | 1.5KE540CA | 1.5KE540A | 1.5KE540CA | 459 | 513 | 567 | 1 | 740 | 2.0 | 1 |
| 1.5KE550A | 1.5KE550CA | 1.5KE550A | 1.5KE550CA | 467 | 522 | 578 | 1 | 760 | 2.0 | 1 |
| 1.5KE600A | 1.5KE600CA | 1.5KE600A | 1.5KE600CA | 510 | 570 | 630 | 1 | 828 | 1.8 | 1 |

Note:

①.Surge waveform:10/1000μs

V_R : Stand-off voltage -- Maximum voltage that can be applied

V_{BR} : Breakdown voltage

V_C : Clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}

I_R : Reverse leakage current

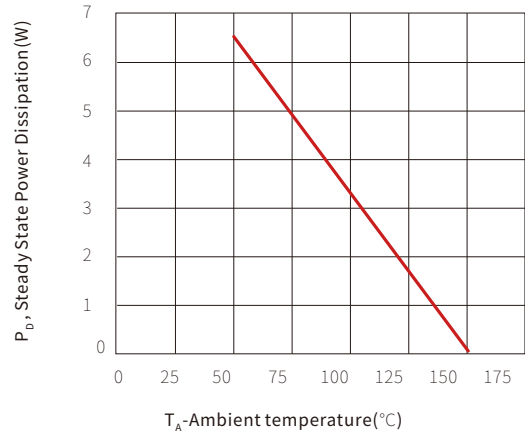
CHARACTERISTIC CURVES



Typical Junction Capacitance



Steady State Power Dissipation Derating Curve

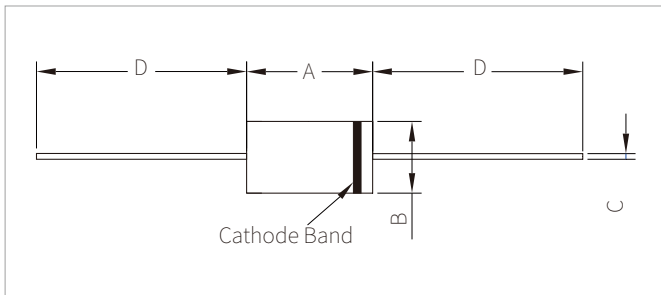


WAVE SOLDERING



| Wave Parameter | | Lead-free assembly |
|------------------------|------------------|--------------------|
| Pre Heat | Temperature Min | 100°C |
| | Temperature Max | 150°C |
| | Time(min to max) | 60 – 180 secs |
| Solder pot Temperature | | 280°C Max |
| Solder Dwell Time | | 2-5 seconds |

DO-201 PACKAGE INFORMATION



| Ref. | Millimeters | | Inches | |
|------|-------------|------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 7.20 | 9.50 | 0.285 | 0.375 |
| B | 4.80 | 5.30 | 0.190 | 0.210 |
| C | 0.96 | 10.7 | 0.038 | 0.042 |
| D | 25.40 | - | 1.000 | - |

ORDERING INFORMATION

| Part Number | Component Package | Base Quantity | Packing Option |
|-------------|-------------------|---------------|----------------|
| 1.5KExxA/CA | DO-201 | 1000pcs | AMMO |
| | | 1200pcs | Tape&Reel |

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