

SURFACE MOUNT GPP
TRANSIENT VOLTAGE SUPPRESSOR
1500 WATT PEAK POWER 5.0 WATTS STEADY STATE

FEATURES

- * Plastic package has underwriters laboratory
- * Glass passivated chip construction
- * 1500 watt surge capability at 1ms
- * Excellent clamping capability
- * Low zener impedance
- * Fast response time
- * P/N suffix V means AEC-Q101 qualified, eg: 1.5FMCJ6.8AV.
- * Halogen-free

MECHANICAL DATA

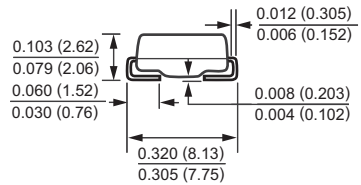
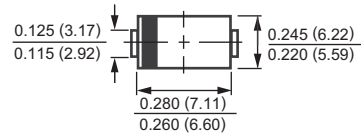
- * Epoxy: Device has UL flammability classification 94V-O
- * UL file No.: E211196

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.



DO-214AB



Dimensions in inches and (millimeters)

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA suffix for types 1.5FMCJ6.8 thru 1.5FMCJ440

Electrical characteristics apply in both direction

MAXIMUM RATINGS (At TA = 25°C unless otherwise noted)

| RATINGS | SYMBOL | VALUE | UNITS |
|---|-----------------------------------|--------------|---------------------|
| Peak Power Dissipation with a 10/1000uS (Note 1,2, Fig.1) | PPM | Minimum 1500 | Watts |
| Peak Pulse Current with a 10/1000uS Waveform (Note 1, Fig.3) | I _{PPM} | SEE TABLE 1 | Amps |
| Steady State Power Dissipation at T _L = 75°C (Note 2) | P _{M(AV)} | 5.0 | Watts |
| Peak Forward Surge Current, 8.3ms single half sine wave- superimposed on rated load(JEDEC METHOD)(Note 2,3) | I _{FSM} | 200 | Amps |
| Typical Current Squared Time | I ² t | 167 | A ² /Sec |
| Maximum Instantaneous Forward Voltage at 50A for unidirectional only (Note 3,4) | V _F | SEE NOTES 4 | Volts |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to + 150 | °C |

- NOTES : 1. Non-repetitive current pulse, per Fig.3 and derated above TA = 25°C per Fig.2.
 2. Mounted on 0.31 X 0.31" (8.0 X 8.0mm) copper pads to each terminal.
 3. Measured on 8.3mS single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
 4. V_F = 3.5V on 1.5FMCJ6.8 thru 1.5FMCJ90 devices and V_F = 5.0V on 1.5FMCJ100 thru 1.5FMCJ440 devices.

2023-02
REV:A

RATING AND CHARACTERISTIC CURVES (1.5FMCJ6.8V THRU 1.5FMCJ440CAV)

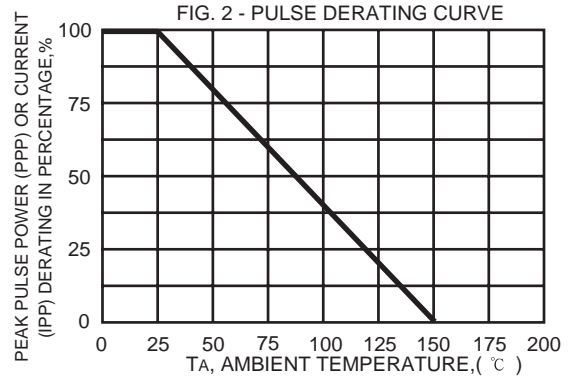
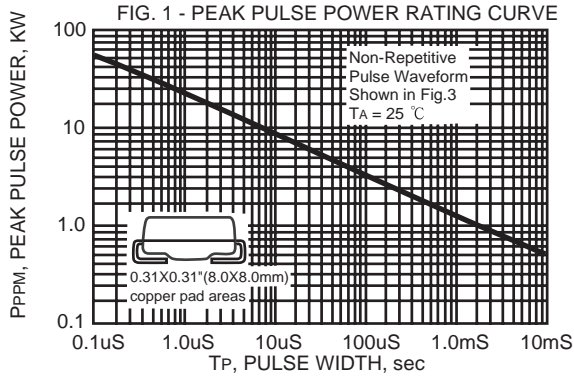


FIG. 3 - PULSE WAVEFORM

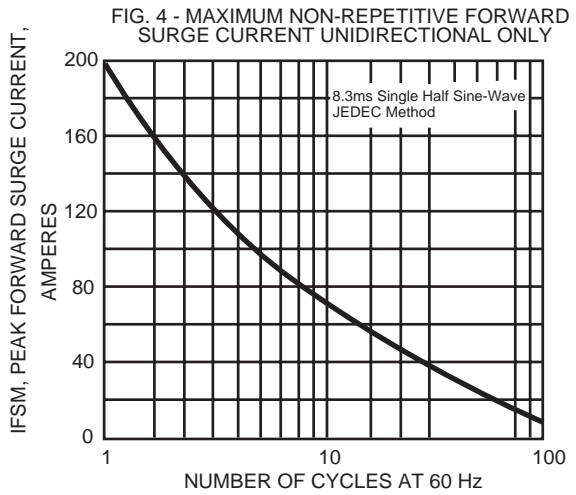
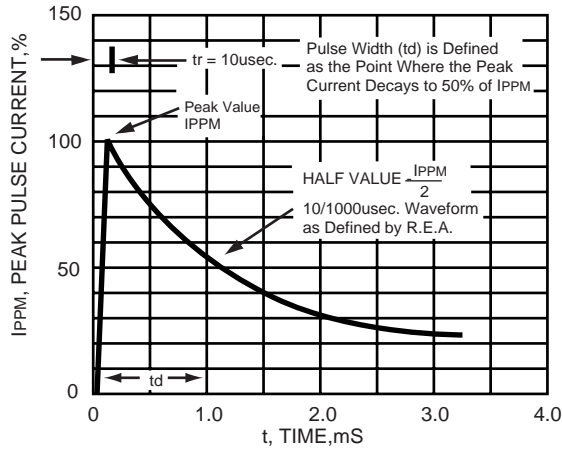


FIG. 5 - STEADY STATE POWER DERATING CURVE

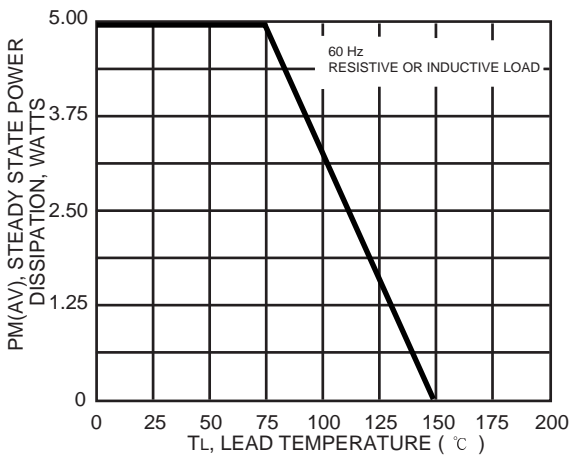
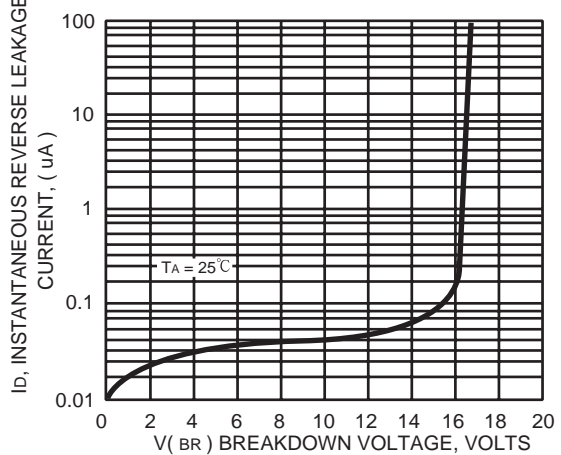


FIG. 6 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS



TRANSIENT VOLTAGE SUPPRESSORS

1500W SERIES TVS DIODES / DO-214AB (CASE 4) 1500W

| TYPE | Breakdown Voltage | | | Reverse Stand off Voltage V_{WM} (Volts) | Maximum Reverse Leakage at V_{WM} I_D (μ A) | Maximum Peak Pulse Current I_{PPM} (Amps) | Maximum Clamping Voltage at I_{PPM} V_C (Volts) |
|-------------|-------------------|------|--------------|--|--|---|---|
| | V_{BR} (Volts) | | @ I_T (mA) | | | | |
| | MIN. | MAX. | | | | | |
| 1.5FMCJ6.8 | 6.12 | 7.48 | 10 | 5.50 | 1000 | 139 | 10.8 |
| 1.5FMCJ6.8A | 6.45 | 7.14 | 10 | 5.80 | 1000 | 143 | 10.5 |
| 1.5FMCJ7.5 | 6.75 | 8.25 | 10 | 6.05 | 500 | 128 | 11.7 |
| 1.5FMCJ7.5A | 7.13 | 7.88 | 10 | 6.40 | 500 | 133 | 11.3 |
| 1.5FMCJ8.2 | 7.38 | 9.02 | 10 | 6.63 | 200 | 120 | 12.5 |
| 1.5FMCJ8.2A | 7.79 | 8.61 | 10 | 7.02 | 200 | 124 | 12.1 |
| 1.5FMCJ9.1 | 8.19 | 10.0 | 1.0 | 7.37 | 50 | 109 | 13.8 |
| 1.5FMCJ9.1A | 8.65 | 9.55 | 1.0 | 7.78 | 50 | 112 | 13.4 |
| 1.5FMCJ10 | 9.00 | 11.0 | 1.0 | 8.10 | 10 | 100 | 15.0 |
| 1.5FMCJ10A | 9.50 | 10.5 | 1.0 | 8.55 | 10 | 103 | 14.5 |
| 1.5FMCJ11 | 9.90 | 12.1 | 1.0 | 8.92 | 5.0 | 92.6 | 16.2 |
| 1.5FMCJ11A | 10.5 | 11.6 | 1.0 | 9.40 | 5.0 | 96.2 | 15.6 |
| 1.5FMCJ12 | 10.8 | 13.2 | 1.0 | 9.72 | 5.0 | 86.7 | 17.3 |
| 1.5FMCJ12A | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 89.8 | 16.7 |
| 1.5FMCJ13 | 11.7 | 14.3 | 1.0 | 10.5 | 5.0 | 78.9 | 19.0 |
| 1.5FMCJ13A | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 82.4 | 18.2 |
| 1.5FMCJ15 | 13.5 | 16.5 | 1.0 | 12.1 | 5.0 | 68.2 | 22.0 |
| 1.5FMCJ15A | 14.3 | 15.8 | 1.0 | 12.8 | 5.0 | 70.8 | 21.2 |
| 1.5FMCJ16 | 14.4 | 17.6 | 1.0 | 12.9 | 5.0 | 63.8 | 23.5 |
| 1.5FMCJ16A | 15.2 | 16.8 | 1.0 | 13.6 | 5.0 | 66.7 | 22.5 |
| 1.5FMCJ18 | 16.2 | 19.8 | 1.0 | 14.5 | 5.0 | 56.6 | 26.5 |
| 1.5FMCJ18A | 17.1 | 18.9 | 1.0 | 15.3 | 5.0 | 59.5 | 25.2 |
| 1.5FMCJ20 | 18.0 | 22.0 | 1.0 | 16.2 | 5.0 | 51.5 | 29.1 |
| 1.5FMCJ20A | 19.0 | 21.0 | 1.0 | 17.1 | 5.0 | 54.2 | 27.7 |
| 1.5FMCJ22 | 19.8 | 24.2 | 1.0 | 17.8 | 5.0 | 47 | 31.9 |
| 1.5FMCJ22A | 20.9 | 23.1 | 1.0 | 18.8 | 5.0 | 49 | 30.6 |
| 1.5FMCJ24 | 21.6 | 26.4 | 1.0 | 19.4 | 5.0 | 43.2 | 34.7 |
| 1.5FMCJ24A | 22.8 | 25.2 | 1.0 | 20.5 | 5.0 | 45.2 | 33.2 |
| 1.5FMCJ27 | 24.3 | 29.7 | 1.0 | 21.8 | 5.0 | 38.4 | 39.1 |
| 1.5FMCJ27A | 25.7 | 28.4 | 1.0 | 23.1 | 5.0 | 40 | 37.5 |
| 1.5FMCJ30 | 27.0 | 33.0 | 1.0 | 24.3 | 5.0 | 34.5 | 43.5 |
| 1.5FMCJ30A | 28.5 | 31.5 | 1.0 | 25.6 | 5.0 | 36.2 | 41.4 |
| 1.5FMCJ33 | 29.7 | 36.3 | 1.0 | 26.8 | 5.0 | 31.4 | 47.7 |
| 1.5FMCJ33A | 31.4 | 34.7 | 1.0 | 28.2 | 5.0 | 32.8 | 45.7 |
| 1.5FMCJ36 | 32.4 | 39.6 | 1.0 | 29.1 | 5.0 | 28.8 | 52.0 |
| 1.5FMCJ36A | 34.2 | 37.8 | 1.0 | 30.8 | 5.0 | 30.1 | 49.9 |
| 1.5FMCJ39 | 35.1 | 42.9 | 1.0 | 31.6 | 5.0 | 26.6 | 56.4 |
| 1.5FMCJ39A | 37.1 | 41.0 | 1.0 | 33.3 | 5.0 | 27.8 | 53.9 |
| 1.5FMCJ43 | 38.7 | 47.3 | 1.0 | 34.8 | 5.0 | 24.2 | 61.9 |
| 1.5FMCJ43A | 40.9 | 45.2 | 1.0 | 36.8 | 5.0 | 25.3 | 59.3 |
| 1.5FMCJ47 | 42.3 | 51.7 | 1.0 | 38.1 | 5.0 | 22.1 | 67.8 |
| 1.5FMCJ47A | 44.7 | 49.4 | 1.0 | 40.2 | 5.0 | 23.1 | 64.8 |
| 1.5FMCJ51 | 45.9 | 56.1 | 1.0 | 41.3 | 5.0 | 20.4 | 73.5 |
| 1.5FMCJ51A | 48.5 | 53.6 | 1.0 | 43.6 | 5.0 | 21.4 | 70.1 |
| 1.5FMCJ56 | 50.4 | 61.6 | 1.0 | 45.4 | 5.0 | 18.6 | 80.5 |
| 1.5FMCJ56A | 53.2 | 58.8 | 1.0 | 47.8 | 5.0 | 19.5 | 77.0 |

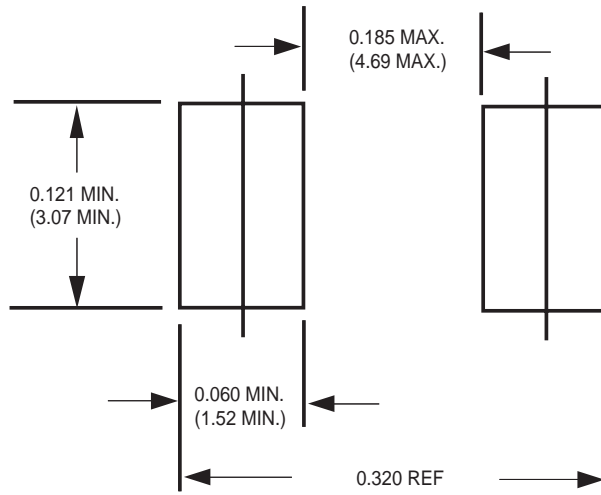
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1500W SERIES TVS DIODES / DO-214AB (CASE 4) 1500W

| TYPE | Breakdown Voltage | | @I _T (mA) | Reverse Stand off Voltage V _{WM} (Volts) | Maximum Reverse Leakage at V _{WM} I _D (μ A) | Maximum Peak Pulse Current I _{PPM} (Amps) | Maximum Clamping Voltage at I _{PPM} V _C (Volts) |
|-------------|----------------------------|------|-------------------------|---|---|--|--|
| | V _{BR} (Volts) | | | | | | |
| | MIN. | MAX. | | | | | |
| 1.5FMCJ62 | 55.8 | 68.2 | 1.0 | 50.2 | 5.0 | 16.9 | 89.0 |
| 1.5FMCJ62A | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 17.6 | 85.0 |
| 1.5FMCJ68 | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 15.3 | 98.0 |
| 1.5FMCJ68A | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 16.3 | 92.0 |
| 1.5FMCJ75 | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 13.9 | 109 |
| 1.5FMCJ75A | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 14.6 | 104 |
| 1.5FMCJ82 | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 12.7 | 118 |
| 1.5FMCJ82A | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 13.3 | 113 |
| 1.5FMCJ91 | 81.9 | 100 | 1.0 | 73.7 | 5.0 | 11.5 | 131 |
| 1.5FMCJ91A | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 12.0 | 125 |
| 1.5FMCJ100 | 90.0 | 110 | 1.0 | 81.0 | 5.0 | 10.4 | 144 |
| 1.5FMCJ100A | 95.0 | 105 | 1.0 | 85.5 | 5.0 | 10.9 | 137 |
| 1.5FMCJ110 | 99.0 | 121 | 1.0 | 89.2 | 5.0 | 9.9 | 158 |
| 1.5FMCJ110A | 105 | 116 | 1.0 | 94.0 | 5.0 | 10.3 | 152 |
| 1.5FMCJ120 | 108 | 132 | 1.0 | 97.2 | 5.0 | 9.1 | 173 |
| 1.5FMCJ120A | 114 | 126 | 1.0 | 102 | 5.0 | 9.5 | 165 |
| 1.5FMCJ130 | 117 | 143 | 1.0 | 105 | 5.0 | 8.4 | 187 |
| 1.5FMCJ130A | 124 | 137 | 1.0 | 111 | 5.0 | 8.7 | 179 |
| 1.5FMCJ150 | 135 | 165 | 1.0 | 121 | 5.0 | 7.3 | 215 |
| 1.5FMCJ150A | 143 | 158 | 1.0 | 128 | 5.0 | 7.6 | 207 |
| 1.5FMCJ160 | 144 | 176 | 1.0 | 130 | 5.0 | 6.8 | 230 |
| 1.5FMCJ160A | 152 | 168 | 1.0 | 136 | 5.0 | 7.1 | 219 |
| 1.5FMCJ170 | 153 | 187 | 1.0 | 138 | 5.0 | 6.4 | 244 |
| 1.5FMCJ170A | 162 | 179 | 1.0 | 145 | 5.0 | 6.7 | 234 |
| 1.5FMCJ180 | 162 | 198 | 1.0 | 146 | 5.0 | 6.1 | 258 |
| 1.5FMCJ180A | 171 | 189 | 1.0 | 154 | 5.0 | 6.4 | 246 |
| 1.5FMCJ200 | 180 | 220 | 1.0 | 162 | 5.0 | 5.4 | 287 |
| 1.5FMCJ200A | 190 | 210 | 1.0 | 171 | 5.0 | 5.7 | 274 |
| 1.5FMCJ220 | 198 | 242 | 1.0 | 175 | 5.0 | 4.4 | 344 |
| 1.5FMCJ220A | 209 | 231 | 1.0 | 185 | 5.0 | 4.6 | 328 |
| 1.5FMCJ250 | 225 | 275 | 1.0 | 202 | 5.0 | 4.2 | 360 |
| 1.5FMCJ250A | 237 | 263 | 1.0 | 214 | 5.0 | 4.4 | 344 |
| 1.5FMCJ300 | 270 | 330 | 1.0 | 243 | 5.0 | 3.5 | 430 |
| 1.5FMCJ300A | 285 | 315 | 1.0 | 256 | 5.0 | 3.7 | 414 |
| 1.5FMCJ350 | 315 | 358 | 1.0 | 284 | 5.0 | 3.0 | 504 |
| 1.5FMCJ350A | 333 | 368 | 1.0 | 300 | 5.0 | 3.2 | 482 |
| 1.5FMCJ400 | 360 | 440 | 1.0 | 324 | 5.0 | 2.6 | 574 |
| 1.5FMCJ400A | 380 | 420 | 1.0 | 342 | 5.0 | 2.8 | 548 |
| 1.5FMCJ440 | 396 | 484 | 1.0 | 356 | 5.0 | 2.4 | 631 |
| 1.5FMCJ440A | 418 | 462 | 1.0 | 376 | 5.0 | 2.5 | 600 |

- Notes :
1. V_{BR} measured after I_T applied for 300ms. I_T = square pulse or equivalent.
 2. For bidirectional use C or CA suffixs for all types (ex. 1.5FMCJ6.8C,1.5FMCJ440CA) electrical characteristics apply in both directions.
 3. For bidirectional types having V_{WM} of 10 volts and less, the I_{PPM} limit is doubled.
 4. UL listed file# E211196.

Mounting Pad Layout

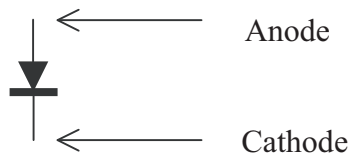


Dimensions in inches and (millimeters)



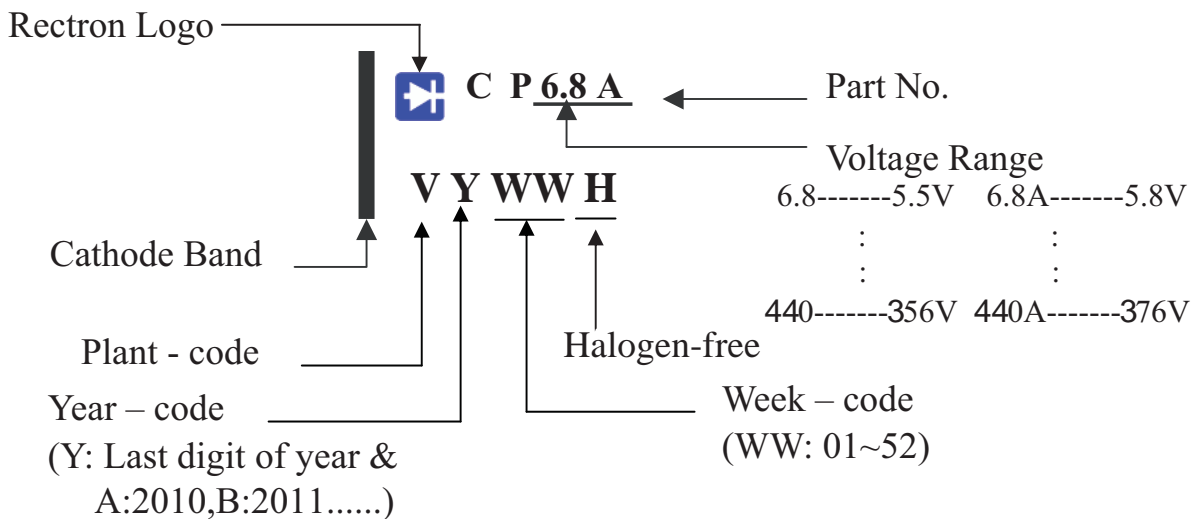
Attachment information about 1.5FMCJXXXV

1. Internal Circuit

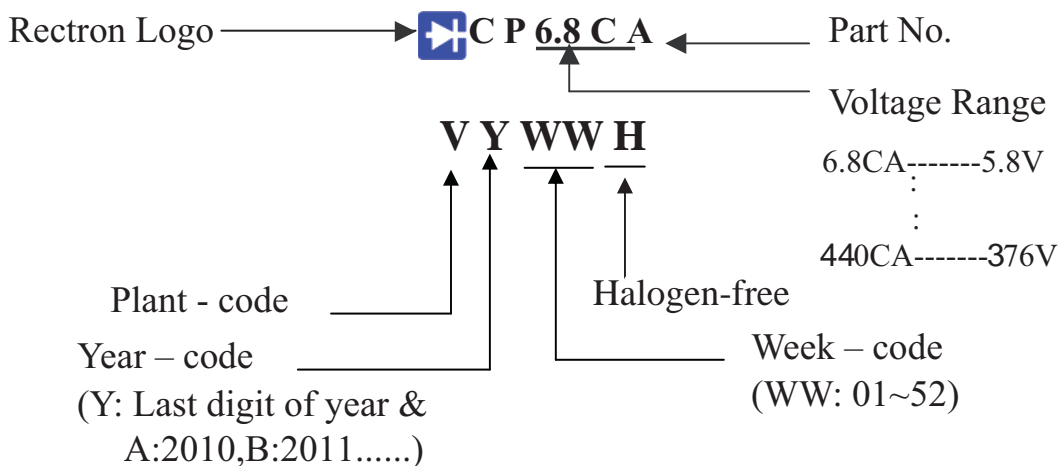


2. Marking on the body

2.1 UNIDIRECTIONAL



2.2 BIDIRECTIONAL



PACKAGING OF DIODE AND BRIDGE RECTIFIERS

REEL PACK

| PACKAGE | PACKING CODE | EA PER REEL | EA PER INNER BOX | COMPONENT SPACE (mm) | TAPE SPACE (mm) | REEL DIA (mm) | CARTON SIZE (mm) | EA PER CARTON | GROSS WEIGHT(Kg) |
|---------|--------------|-------------|------------------|----------------------|-----------------|---------------|------------------|---------------|------------------|
| SMC | -W/-T | 3,000 | 3,000 | --- | --- | 330 | 360*355*360 | 24,000 | 11.50 |

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