



**THE DATASHEET OF
60CNQ045**



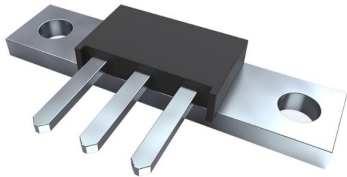
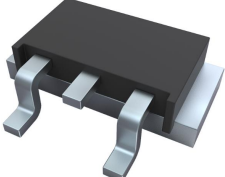
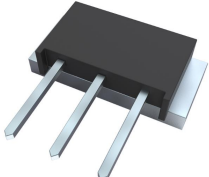
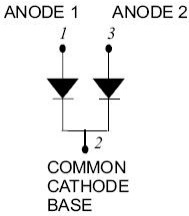
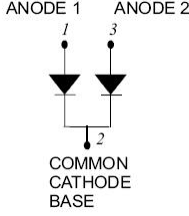
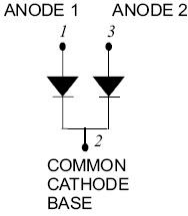
60CNQ SERIES SCHOTTKY RECTIFIER

Applications

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

Features

- 150°C T_J operation
- Center tap module
- Very Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Low profile, high current package
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional electrical and life testing can be performed upon request

| 60CNQ... | 60CNQ...SL | 60CNQ...SM |
|---|---|---|
|  |  |  |
|  |  |  |
| PRM3 | PRM3-SL | PRM3-SM |

Maximum Ratings(limiting values, at 25 °C unless otherwise specified)

| Characteristics | Symbol | Condition | Max. | Units |
|--|--|---|--|-------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V _{RRM} V _{RWM} V _R | - | 35(60CNQ035) 40(60CNQ040) 45(60CNQ045) | V |
| Average Rectified Forward Current | I _{F (AV)} | 50% duty cycle @T _C =116°C, rectangular wave form | 30(Per Leg) 60(Per Device) | A |
| Peak One Cycle Non-Repetitive Surge Current(Per leg) | I _{FSM} | 8.3 ms, half Sine pulse | 1020 | A |
| Non-Repetitive Avalanche Energy (Per leg) | E _{AS} | T _J =25°C, I _{AS} =6A, L=2.2mH | 40 | mJ |
| Repetitive Avalanche Current(Per leg) | I _{AR} | Current decaying linearly to zero in 1 μsec Frequency limited by T _J max. V _A =1.5×V _R typical | 6 | A |

- China - Germany - Korea - Singapore - United States •
- <http://www.smc-diodes.com> - sales@smc-diodes.com •

Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|----------------------------------|-----------------|---|------|--------|-------|
| Forward Voltage Drop (Per leg) * | V _{F1} | @ 30A, Pulse, T _J = 25 °C | 0.49 | 0.55 | V |
| | | @ 60A, Pulse, T _J = 25 °C | 0.58 | 0.64 | |
| | V _{F2} | @ 30A, Pulse, T _J = 125 °C | 0.42 | 0.44 | V |
| | | @ 60A, Pulse, T _J = 125 °C | 0.55 | 0.59 | |
| Reverse Current (Per leg) * | I _{R1} | @V _R = rated V _R T _J = 25 °C | 0.2 | 5 | mA |
| | I _{R2} | @V _R = rated V _R T _J = 125 °C | 33 | 200 | mA |
| Junction Capacitance (Per leg) | C _T | @V _R = 5V, T _C = 25 °C f _{SIG} = 1MHz | 2166 | 2600 | pF |
| Voltage Rate of Change | dv/dt | - | - | 10,000 | V/μs |

* Pulse width < 300 μs, duty cycle < 2%

Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |
|---|----------------------|---|---------------|-------|
| Junction Temperature | T _J | - | -55 to +150 | °C |
| Storage Temperature | T _{stg} | - | -55 to +150 | °C |
| Typical Thermal Resistance Junction to Case (per leg) | R _{θJC} | DC operation | 0.5 | °C/W |
| Typical Thermal Resistance Junction to Case (per package) | R _{θJC} | DC operation | 0.25 | °C/W |
| Typical Thermal Resistance, case to Heat Sink | R _{θcs} | Mounting surface, smooth and greased | 0.21 | °C/W |
| Mounting Torque | TM | - | 40(min) | Kg-cm |
| | | | 58(max) | |
| Case Style | PRM3 PRM3-SL PRM3-SM | | | |

Ratings and Characteristics Curves

Figure 1
Typical Forward Characteristics

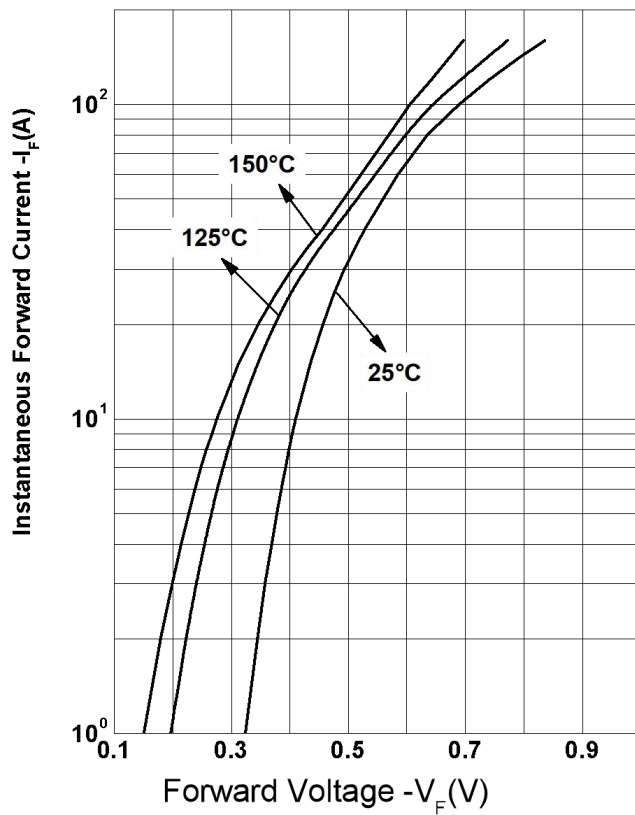


Figure 2
Typical Reverse Characteristics

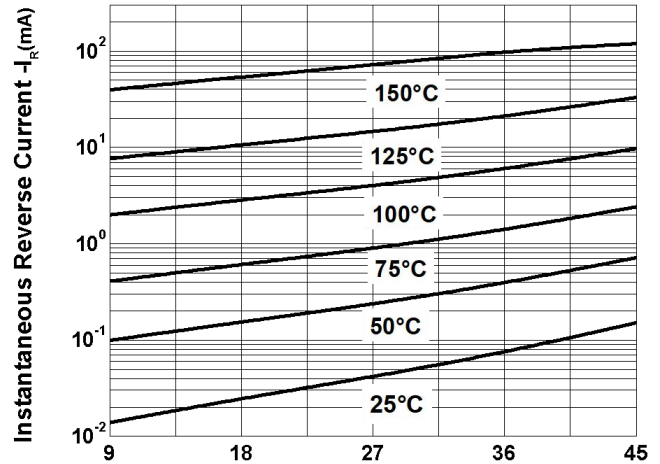
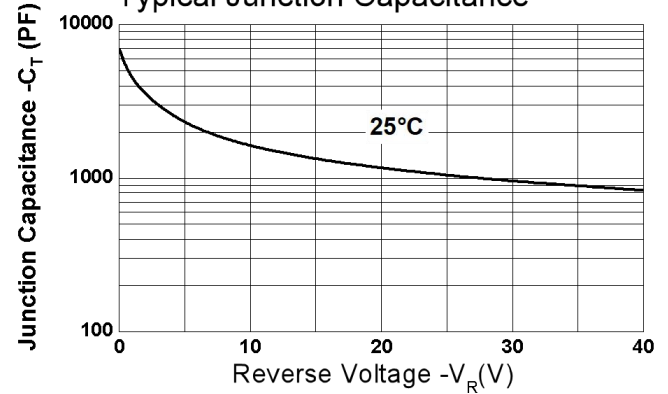
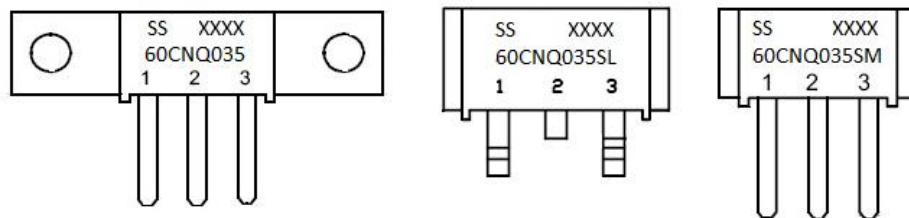


Figure 3
Reverse Voltage $-V_R$ (V)
Typical Junction Capacitance



Marking Diagram



Where XXXX is YYWW

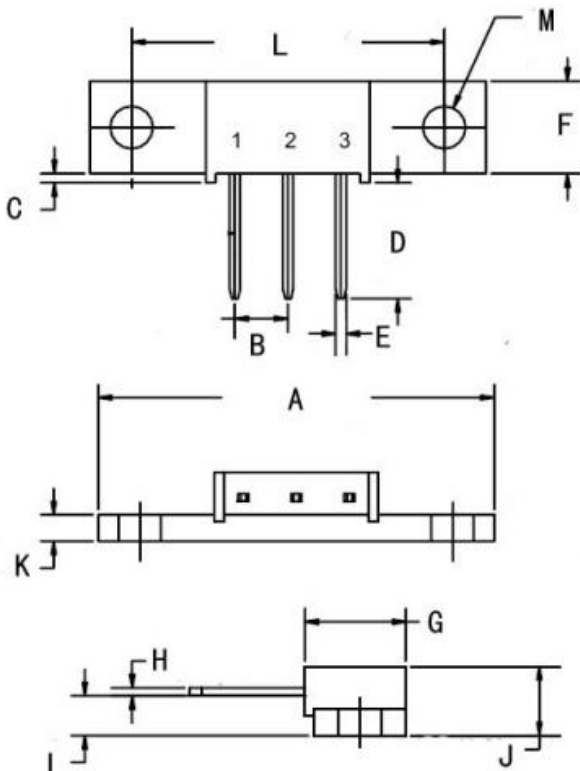
1st row SS YYWWL
 2nd row 60CNQ035/SL/SM
 3rd row 1 2 3 (pin)
 SS = SS
 YY = Year
 WW = Week

Cautions: Molding resin
 Epoxy resin UL:94V-0

Ordering Information

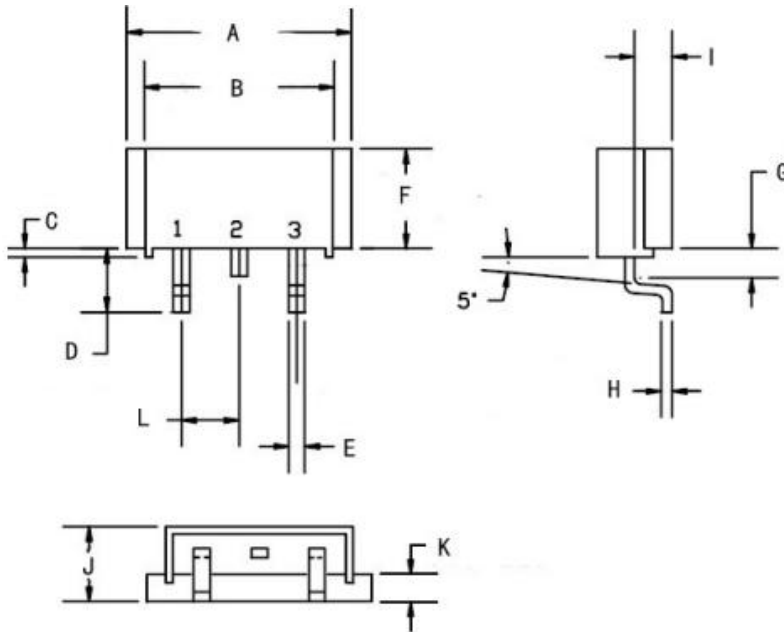
| Device | Package | Approximate Weight(g) | Terminals finish | Base plate finish | Shipping |
|--------------|---------|-----------------------|-------------------------------------|-------------------|--------------|
| 60CNQ035 | PRM3 | 8.6 | Nickel plated | Nickel plated | 48pcs / box |
| 60CNQ035S2 | PRM3 | 8.6 | Pure Sn dipped (dipped heigh 6-8mm) | Nickel plated | 48pcs / box |
| 60CNQ040 | PRM3 | 8.6 | Nickel plated | Nickel plated | 48pcs / box |
| 60CNQ040S2 | PRM3 | 8.6 | Pure Sn dipped (dipped heigh 6-8mm) | Nickel plated | 48pcs / box |
| 60CNQ045 | PRM3 | 8.6 | Nickel plated | Nickel plated | 48pcs / box |
| 60CNQ045S2 | PRM3 | 8.6 | Pure Sn dipped (dipped heigh 6-8mm) | Nickel plated | 48pcs / box |
| 60CNQ035SL | PRM3-SL | 5.3 | Pure Sn plated | Pure Sn plated | 100pcs / box |
| 60CNQ040SL | PRM3-SL | 5.3 | Pure Sn plated | Pure Sn plated | 100pcs / box |
| 60CNQ045SL | PRM3-SL | 5.3 | Pure Sn plated | Pure Sn plated | 100pcs / box |
| 60CNQ035SM | PRM3-SM | 5.6 | Nickel plated | Nickel plated | 48pcs / box |
| 60CNQ035SMS2 | PRM3-SM | 5.6 | Pure Sn dipped (dipped heigh 6-8mm) | Nickel plated | 48pcs / box |
| 60CNQ040SM | PRM3-SM | 5.6 | Nickel plated | Nickel plated | 48pcs / box |
| 60CNQ040SMS2 | PRM3-SM | 5.6 | Pure Sn dipped (dipped heigh 6-8mm) | Nickel plated | 48pcs / box |
| 60CNQ045SM | PRM3-SM | 5.6 | Nickel plated | Nickel plated | 48pcs / box |
| 60CNQ045SMS2 | PRM3-SM | 5.6 | Pure Sn dipped (dipped heigh 6-8mm) | Nickel plated | 48pcs / box |

Mechanical Dimensions PRM3 (Inches/Millimeters)



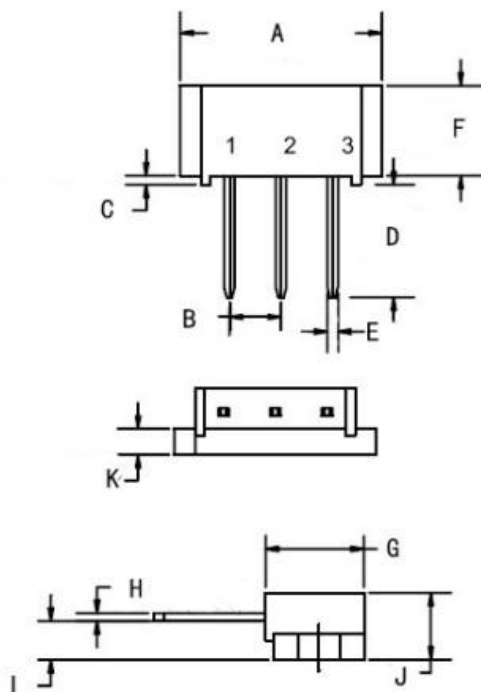
| SYMBOL | Millimeters | | Inches | |
|--------|-------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 37.72 | 38.23 | 1.485 | 1.506 |
| B | 5.08 | | 0.200 | |
| C | 0.62 | 1.02 | 0.024 | 0.040 |
| D | 10.38 | 12.98 | 0.408 | 0.511 |
| E | 0.88 | 1.22 | 0.034 | 0.048 |
| F | 8.46 | 9.06 | 0.333 | 0.357 |
| G | 9.24 | 9.85 | 0.363 | 0.388 |
| H | 0.61 | 0.92 | 0.024 | 0.037 |
| I | 3.19 | 4.19 | 0.125 | 0.165 |
| J | 6.95 | 7.55 | 0.273 | 0.298 |
| K | 2.40 | 2.60 | 0.094 | 0.103 |
| L | 29.51 | 30.40 | 1.161 | 1.197 |
| M | 3.75 | 4.33 | 0.147 | 0.171 |

Mechanical Dimensions PRM3-SL (Inches/Millimeters)



| SYMBOL | Millimeters | | Inches | |
|--------|-------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 19.70 | 20.30 | 0.776 | 0.799 |
| B | 16.51 | 17.02 | 0.650 | 0.670 |
| C | 0.62 | 1.02 | 0.024 | 0.040 |
| D | 4.97 | 5.97 | 0.196 | 0.235 |
| E | 0.88 | 1.22 | 0.034 | 0.048 |
| F | 8.46 | 9.06 | 0.333 | 0.357 |
| G | 2.04 | 2.54 | 0.080 | 0.100 |
| H | 0.61 | 0.92 | 0.024 | 0.037 |
| I | 3.19 | 4.19 | 0.125 | 0.165 |
| J | 6.95 | 7.55 | 0.274 | 0.297 |
| K | 2.21 | 2.71 | 0.087 | 0.106 |
| L | 5.08 | | 0.200 | |

Mechanical Dimensions PRM3-SM (Inches/Millimeters)



| SYMBOL | Millimeters | | Inches | |
|--------|-------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 19.70 | 20.30 | 0.776 | 0.799 |
| B | 5.08 | | 0.200 | |
| C | 0.62 | 1.02 | 0.024 | 0.040 |
| D | 10.38 | 12.98 | 0.408 | 0.511 |
| E | 0.88 | 1.22 | 0.034 | 0.048 |
| F | 8.46 | 9.06 | 0.333 | 0.357 |
| G | 9.24 | 9.85 | 0.363 | 0.388 |
| H | 0.61 | 0.92 | 0.024 | 0.037 |
| I | 3.19 | 4.19 | 0.125 | 0.165 |
| J | 6.95 | 7.55 | 0.273 | 0.298 |
| K | 2.40 | 2.60 | 0.094 | 0.103 |



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