# MBR3040CG-Q1 THRU MBR30200CG-Q1

## 30.0A Surface Mount Schottky Barrier Rectifiers - 40V-200V

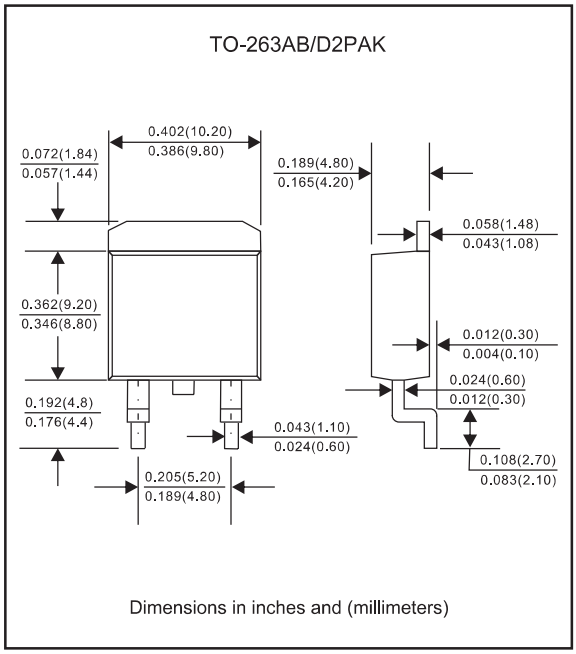
## Features

- Batch process design, excellent power dissipation offers better reverse leakage current and thermal resistance.
- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- High surge capability.
- Guardring for overvoltage protection.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen free parts, ex. MBR3040CG-H-Q1.
- Suffix "-Q1" for AEC-Q101

## Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, TO-263AB / D2PAK
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any

## Package outline




## Maximum ratings and Electrical Characteristics (AT $T_A$=25°C unless otherwise noted)

| PARAMETER | CONDITIONS | Symbol | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Forward rectified current | See Fig.1 | $I_O$ | | | 30.0 | A |
| Forward surge current | 8.3ms single half sine-wave (JEDEC methode) | $I_{FSM}$ | | | 200 | A |
| Reverse current | $V_R = V_{RRM}$ $T_J$ = 25°C | $I_R$ | | | 0.1 | mA |
| | $V_R = V_{RRM}$ $T_J$ = 125°C | | | | 20 | |
| Thermal resistance | Junction to case | $R_{\theta JC}$ | | 1.4 | | °C/W |
| Storage temperature | | $T_{STG}$ | -65 | | +175 | °C |

| SYMBOLS | $V_{RRM}$ *1 (V) | $V_{RMS}$ *2 (V) | $V_R$ *3 (V) | $V_F$ *4 (V) | $V_F$ *5 (V) | Operating temperature $T_J$, (°C) |
|---|---|---|---|---|---|---|
| MBR3040CG-Q1 | 40 | 28 | 40 | 0.70 | 0.84 | -55 to +150 |
| MBR3045CG-Q1 | 45 | 31.5 | 45 | | | |
| MBR3050CG-Q1 | 50 | 35 | 50 | 0.80 | 0.90 | |
| MBR3060CG-Q1 | 60 | 42 | 60 | | | |
| MBR3080CG-Q1 | 80 | 56 | 80 | 0.85 | 0.95 | |
| MBR30100CG-Q1 | 100 | 70 | 100 | | | |
| MBR30150CG-Q1 | 150 | 105 | 150 | 0.92 | 1.00 | -55 to +175 |
| MBR30200CG-Q1 | 200 | 140 | 200 | | | |

*1 Repetitive peak reverse voltage

*2 RMS voltage

*3 Continuous reverse voltage

*4 Maximum forward voltage IF = 15.0A, 25°C

*5 Maximum of forward voltage IF=30.0A, 25°C

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|---|---|---|---|---|
| AS-1060038 | 2013/03/08 | 2021/05/16 | D | 3 |

## Rating and characteristic curves (MBR3040CG-Q1 THRU MBR30200CG-Q1)

FIG. 1 - FORWARD DERATING CURVE

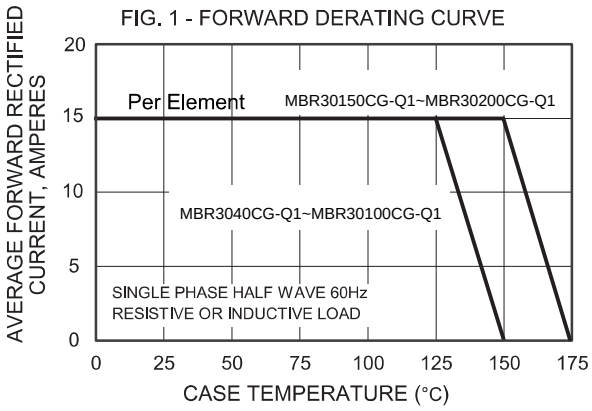



FIG. 2 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

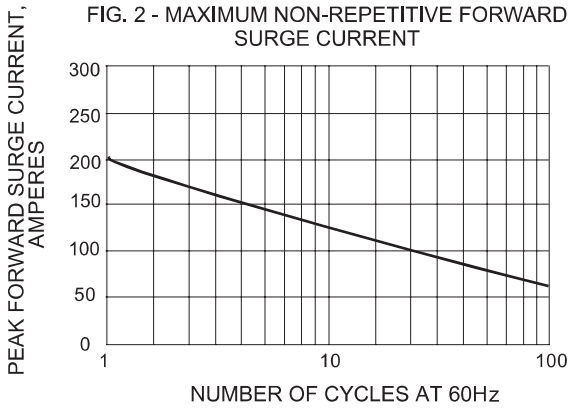



FIG. 3 - TYPICAL REVERSE CHARACTERISTICS

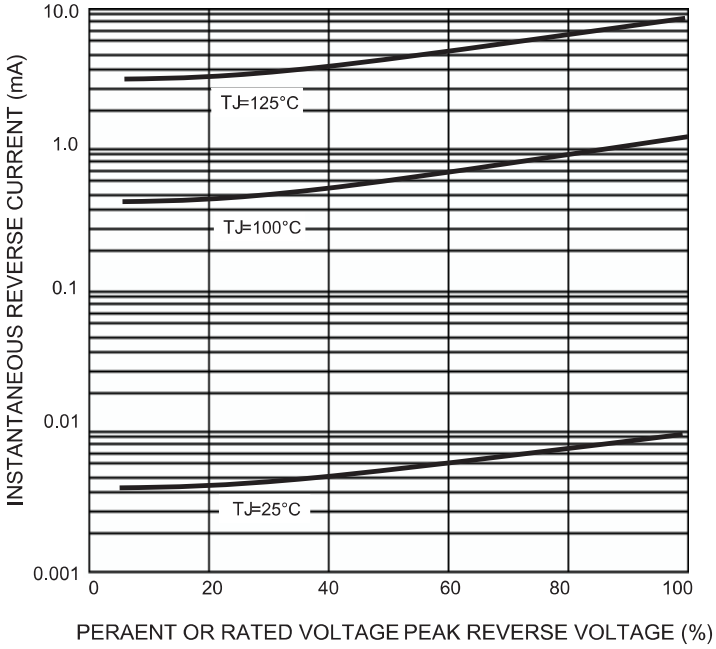
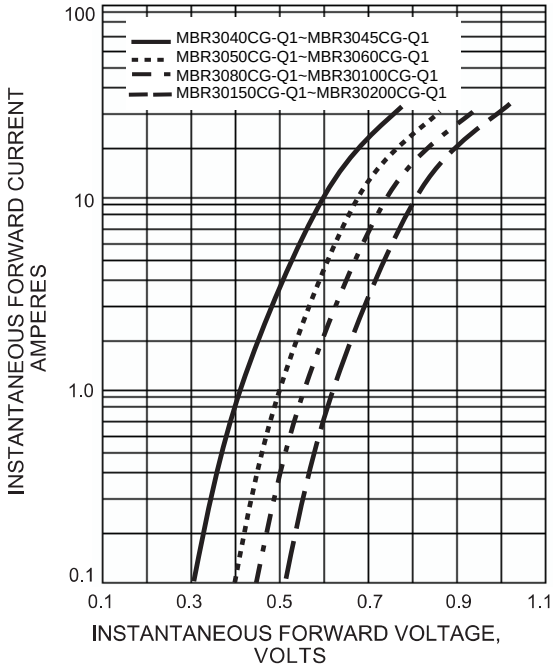
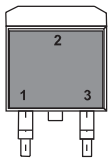
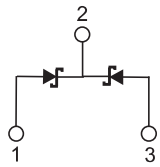



FIG. 4 - TYPICAL FORWARD CHARACTERISTIC PER LEG



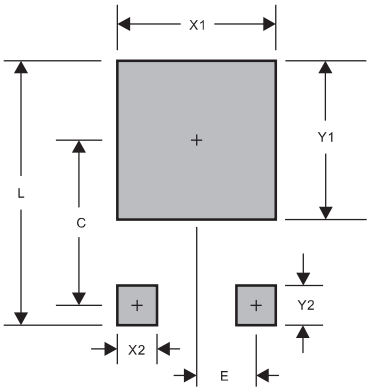
## Pinning information

| Pin | Simplified outline | Symbol |
|---|---|---|
| Pin1 anode<br>Pin2 cathode<br>Pin3 anode |  |  |

## Marking

| Type number | Marking code |
|---|---|
| MBR3040CG-Q1 | MBR3040CG |
| MBR3045CG-Q1 | MBR3045CG |
| MBR3050CG-Q1 | MBR3050CG |
| MBR3060CG-Q1 | MBR3060CG |
| MBR3080CG-Q1 | MBR3080CG |
| MBR30100CG-Q1 | MBR30100CG |
| MBR30150CG-Q1 | MBR30150CG |
| MBR30200CG-Q1 | MBR30200CG |

## Suggested solder pad layout




| PACKAGE | D2PAK |
|---|---|
| C | 0.374(9.50) |
| E | 0.098(2.50) |
| L | 0.665(16.90) |
| X1 | 0.425(10.80) |
| X2 | 0.071(1.80) |
| Y1 | 0.449(11.40) |
| Y2 | 0.138(3.50) |

Dimensions in inches and (millimeters)