

## ■ HIGH SPEED DIODE MODULES

| Type No.               | Max. ratings                                        |                                       |                                           |                                       | Electrical characteristics |                 |                                           |                                              | Connections |
|------------------------|-----------------------------------------------------|---------------------------------------|-------------------------------------------|---------------------------------------|----------------------------|-----------------|-------------------------------------------|----------------------------------------------|-------------|
|                        | Repetitive peak reverse voltage<br>$V_{RRM}$<br>(V) | DC current<br>$I_{OC}$<br>(A)         | Surge forward current<br>$I_{FSM}$<br>(A) | Junction temperature<br>$T_J$<br>(°C) | Forward voltage drop       |                 | Reverse recovery time<br>$t_{rr}$<br>(μs) | Reverse recovered charge<br>$Q_{rr}$<br>(μC) |             |
|                        |                                                     |                                       |                                           |                                       | $I_{FM}$<br>(A)            | $V_{FM}$<br>(V) |                                           |                                              |             |
| RM20HA-12F, 20F, 24F   | △ 600, 1000, 1200                                   | 20 ( $T_C = 114^{\circ}\text{C}$ )    | 400                                       | 150                                   | 20                         | 1.5             | 0.8                                       | 15                                           |             |
| RM25HG-24S             | * 1200                                              | 25 ( $T_C = 80^{\circ}\text{C}$ )     | 500                                       | 150                                   | 100                        | 4.0             | 0.3                                       | —                                            |             |
| RM50HA-12F, 20F, 24F   | △ 600, 1000, 1200                                   | 50 ( $T_C = 105^{\circ}\text{C}$ )    | 1000                                      | 150                                   | 50                         | 1.5             | 0.8                                       | 30                                           |             |
| RM50HG-12S             | * 600                                               | 50 ( $T_C = 80^{\circ}\text{C}$ )     | 1000                                      | 150                                   | 200                        | 4.0             | 0.2                                       | —                                            |             |
| RM100HA-12F, 20F, 24F  | △ 600, 1000, 1200                                   | 100 ( $T_C = 75^{\circ}\text{C}$ )    | 2000                                      | 150                                   | 100                        | 1.5             | 0.8                                       | 60                                           |             |
| RM200HA-20F, 24F       | △ 1000, 1200                                        | 200 ( $T_C = 75^{\circ}\text{C}$ )    | 4000                                      | 150                                   | 200                        | 1.5             | 0.8                                       | 130                                          |             |
| RM250HA-10F            | 500                                                 | 250 ( $T_C = 90^{\circ}\text{C}$ )    | 4500                                      | 150                                   | 250                        | 1.2             | 0.65                                      | 100                                          |             |
| RM300HA-24F            | △ 1200                                              | 300 ( $T_C = 75^{\circ}\text{C}$ )    | 3000                                      | 150                                   | 300                        | 1.5             | 0.8                                       | 80                                           |             |
| RM400HA-20S, 24S       | 1000, 1200                                          | 400 ( $T_C = 40^{\circ}\text{C}$ )    | 8000                                      | 150                                   | 400                        | 2.0             | 0.4                                       | 80                                           |             |
| RM20CA-12F, 20F, 24F   | 600, 1000, 1200                                     | 20 ( $T_C = 114^{\circ}\text{C}$ )    | 400                                       | 150                                   | 20                         | 1.5             | 0.8                                       | 15                                           |             |
| RM50CA-12F, 20F, 24F   | 600, 1000, 1200                                     | 50 ( $T_C = 105^{\circ}\text{C}$ )    | 1000                                      | 150                                   | 50                         | 1.5             | 0.8                                       | 30                                           |             |
| RM100CA-12F, 20F, 24F  | 600, 1000, 1200                                     | 100 ( $T_C = 75^{\circ}\text{C}$ )    | 2000                                      | 150                                   | 100                        | 1.5             | 0.8                                       | 60                                           |             |
| RM20CA-6S, 12S         | 300, 600                                            | 20 ( $T_C = 107^{\circ}\text{C}$ )    | 400                                       | 150                                   | 20                         | 1.8             | 0.2                                       | 0.5                                          |             |
| RM50CA-6S, 12S/20S     | 300, 600, 1000                                      | 50 ( $T_C = 96/81^{\circ}\text{C}$ )  | 1000                                      | 150                                   | 50                         | 1.8/2.3         | 0.2                                       | 1.5                                          |             |
| RM20C1A-12F, 20F, 24F  | 600, 1000, 1200                                     | 20 ( $T_C = 114^{\circ}\text{C}$ )    | 400                                       | 150                                   | 20                         | 1.5             | 0.8                                       | 15                                           |             |
| RM50C1A-12F, 20F, 24F  | 600, 1000, 1200                                     | 50 ( $T_C = 105^{\circ}\text{C}$ )    | 1000                                      | 150                                   | 50                         | 1.5             | 0.8                                       | 30                                           |             |
| RM100C1A-12F, 20F, 24F | 600, 1000, 1200                                     | 100 ( $T_C = 75^{\circ}\text{C}$ )    | 2000                                      | 150                                   | 100                        | 1.5             | 0.8                                       | 60                                           |             |
| RM20C1A-6S, 12S        | 300, 600                                            | 20 ( $T_C = 107/95^{\circ}\text{C}$ ) | 400                                       | 150                                   | 20                         | 1.8/2.3         | 0.2                                       | 0.5                                          |             |
| RM50C1A-6S, 12S/20S    | 300, 600, 1000                                      | 50 ( $T_C = 93^{\circ}\text{C}$ )     | 1000                                      | 150                                   | 50                         | 1.8             | 0.2                                       | 1.5                                          |             |
| RM20DA-12F, 20F, 24F   | 600, 1000, 1200                                     | 20 ( $T_C = 114^{\circ}\text{C}$ )    | 400                                       | 150                                   | 20                         | 1.5             | 0.8                                       | 15                                           |             |
| RM200DA-20F, 24F       | 1000, 1200                                          | 200 ( $T_C = 75^{\circ}\text{C}$ )    | 4000                                      | 150                                   | 200                        | 1.5             | 0.8                                       | 130                                          |             |
| RM50DA-12F             | 600                                                 | 50 ( $T_C = 105^{\circ}\text{C}$ )    | 1000                                      | 150                                   | 50                         | 1.5             | 0.8                                       | 30                                           |             |
| RM20DA-12S             | 600                                                 | 20 ( $T_C = 93^{\circ}\text{C}$ )     | 400                                       | 150                                   | 20                         | 1.8             | 0.2                                       | 0.5                                          |             |
| RM50DA-12S             | 600                                                 | 50 ( $T_C = 93^{\circ}\text{C}$ )     | 1000                                      | 150                                   | 50                         | 1.8             | 0.2                                       | 1.5                                          |             |

\* : Snubber use for IGBT module and IPM.

Primary type No. Similar SR20C-12, -20, -24 (=RM20HA-12F, -20F, -24F)  
Similar SR50C-12, -20, -24 (=RM50HA-12F, -20F, -24F)  
Similar SR100C-12, -20, -24 (=RM100HA-12F, -20F, -24F)

Similar RM200HC-20 (=RM200HA-20F)  
Similar RM300HC-24 (=RM300HA-24F)

## ■ IGBT MODULES

| Type No.     | Max. ratings            |                       |                       |                        |                       | Electrical characteristics      |                         |                          |                        |                         | Connection form | Connections  |
|--------------|-------------------------|-----------------------|-----------------------|------------------------|-----------------------|---------------------------------|-------------------------|--------------------------|------------------------|-------------------------|-----------------|--------------|
|              | IGBT sections           |                       |                       |                        | FWDi sections         | IGBT sections                   |                         |                          | FWDi sections          |                         |                 |              |
|              | V <sub>CES</sub><br>(V) | I <sub>C</sub><br>(A) | P <sub>C</sub><br>(W) | T <sub>j</sub><br>(°C) | I <sub>E</sub><br>(A) | V <sub>CE</sub><br>(sat)<br>(V) | t <sub>on</sub><br>(μs) | t <sub>off</sub><br>(μs) | V <sub>EC</sub><br>(V) | t <sub>rr</sub><br>(ns) |                 |              |
| CM50E3Y-12E  | 600                     | 50                    | 250                   | 150                    | 50                    | 3.5                             | 0.45                    | 0.75                     | 2.5                    | 200                     | D               | A.           |
| CM75E3Y-12E  | 600                     | 75                    | 310                   | 150                    | 75                    | 3.5                             | 0.45                    | 0.75                     | 2.5                    | 200                     | D               |              |
| CM100E3Y-12E | 600                     | 100                   | 400                   | 150                    | 100                   | 3.5                             | 0.45                    | 0.75                     | 2.5                    | 200                     | D               |              |
| CM150E3Y-12E | 600                     | 150                   | 600                   | 150                    | 150                   | 3.5                             | 1.1                     | 0.95                     | 2.5                    | 200                     | D               |              |
| CM200E3Y-12E | 600                     | 200                   | 780                   | 150                    | 200                   | 3.5                             | 1.1                     | 1.05                     | 2.5                    | 200                     | D               |              |
| CM300E3Y-12E | 600                     | 300                   | 1100                  | 150                    | 300                   | 3.5                             | 1.1                     | 1.15                     | 2.5                    | 200                     | D               | B.           |
| CM50E3Y-24E  | 1200                    | 50                    | 400                   | 150                    | 50                    | 4.0                             | 0.3                     | 0.6                      | 2.5                    | 300                     | D               |              |
| CM75E3Y-24E  | 1200                    | 75                    | 600                   | 150                    | 75                    | 4.0                             | 0.7                     | 0.9                      | 2.5                    | 300                     | D               |              |
| CM100E3Y-24E | 1200                    | 100                   | 780                   | 150                    | 100                   | 4.0                             | 0.7                     | 0.9                      | 2.5                    | 300                     | D               |              |
| CM150E3Y-24E | 1200                    | 150                   | 1100                  | 150                    | 150                   | 4.0                             | 0.7                     | 0.9                      | 2.5                    | 300                     | D               |              |
| CM200E3Y-24E | 1200                    | 200                   | 1500                  | 150                    | 200                   | 4.0                             | 0.95                    | 0.9                      | 2.5                    | 300                     | D               | A.           |
| CM300HA-12H  | 600                     | 300                   | 1100                  | 150                    | 300                   | 2.8                             | 0.95                    | 0.65                     | 2.8                    | 110                     | A               |              |
| CM400HA-12H  | 600                     | 400                   | 1500                  | 150                    | 400                   | 2.8                             | 0.95                    | 0.65                     | 2.8                    | 110                     | A               |              |
| CM600HA-12H  | 600                     | 600                   | 2100                  | 150                    | 600                   | 2.8                             | 1.05                    | 0.65                     | 2.8                    | 110                     | A               |              |
| CM200HA-24H  | 1200                    | 200                   | 1500                  | 150                    | 200                   | 3.4                             | 0.65                    | 0.65                     | 3.5                    | 250                     | A               |              |
| CM300HA-24H  | 1200                    | 300                   | 2100                  | 150                    | 300                   | 3.4                             | 0.75                    | 0.7                      | 3.5                    | 250                     | A               | D. For Brake |
| CM400HA-24H  | 1200                    | 400                   | 2800                  | 150                    | 400                   | 3.4                             | 0.8                     | 0.7                      | 3.5                    | 250                     | A               |              |
| CM600HA-24H  | 1200                    | 600                   | 4100                  | 150                    | 600                   | 3.4                             | 1.0                     | 0.8                      | 3.5                    | 250                     | A               |              |
| CM1000HA-24H | 1200                    | 1000                  | 5800                  | 150                    | 1000                  | 3.6                             | 2.1                     | 1.55                     | 3.5                    | 250                     | A               |              |
| CM400HA-28H  | 1400                    | 400                   | 2800                  | 150                    | 400                   | 4.2                             | 0.8                     | 0.85                     | 3.8                    | 300                     | A               |              |
| CM600HA-28H  | 1400                    | 600                   | 4100                  | 150                    | 600                   | 4.2                             | 1.05                    | 1.0                      | 3.8                    | 300                     | A               | B.           |
| CM1000HA-28H | 1400                    | 1000                  | 5800                  | 150                    | 1000                  | 4.5                             | 2.8                     | 1.85                     | 4.0                    | 300                     | A               |              |
| CM50DY-12H   | 600                     | 50                    | 250                   | 150                    | 50                    | 2.8                             | 0.5                     | 0.5                      | 2.8                    | 110                     | B               |              |
| CM75DY-12H   | 600                     | 75                    | 310                   | 150                    | 75                    | 2.8                             | 0.42                    | 0.5                      | 2.8                    | 110                     | B               |              |
| CM100DY-12H  | 600                     | 100                   | 400                   | 150                    | 100                   | 2.8                             | 0.42                    | 0.5                      | 2.8                    | 110                     | B               |              |
| CM150DY-12H  | 600                     | 150                   | 600                   | 150                    | 150                   | 2.8                             | 0.55                    | 0.6                      | 2.8                    | 110                     | B               | B.           |
| CM200DY-12H  | 600                     | 200                   | 780                   | 150                    | 200                   | 2.8                             | 0.75                    | 0.6                      | 2.8                    | 110                     | B               |              |

POWER DEVICES