

Hitachi IGBT

Status List

Date: Jul. 2021

Compliance status of RoHS directive

C:Compliant S.C:Compliant (Included RoHS exemption substance) N:Non compliant

Production Status

M:Mass production W:Working sample U:Under development D:Discontinued N:Not for new design

HV-IGBT Module

| Conne- ction | Type name | Absolute Max. Ratings | | Electrical Characteristics | | | | | Outline | RoHS Status | Status |
|-----------------|----------------|--------------------------|-----------------------|---------------------------------|---------------------------|-----------------------------|------------------------------|----------------------------|---------|----------------|--------|
| | | V _{CE} S (V) | I _C (A) | V _{CE(sat)} (V)Typ. | V _F (V)Typ. | t _{on} (us)Max. | t _{off} (us)Max. | t _r (us)Max. | | | |
| 1 in 1 | MBN3600E17F | 1,700 | 3,600 | 2.4 | 2.25 | 2.8 | 6.6 | 3.2 | N-9 | N | M |
| | MBN800E33E | 3,300 | 800 | 3.5 | 2.5 | 3.3 | 5.7 | 3.1 | N-10 | N | M |
| | MBN1000E33E2 | 3,300 | 1,000 | 3.1 | 2.5 | 3.4 | 5.0 | 2.7 | N-10 | N | M |
| | MBN1200E33E | 3,300 | 1,200 | 3.5 | 2.5 | 3.3 | 5.7 | 3.1 | N-9 | N | M |
| | MBN1200F33F | 3,300 | 1,200 | 2.85 | 2.6 | 1.6 | 5.9 | 2.6 | N-10 | S.C | M |
| | MBN1500E33E2 | 3,300 | 1,500 | 3.1 | 2.6 | 3.7 | 5.5 | 2.6 | N-9 | N | M |
| | MBN1500E33E3 | 3,300 | 1,500 | 3.6 | 2.6 | 4.0 | 5.8 | 3.3 | N-9 | N | M |
| | MBN1800F33F | 3,300 | 1,800 | 2.85 | 2.6 | - | - | - | N-9 | S.C | M |
| | MBN1800FH33F | 3,300 | 1,800 | 2.85 | 2.6 | - | - | - | N-12 | S.C | M |
| | MBN800H45E2 | 4,500 | 800 | 3.7 | 2.9 | 4.7 | 8.0 | 4.5 | N-13 | N | M |
| | MBN800H45E2-H | 4,500 | 800 | 4.2 | 3.7 | 5.4 | 7.2 | 3.6 | N-13 | N | M |
| | MBN1000FH45F | 4,500 | 1,000 | 3.0 | 2.8 | - | - | - | N-15 | S.C | M |
| | MBN1000FH45F-H | 4,500 | 1,000 | 4.35 | 2.8 | - | - | - | N-15 | S.C | M |
| | MBN1200H45E2 | 4,500 | 1,200 | 3.7 | 2.9 | 4.7 | 8.0 | 4.5 | N-12 | N | M |
| | MBN1200H45E2-H | 4,500 | 1,200 | 4.2 | 3.7 | 5.4 | 7.2 | 3.6 | N-12 | N | M |
| | MBN1500FH45F | 4,500 | 1,500 | 3.00 | 2.8 | - | - | - | N-14 | S.C | M |
| | MBN1500FH45F-H | 4,500 | 1,500 | 4.35 | 2.8 | - | - | - | N-14 | S.C | M |
| | MBN500H65E2 | 6,500 | 500 | 4.3 | 3.9 | 5.9 | 9.6 | 4.7 | N-13 | N | M |
| | MBN750H65E2 | 6,500 | 750 | 4.3 | 3.9 | 5.9 | 9.6 | 4.7 | N-12 | N | M |
| | MBN1000FH65G2 | 6,500 | 1,000 | 4.1 | 4.1 | - | - | - | N-14 | S.C | U |

HV-IGBT Module

| Conne ^c tion | Type name | Absolute Max. Ratings | | Electrical Characteristics | | | | | Outline | RoHS Status | Status |
|-------------------------|----------------|-------------------------|-----------------------|---------------------------------|---------------------------|-----------------------------|------------------------------|----------------------------|---------|-------------|--------|
| | | V _{CES} (V) | I _C (A) | V _{CE(sat)} (V)Typ. | V _F (V)Typ. | t _{on} (us)Max. | t _{off} (us)Max. | t _r (us)Max. | | | |
| 2 in 1 | MBM1000FS17G | 1,700 | 1,000 | 2.15 | 1.9 | - | - | - | M-15 | S.C | M |
| | MBM1200E17F | 1,700 | 1,200 | 2.4 | 2.3 | 2.5 | 6.0 | 3.0 | M-10 | N | M |
| | MBM250H33E3 | 3,300 | 250 | 3.6 | 2.8 | 3.3 | 5.2 | 3.2 | M-13 | N | M |
| | MBM450FS33F | 3,300 | 450 | 3.05 | 2.45 | - | - | - | M-15 | S.C | M |
| | MBM500E33E2-R | 3,300 | 500 | 3.1 | 2.5 | 2.6 | 4.9 | 2.6 | M-14 | N | M |
| | MBM200H45E2-H | 4,500 | 200 | 4.2 | 3.9 | 5.4 | 6.7 | 3.6 | M-13 | N | M |
| Chopper | MBL1600E17F | 1,700 | 1,600 | 2.4 | 2.3 | 2.0 | 6.4 | 2.8 | N-9 | N | M |
| | MBL400E33D | 3,300 | 400 | 4.2 | 2.5 | 3.3 | 5.1 | 2.5 | N-10 | N | M |
| | MBL1000E33E2-B | 3,300 | 1,000 | 2.95 | 2.5 | 3.3 | 5.0 | 2.7 | N-9 | N | M |

| Conne ^c tion | Type name | Absolute Max. Ratings | | Electrical Characteristics | | | | | Outline | RoHS Status | Status |
|-------------------------|----------------|-------------------------|-----------------------|----------------------------|---|---|-----|-----------------------------|---------|-------------|--------|
| | | V _{RRM} (V) | I _F (A) | V _F (V)Typ. | - | - | - | t _{rr} (us)Max. | | | |
| Diode | MDM900E17D | 1,700 | 900 | 2.0 | - | - | - | 1.4 | N-10 | N | M |
| | MDM1200E17D | 1,700 | 1,200 | 2.1 | - | - | - | 1.0 | N-10 | N | M |
| | MDM800E33D | 3,300 | 800 | 2.5 | - | - | - | 1.1 | N-10 | N | M |
| | MDM1200E33D | 3,300 | 1,200 | 2.8 | - | - | - | 1.1 | N-10 | N | M |
| | MDM1200FH33F | 3,300 | 1,200 | 3.3 | - | - | - | - | N-13 | S.C | M |
| | MDM400H45E2 | 4,500 | 400 | 3.4 | - | - | - | 1.6 | N-13 | N | M |
| | MDM800H45E2 | 4,500 | 800 | 3.4 | - | - | - | 1.6 | N-13 | N | M |
| | MDM800H45E2-H | 4,500 | 800 | 4.2 | - | - | - | tbd | N-13 | N | M |
| | MDM1200H45E2 | 4,500 | 1,200 | 3.4 | - | - | - | 1.8 | N-13 | N | M |
| | MDM1200H45E2-H | 4,500 | 1,200 | 4.2 | - | - | - | 1.8 | N-13 | N | M |
| | MDM250H65E2 | 6,500 | 250 | 4.1 | - | - | - | - | N-13 | N | M |
| | MDM500H65E2 | 6,500 | 500 | 4.1 | - | - | - | tbd | N-13 | N | M |
| MDM750H65E2 | 6,500 | 750 | 4.15 | - | - | - | 1.6 | N-13 | N | M | |

IGBT Module

| Conne ^c tion | Type name | Absolute Max. Ratings | | Electrical Characteristics | | | | | Outline | RoHS Status | Status |
|-------------------------|-------------|-------------------------|-----------------------|---------------------------------|---------------------------|-----------------------------|------------------------------|----------------------------|---------|-------------|--------|
| | | V _{CES} (V) | I _C (A) | V _{CE(sat)} (V)Typ. | V _F (V)Typ. | t _{on} (us)Max. | t _{off} (us)Max. | t _f (us)Max. | | | |
| 6 in 1 | MBB600TV6A | 650 | 600 | 1.9 | 1.5 | 0.9 | 2.0 | 0.8 | B-2 | C | M |
| | MBB800TV7A | 700 | 800 | 1.8 | 1.35 | 1.1 | 2.2 | 1.15 | B-2 | C | M |
| | MBB400TX12A | 1,200 | 400 | 1.9 | 2.2 | - | - | - | B-3 | C | U |

SiC (Full SiC)

| Conne ^c tion | Type name | Absolute Max. Ratings | | Electrical Characteristics | | | | | Outline | RoHS Status | Status |
|-------------------------|---------------|-------------------------|-----------------------|----------------------------|----------------------------|-----------------------------|------------------------------|----------------------------|---------|-------------|--------|
| | | V _{DSS} (V) | I _D (A) | V _{DS} (V)Typ. | V _{SD} (V)Typ. | t _{on} (us)Max. | t _{off} (us)Max. | t _f (us)Max. | | | |
| 2 in 1 | MSM900FS17ALT | 1,700 | 900 | 2.1 | 6.6 | - | - | - | M-15 | S.C | U |
| | MSM600FS33ALT | 3,300 | 600 | 3.6 | 6.7 | - | - | - | M-15 | S.C | U |
| | MSM800FS33ALT | 3,300 | 800 | 3.6 | 6.7 | - | - | - | M-15 | S.C | U |
| Chopper | MSL800FS33PLT | 3,300 | 800 | 3.6 | 6.7 | - | - | - | N-16 | S.C | U |
| | MSL800FS33NLT | 3,300 | 800 | 3.6 | 6.7 | - | - | - | N-17 | S.C | U |

SiC (Hybrid SiC)

| Conne ^c tion | Type name | Absolute Max. Ratings | | Electrical Characteristics | | | | | Outline | RoHS Status | Status |
|-------------------------|----------------|-------------------------|-----------------------|----------------------------|----------------------------|-----------------------------|------------------------------|----------------------------|---------|-------------|--------|
| | | V _{DSS} (V) | I _D (A) | V _{DS} (V)Typ. | V _{SD} (V)Typ. | t _{on} (us)Max. | t _{off} (us)Max. | t _f (us)Max. | | | |
| 1 in 1 | MBN1200F33F-C3 | 3,300 | 1,200 | 2.85 | 4.6 | - | - | - | N-10 | S.C | M |
| | MBN1800F33F-C3 | 3,300 | 1,800 | 2.85 | 4.6 | - | - | - | N-9 | S.C | M |

Discontinued or Not for new design

◆HV-IGBT module

| Connection | Type name | Absolute Max. Ratings | | Electrical Characteristics | | | | Outline | RoHS Status | Status |
|-------------|----------------|---------------------------|-----------------------|---------------------------------|-----------------------------|------------------------------|----------------------------|---------|-------------|--------|
| | | V _{CE(S)} (V) | I _C (A) | V _{CE(sat)} (V)Typ. | t _{on} (us)Max. | t _{off} (us)Max. | t _r (us)Max. | | | |
| 1 in 1 | MBN1200E17D | 1,700 | 1,200 | 2.7 | 1.8 | 3.4 | 0.7 | N-10 | N | D |
| | MBN1200E17E | 1,700 | 1,200 | 2.2 | 4.0 | 4.2 | 2.0 | N-10 | N | D |
| | MBN1600E17D | 1,700 | 1,600 | 2.7 | 2.4 | 3.8 | 0.4 | N-10 | N | D |
| | MBN1600EB17D | 1,700 | 1,600 | 2.7 | 2.4 | 3.8 | 0.4 | N-11 | N | D |
| | MBN1600E17F | 1,700 | 1,600 | 2.4 | 2.0 | 6.4 | 2.8 | N-10 | N | D |
| | MBN1800E17E | 1,700 | 1,800 | 2.2 | 4.4 | 4.4 | 1.8 | N-9 | N | D |
| | MBN1800E17D | 1,700 | 1,800 | 2.7 | 2.4 | 3.0 | 0.4 | N-9 | N | D |
| | MBN1800E17DD | 1,700 | 1,800 | 2.7 | 2.6 | 3.0 | 0.4 | N-9 | N | D |
| | MBN2400E17D | 1,700 | 2,400 | 2.6 | 3.4 | 3.6 | 0.4 | N-9 | N | D |
| | MBN2400ES17D | 1,700 | 2,400 | 2.7 | 2.8 | 3.6 | 0.6 | N-10 | N | D |
| | MBN2400E17F | 1,700 | 2,400 | 2.4 | tbd | tbd | tbd | N-9 | N | D |
| | MBN3600E17E | 1,700 | 3,600 | 2.2 | 3.6 | 5.6 | 1.6 | N-9 | N | D |
| | MBN400C20 | 2,000 | 400 | 4.2 | 2.6 | 5.9 | 2.4 | N-4 | N | D |
| | MBN400D20 | 2,000 | 400 | 4.2 | 2.6 | 5.9 | 2.4 | N-4 | N | D |
| | MBN600C20 | 2,000 | 600 | 4.4 | 2.5 | 5.9 | 2.7 | N-3 | N | D |
| | MBN600D20 | 2,000 | 600 | 4.4 | 2.5 | 5.9 | 2.7 | N-3 | N | D |
| | MBN1200E25C | 2,500 | 1,200 | 3.0 | 5.2 | 5.6 | 3.4 | N-9 | N | D |
| | MBN400C33A | 3,300 | 400 | 4.5 | 3.2 | 5.3 | 2.8 | N-3 | N | D |
| | MBN400D33A | 3,300 | 400 | 4.5 | 3.2 | 5.3 | 2.8 | N-3 | N | D |
| | MBN600C33A | 3,300 | 600 | 4.5 | 4.0 | 6.0 | 3.2 | N-2 | N | D |
| | MBN800E33D | 3,300 | 800 | 4.2 | 3.3 | 5.1 | 2.5 | N-10 | N | D |
| | MBN800E33D-AX | 3,300 | 800 | 4.2 | 3.5 | 5.3 | 2.6 | N-10 | N | D |
| | MBN1200D33A | 3,300 | 1,200 | 4.1 | 3.2 | 5.6 | 3.2 | N-1 | N | D |
| | MBN1200D33C | 3,300 | 1,200 | 4.8 | 3.8 | 5.6 | 3.2 | N-1 | N | D |
| | MBN1200E33C | 3,300 | 1,200 | 4.8 | 3.8 | 5.6 | 3.2 | N-9 | N | D |
| | MBN1200E33D | 3,300 | 1,200 | 4.2 | 3.3 | 5.1 | 2.5 | N-9 | N | D |
| MBN1200H33D | 3,300 | 1,200 | 4.2 | 3.3 | 5.1 | 2.5 | N-12 | N | D | |
| MBN600E45A | 4,500 | 600 | 5.5 | 3.0 | 5.5 | 3.0 | N-10 | N | D | |
| MBN900D45A | 4,500 | 900 | 5.5 | 3.0 | 5.5 | 3.0 | N-1 | N | D | |
| 2 in 1 | MBM600E17D | 1,700 | 600 | 2.6 | 1.6 | 3.0 | 1.0 | M-10 | N | D |
| | MBM600F17D | 1,700 | 600 | 3.0 | 2.0 | 3.6 | 1.2 | M-12 | C | D |
| | MBM800E17D | 1,700 | 800 | 2.7 | 2.4 | 3.2 | 0.5 | M-10 | N | D |
| | MBM800E17F | 1,700 | 800 | 2.4 | 2.8 | 4.6 | 2.8 | M-10 | N | D |
| | MBM1200E17D | 1,700 | 1,200 | 2.7 | 1.8 | 3.2 | 0.6 | M-10 | N | D |
| | MBM400E25E | 2,500 | 400 | 2.3 | 3.2 | 4.8 | 2.0 | M-11 | N | D |
| | MBM400E33D-MFR | 3,300 | 400 | 5.0 | - | - | - | M-14 | N | D |
| | MBM500E33E2 | 3,300 | 500 | 3.1 | 2.6 | 4.9 | 2.6 | M-11 | N | D |

Discontinued or Not for new design

◆HV-IGBT module

| Connection | Type name | Absolute Max. Ratings | | Electrical Characteristics | | | | Outline | RoHS Status | Status |
|------------|--------------|-------------------------|-----------------------|---------------------------------|-----------------------------|------------------------------|-----------------------------|---------|-------------|--------|
| | | V _{CES} (V) | I _c (A) | V _{CE(sat)} (V)Typ. | t _{on} (us)Max. | t _{off} (us)Max. | t _r (us)Max. | | | |
| Chopper | MBL1200E17D | 1,700 | 1,200 | 2.7 | 2.4 | 3.4 | 0.4 | N-10 | N | D |
| | MBL1200E17F | 1,700 | 1,200 | 2.4 | 2.5 | 6.0 | 3.0 | N-10 | N | D |
| | MBL800D33B | 3,300 | 800 | 4.1 | 3.3 | 5.0 | 2.7 | N-1 | N | D |
| | MBL800D33C | 3,300 | 800 | 4.1 | 3.8 | 5.6 | 1.4 | N-1 | N | D |
| | MBL800E33C | 3,300 | 800 | 4.8 | 3.8 | 5.6 | 3.2 | N-9 | N | D |
| | MBL800E33D | 3,300 | 800 | 4.2 | 3.3 | 5.1 | 2.5 | N-9 | N | D |
| | MBL800E33D-R | 3,300 | 800 | 4.2 | 3.3 | 5.1 | 2.5 | N-9 | N | D |
| | MBL800E33E | 3,300 | 800 | 3.5 | 3.3 | 5.7 | 3.1 | N-9 | N | D |
| Connection | Type name | Absolute Max. Ratings | | Electrical Characteristics | | | | Outline | RoHS Status | Status |
| | | V _{RRM} (V) | I _F (A) | V _F (V)Typ. | - | - | t _{rr} (us)Max. | | | |
| Diode | MDM400E33D | 3,300 | 400 | 2.5 | - | - | 0.7 | N-10 | N | D |
| | MDN1200D33 | 3,300 | 1,200 | 3.2 | - | - | 1.4 | N-3 | N | D |
| | MDM300E45A | 4,500 | 300 | 4.5 | - | - | 1.0 | N-10 | N | D |
| | MDM600E45A | 4,500 | 600 | 4.5 | - | - | 1.0 | N-10 | N | D |
| | MDM900E45A | 4,500 | 900 | 4.5 | - | - | tbd | N-10 | N | D |

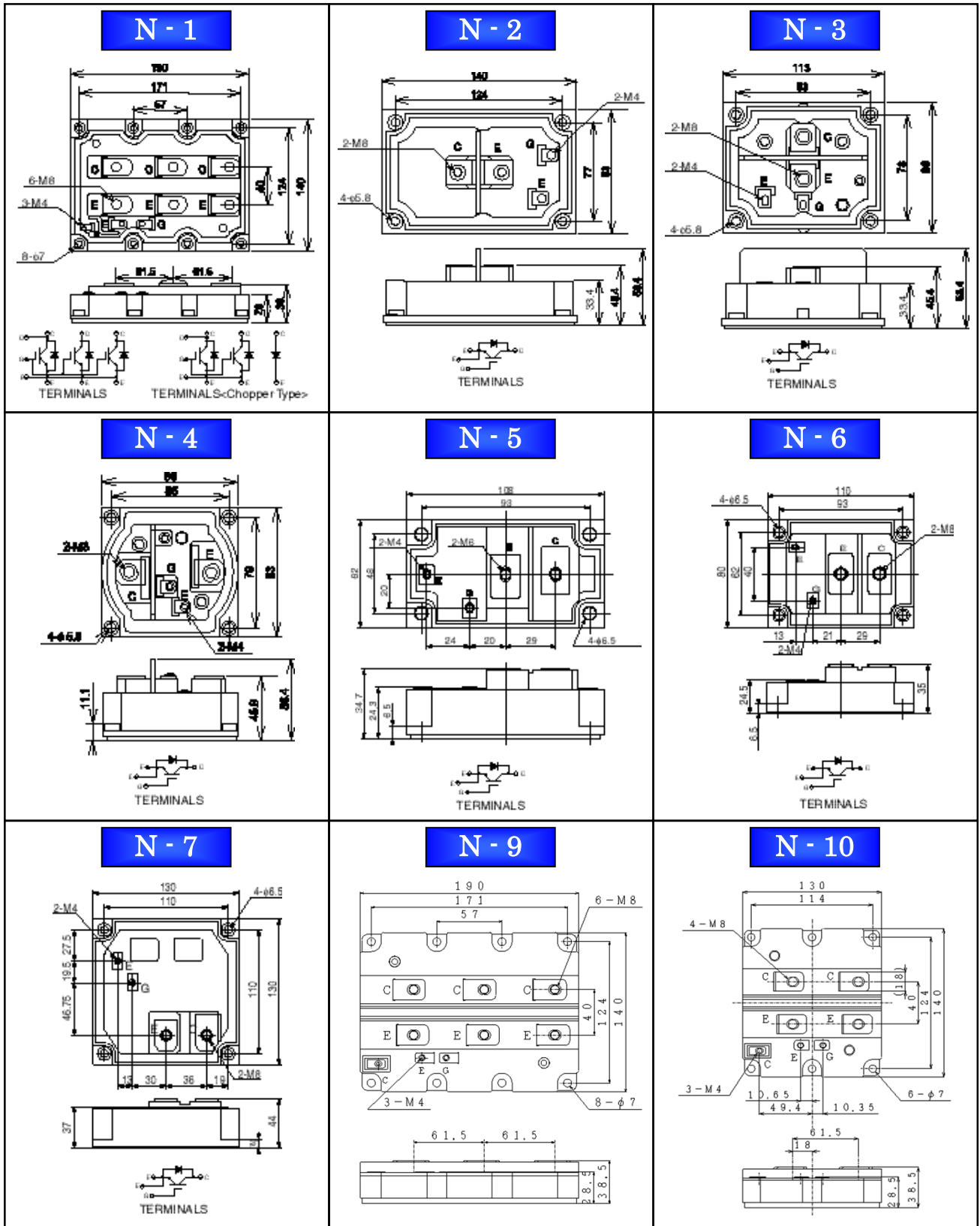
Discontinued or Not for new design

◆IGBT module

| Connection | Type name | Absolute Max. Ratings | | Electrical Characteristics | | | | Outline | RoHS Status | Status |
|-------------|---------------|-------------------------|-----------------------|---------------------------------|-----------------------------|------------------------------|----------------------------|---------|-------------|--------|
| | | V _{CES} (V) | I _c (A) | V _{CE(sat)} (V)Typ. | t _{on} (us)Max. | t _{off} (us)Max. | t _r (us)Max. | | | |
| 1 in 1 | MBN600GR12 | 1,200 | 600 | 2.2 | 1.0 | 1.2 | 0.4 | N-6 | N | D |
| | MBN400GR12 | 1,200 | 400 | 2.2 | 0.9 | 1.1 | 0.35 | N-5 | N | D |
| | MBN1200GS12AW | 1,200 | 1,200 | 2.9 | 2.2 | 1.6 | 0.55 | N-7 | N | D |
| | MBN600GS12AW | 1,200 | 600 | 2.7 | 0.8 | 1.2 | 0.4 | N-6 | N | D |
| | MBN400GS12AW | 1,200 | 400 | 2.7 | 0.7 | 1.1 | 0.35 | N-5 | N | D |
| | MBN400GS12BW | 1,200 | 400 | 2.7 | 0.7 | 1.1 | 0.35 | N-5 | N | D |
| | MBN300GS12AW | 1,200 | 300 | 2.7 | 0.7 | 1.1 | 0.35 | N-5 | N | D |
| | MBN1200GR12A | 1,200 | 1,200 | 2.4 | 2.1 | 1.8 | 0.4 | N-7 | N | D |
| | MBN600GR12A | 1,200 | 600 | 2.2 | 0.8 | 1.2 | 0.35 | N-6 | N | D |
| | MBN400GR12A | 1,200 | 400 | 2.2 | 0.7 | 1.1 | 0.3 | N-5 | N | D |
| 2 in 1 | MBM300GR12 | 1,200 | 300 | 2.2 | 0.9 | 1.1 | 0.35 | M-9 | N | D |
| | MBM200GR12 | 1,200 | 200 | 2.2 | 0.8 | 1.0 | 0.35 | M-8 | N | D |
| | MBM150GR12 | 1,200 | 150 | 2.2 | 0.8 | 1.0 | 0.35 | M-8 | N | D |
| | MBM100GR12 | 1,200 | 100 | 2.2 | 0.8 | 0.9 | 0.35 | M-8 | N | D |
| | MBM400GR6 | 600 | 400 | 2.1 | 0.7 | 1.1 | 0.32 | M-3 | N | D |
| | MBM300GR6 | 600 | 300 | 2.1 | 0.7 | 1.0 | 0.32 | M-8 | N | D |
| | MBM200GR6 | 600 | 200 | 2.1 | 0.7 | 0.8 | 0.3 | M-8 | N | D |
| | MBM150GR6 | 600 | 150 | 2.1 | 0.7 | 0.8 | 0.3 | M-8 | N | D |
| | MBM300GS12AW | 1,200 | 300 | 2.7 | 0.7 | 1.1 | 0.35 | M-4 | N | D |
| | MBM200GS12AW | 1,200 | 200 | 2.7 | 0.55 | 1.0 | 0.35 | M-1 | N | D |
| | MBM200JS12AW | 1,200 | 200 | 2.7 | 0.55 | 1.0 | 0.35 | M-3 | N | D |
| | MBM200JS12EW | 1,200 | 200 | 2.7 | 0.55 | 1.0 | 0.35 | M-2 | N | D |
| | MBM150GS12AW | 1,200 | 150 | 2.7 | 0.55 | 1.0 | 0.35 | M-1 | N | D |
| | MBM100GS12AW | 1,200 | 100 | 2.7 | 0.55 | 0.9 | 0.35 | M-6 | N | D |
| | MBM75GS12AW | 1,200 | 75 | 2.7 | 0.55 | 0.9 | 0.35 | M-6 | N | D |
| | MBM600GS6CW | 600 | 600 | 1.9 | 0.8 | 1.1 | 0.4 | M-7 | N | D |
| | MBM400GS6AW | 600 | 400 | 1.9 | 0.7 | 1.1 | 0.35 | M-1 | N | D |
| | MBM400JS6AW | 600 | 400 | 1.9 | 0.7 | 1.1 | 0.35 | M-3 | N | D |
| | MBM300GS6AW | 600 | 300 | 1.9 | 0.7 | 1.1 | 0.35 | M-1 | N | D |
| | MBM200GS6AW | 600 | 200 | 1.9 | 0.6 | 0.9 | 0.35 | M-6 | N | D |
| | MBM150GS6AW | 600 | 150 | 1.9 | 0.6 | 0.9 | 0.35 | M-6 | N | D |
| | MBM300GR12A | 1,200 | 300 | 2.2 | 0.7 | 1.1 | 0.3 | M-9 | N | D |
| | MBM200GR12A | 1,200 | 200 | 2.2 | 0.6 | 1.0 | 0.3 | M-8 | N | D |
| MBM150GR12A | 1,200 | 150 | 2.2 | 0.6 | 1.0 | 0.3 | M-8 | N | D | |
| MBM100GR12A | 1,200 | 100 | 2.2 | 0.6 | 1.0 | 0.3 | M-8 | N | D | |
| 6 in 1 | MBB200GS6AW | 600 | 200 | 1.9 | 0.6 | 0.9 | 0.35 | B-1 | N | D |
| | MBB100GS12AW | 1,200 | 100 | 2.7 | 0.55 | 0.9 | 0.35 | B-1 | N | D |
| | MBB75GS12AW | 1,200 | 75 | 2.7 | 0.55 | 0.9 | 0.35 | B-1 | N | D |

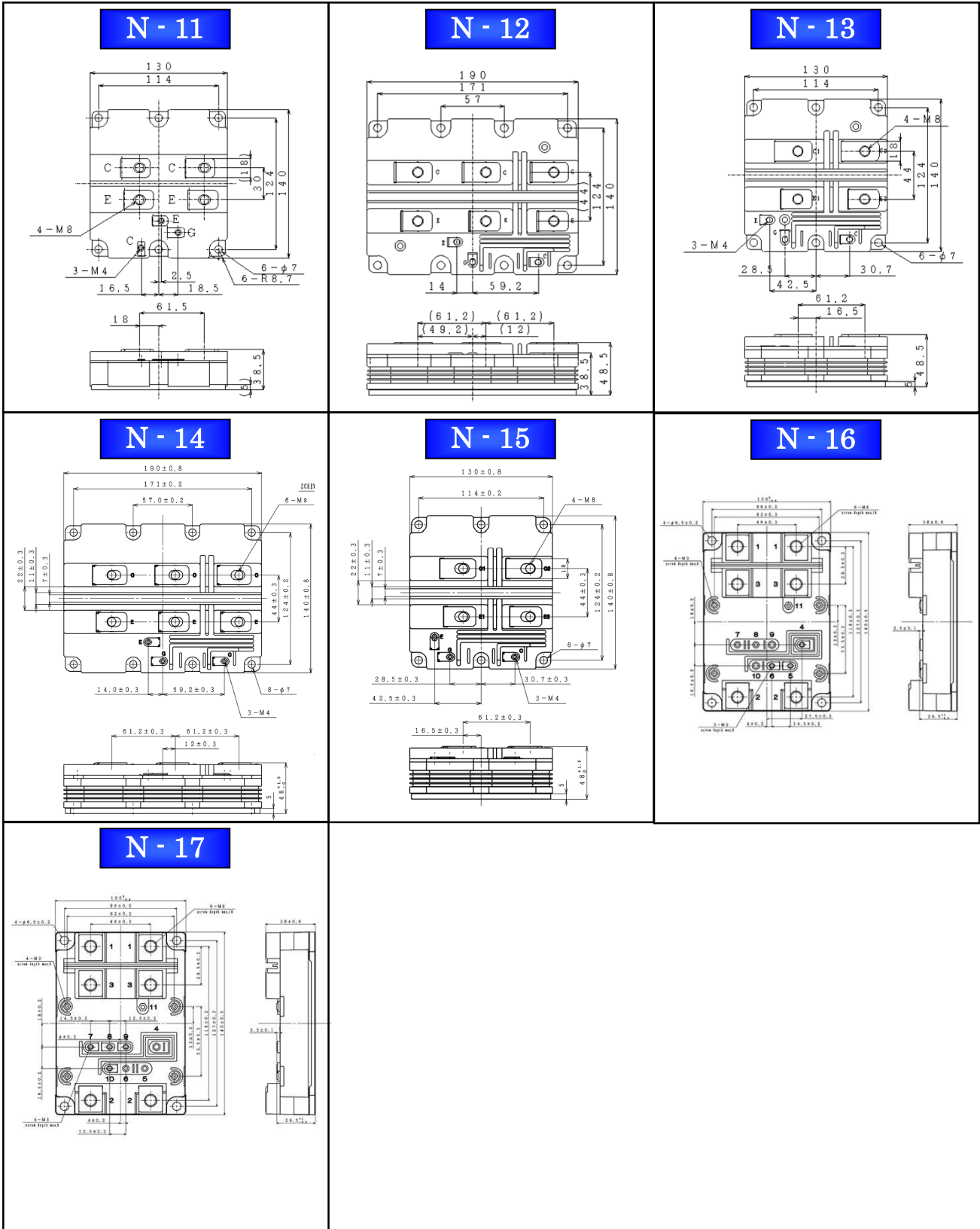
Outline

[Dimensions in mm]



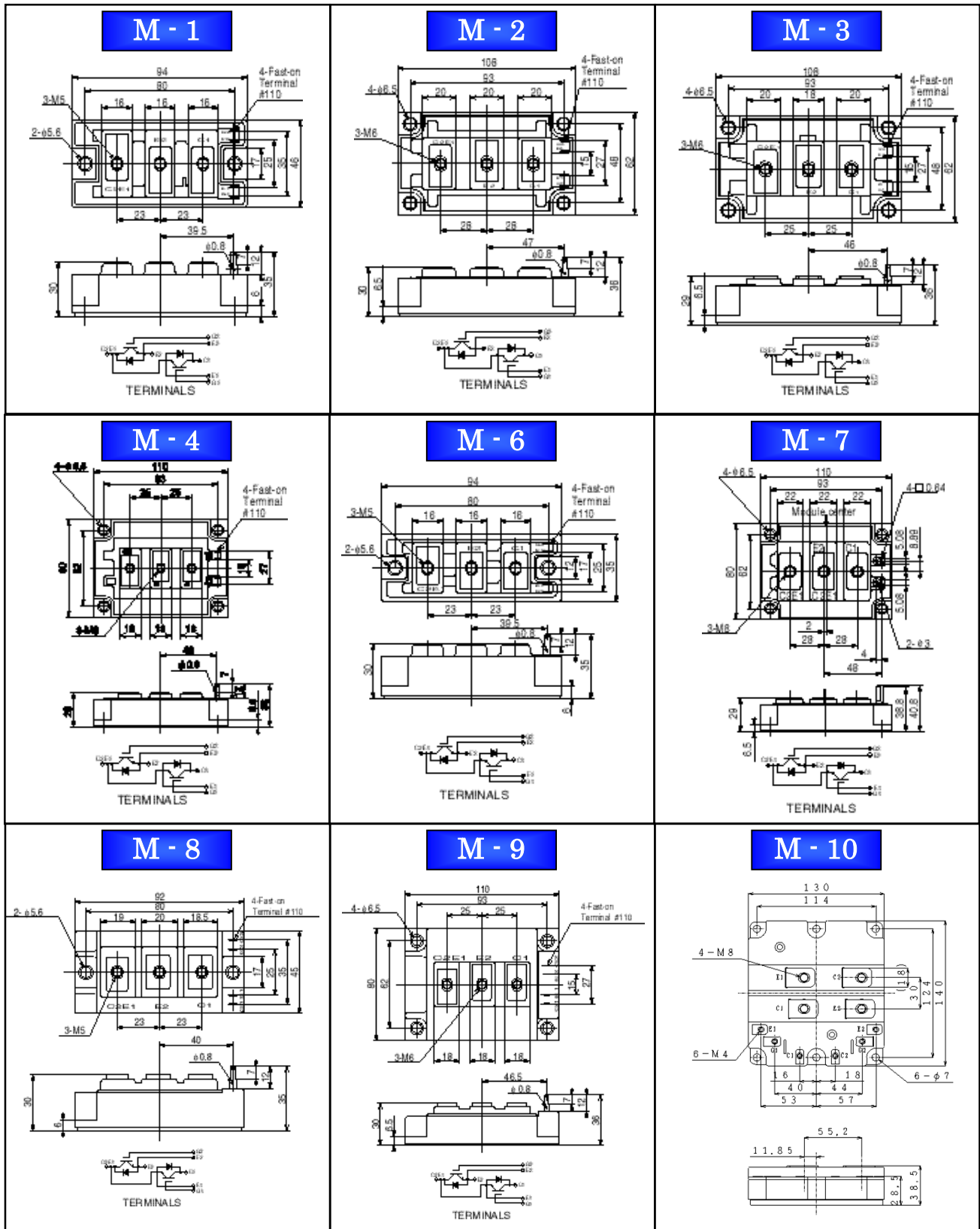
Outline

[Dimensions in mm]



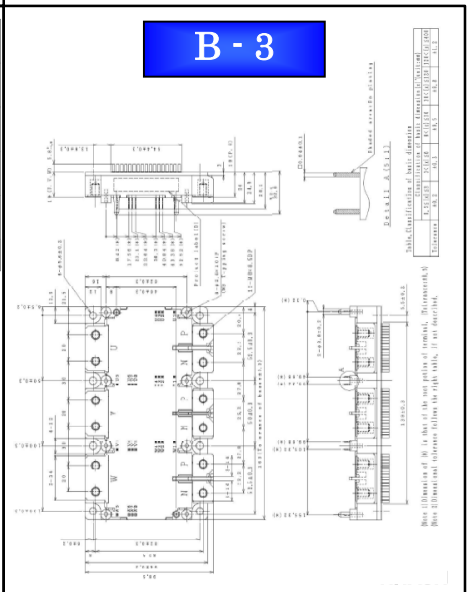
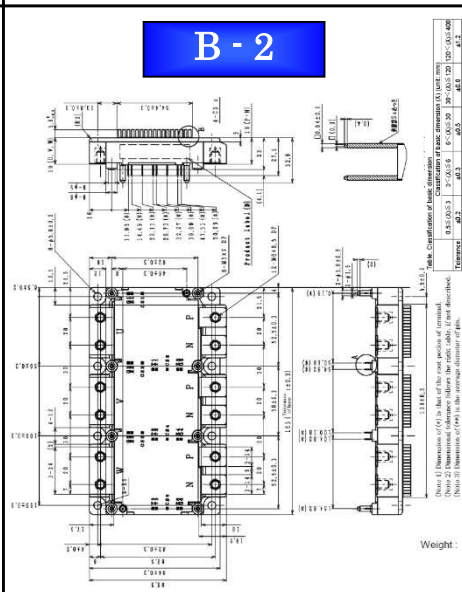
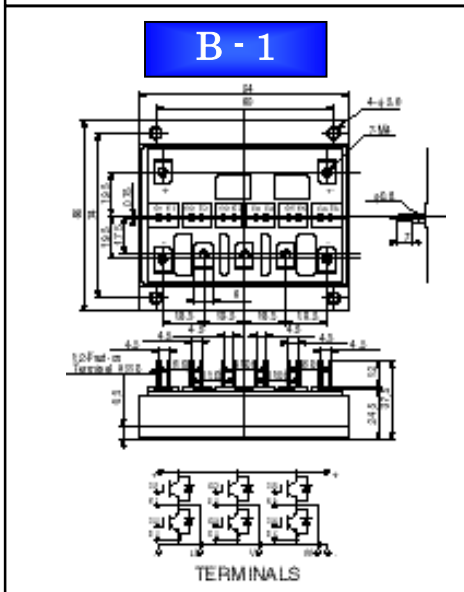
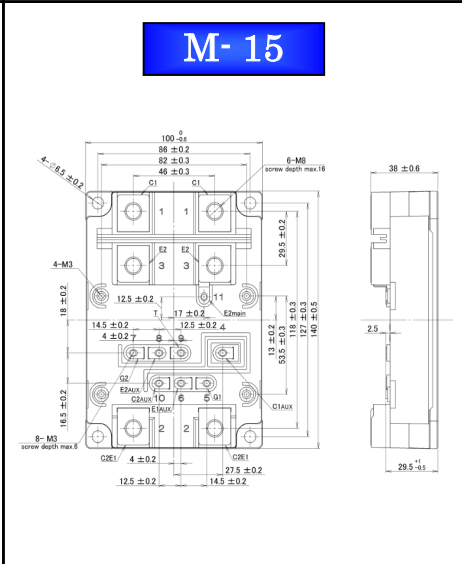
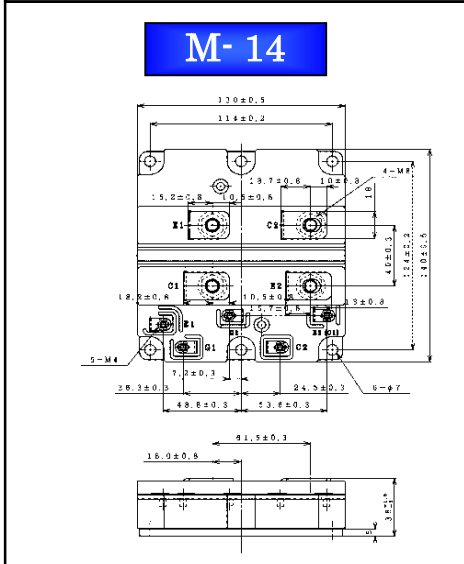
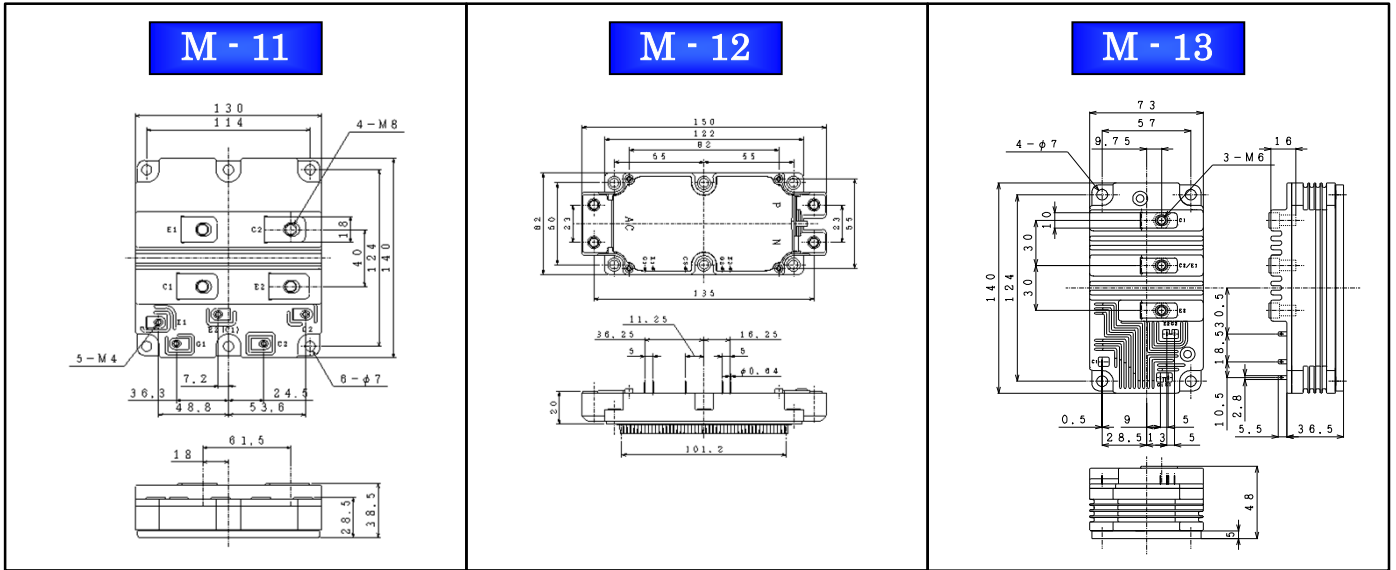
Outline

[Dimensions in mm]



Outline

[Dimensions in mm]



Notices

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