

# Hitachi High-Power IGBT Modules

Status List

Date: Jul. 2005

M: Mass production W: Working sample A: Abolition

KS05013

## High-Voltage High-Power Series

| Connection | Type         | Absolute Maximum Ratings |                       |                       | Characteristics                 |                             |                              |                            | Outline | Status |
|------------|--------------|--------------------------|-----------------------|-----------------------|---------------------------------|-----------------------------|------------------------------|----------------------------|---------|--------|
|            |              | V <sub>CES</sub><br>(V)  | I <sub>C</sub><br>(A) | P <sub>C</sub><br>(W) | V <sub>CE(sat)</sub><br>(V)Typ. | t <sub>on</sub><br>(μs)Max. | t <sub>off</sub><br>(μs)Max. | t <sub>r</sub><br>(μs)Max. |         |        |
| Single     | MBN900D45A   | 4,500                    | 900                   | -                     | 5.5                             | 2.2                         | 3.6                          | 1.6                        | N - 1   | M      |
|            | MBN800E33D   | 3,300                    | 800                   | -                     | 4.2                             | 2.4                         | 3.0                          | 1.9                        | N - 10  | M      |
|            | MBN1200E33D  | 3,300                    | 1,200                 | 11,500                | 4.2                             | 3.3                         | 5.1                          | 2.5                        | N - 9   | M      |
|            | MBN1200D33C  | 3,300                    | 1,200                 | 12,000                | 4.8                             | 3.8                         | 5.6                          | 3.2                        | N - 1   | M      |
|            | MBN600C33A   | 3,300                    | 600                   | 5,800                 | 4.5                             | 4.0                         | 6.0                          | 3.2                        | N - 2   | M      |
|            | MBN400C33A   | 3,300                    | 400                   | 4,000                 | 4.5                             | 3.2                         | 5.3                          | 2.8                        | N - 3   | M      |
|            | MBN1200E25C  | 2,500                    | 1,200                 | 12,000                | 2.9                             | 4.2                         | 6.4                          | 3.2                        | N - 9   | M      |
|            | MBN600D20    | 2,000                    | 600                   | 4,000                 | 4.4                             | 2.5                         | 5.9                          | 2.7                        | N - 3   | M      |
|            | MBN400D20    | 2,000                    | 400                   | 3,000                 | 4.2                             | 2.6                         | 5.9                          | 2.4                        | N - 4   | M      |
|            | MBN1200E17D  | 1,700                    | 1,200                 | -                     | 2.7                             | 0.9                         | 1.4                          | 0.6                        | N - 10  | M      |
|            | MBN1600E17D  | 1,700                    | 1,600                 | -                     | 2.7                             | 1.2                         | 1.9                          | 0.7                        | N - 10  | M      |
|            | MBN1600EB17D | 1,700                    | 1,600                 | -                     | 2.7                             | 1.2                         | 1.9                          | 0.7                        | N - 11  | M      |
|            | MBN1800E17D  | 1,700                    | 1,800                 | -                     | 2.7                             | 1.2                         | 1.5                          | 0.7                        | N - 9   | M      |
|            | MBN2400E17D  | 1,700                    | 2,400                 | -                     | 2.7                             | 1.6                         | 2.0                          | 1.1                        | N - 9   | W      |
| Chopper    | MBL800D33C   | 3,300                    | 800                   | 8,000                 | 4.1                             | 3.8                         | 5.6                          | 1.4                        | N - 1   | M      |
|            | MBL800E33D   | 3,300                    | 800                   | -                     | 4.2                             | 2.4                         | 3.0                          | 1.9                        | N - 9   | W      |
|            | MBL1200E17D  | 1,700                    | 1,200                 | -                     | 2.7                             | 1.6                         | 1.7                          | 0.9                        | N - 10  | M      |

| Connection | Type       | V <sub>RRM</sub><br>(V) | I <sub>F</sub><br>(A) | - | V <sub>F</sub><br>(V)Typ. | - | - | t <sub>fr</sub><br>(μs)Max. | Outline | Status |
|------------|------------|-------------------------|-----------------------|---|---------------------------|---|---|-----------------------------|---------|--------|
| Diode      | MDN1200D33 | 3,300                   | 1,200                 | - | 3.2                       | - | - | 0.8                         | N - 3   | M      |
|            | MDM800E33D | 3,300                   | 800                   | - | 2.0                       | - | - | 0.6                         | M - 10  | M      |

# Status List

Continue

## GR - A Series (Advanced GR Series)

| Connection | Type         | Absolute Maximum Ratings |                       |                       | Characteristics                 |                             |                              |                            | Outline | Status |
|------------|--------------|--------------------------|-----------------------|-----------------------|---------------------------------|-----------------------------|------------------------------|----------------------------|---------|--------|
|            |              | V <sub>CES</sub><br>(V)  | I <sub>C</sub><br>(A) | P <sub>C</sub><br>(W) | V <sub>CE(sat)</sub><br>(V)Typ. | t <sub>on</sub><br>(μs)Max. | t <sub>off</sub><br>(μs)Max. | t <sub>r</sub><br>(μs)Max. |         |        |
| Single     | MBN1200GR12A | 1,200                    | 1,200                 | 8,330                 | 2.4                             | 2.1                         | 1.8                          | 0.4                        | N - 7   | M      |
|            | MBN600GR12A  | 1,200                    | 600                   | 3,790                 | 2.2                             | 0.8                         | 1.2                          | 0.35                       | N - 6   | M      |
|            | MBN400GR12A  | 1,200                    | 400                   | 2,500                 | 2.2                             | 0.7                         | 1.1                          | 0.3                        | N - 5   | M      |
| Dual       | MBM300GR12A  | 1,200                    | 300                   | 1,980                 | 2.2                             | 0.7                         | 1.1                          | 0.3                        | M - 9   | M      |
|            | MBM200GR12A  | 1,200                    | 200                   | 1,250                 | 2.2                             | 0.6                         | 1.0                          | 0.3                        | M - 8   | M      |
|            | MBM150GR12A  | 1,200                    | 150                   | 1,000                 | 2.2                             | 0.6                         | 1.0                          | 0.3                        | M - 8   | M      |
|            | MBM100GR12A  | 1,200                    | 100                   | 690                   | 2.2                             | 0.6                         | 1.0                          | 0.3                        | M - 8   | M      |

## GR Series

| Connection | Type      | Absolute Maximum Ratings |                       |                       | Characteristics                 |                             |                              |                            | Outline | Status |
|------------|-----------|--------------------------|-----------------------|-----------------------|---------------------------------|-----------------------------|------------------------------|----------------------------|---------|--------|
|            |           | V <sub>CES</sub><br>(V)  | I <sub>C</sub><br>(A) | P <sub>C</sub><br>(W) | V <sub>CE(sat)</sub><br>(V)Typ. | t <sub>on</sub><br>(μs)Max. | t <sub>off</sub><br>(μs)Max. | t <sub>r</sub><br>(μs)Max. |         |        |
| Dual       | MBM400GR6 | 600                      | 400                   | 1,170                 | 2.1                             | 0.7                         | 1.1                          | 0.32                       | M - 3   | M      |
|            | MBM200GR6 | 600                      | 200                   | 690                   | 2.1                             | 0.7                         | 0.8                          | 0.3                        | M - 8   | M      |

## GS Series

| Connection | Type        | Absolute Maximum Ratings |                       |                       | Characteristics                 |                             |                              |                            | Outline | Status |
|------------|-------------|--------------------------|-----------------------|-----------------------|---------------------------------|-----------------------------|------------------------------|----------------------------|---------|--------|
|            |             | V <sub>CES</sub><br>(V)  | I <sub>C</sub><br>(A) | P <sub>C</sub><br>(W) | V <sub>CE(sat)</sub><br>(V)Typ. | t <sub>on</sub><br>(μs)Max. | t <sub>off</sub><br>(μs)Max. | t <sub>r</sub><br>(μs)Max. |         |        |
| Dual       | MBM600GS6CW | 600                      | 600                   | 1,700                 | 1.9                             | 0.8                         | 1.1                          | 0.4                        | M - 7   | M      |
|            | MBM400GS6AW | 600                      | 400                   | 1,000                 | 1.9                             | 0.7                         | 1.1                          | 0.35                       | M - 1   | M      |
|            | MBM400JS6AW | 600                      | 400                   | 1,470                 | 1.9                             | 0.7                         | 1.1                          | 0.35                       | M - 3   | M      |
|            | MBM300GS6AW | 600                      | 300                   | 800                   | 1.9                             | 0.7                         | 1.1                          | 0.35                       | M - 1   | M      |
|            | MBM200GS6AW | 600                      | 200                   | 600                   | 1.9                             | 0.6                         | 0.9                          | 0.35                       | M - 6   | M      |
|            | MBM150GS6AW | 600                      | 150                   | 450                   | 1.9                             | 0.6                         | 0.9                          | 0.35                       | M - 6   | M      |

# Status List

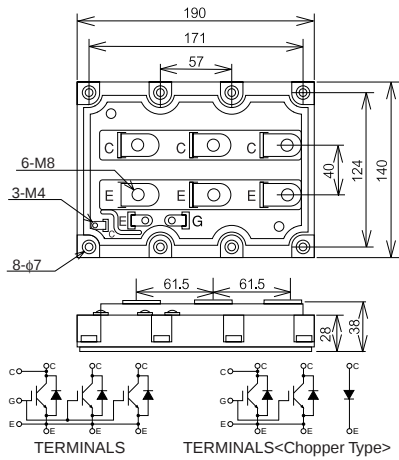
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## Abolition

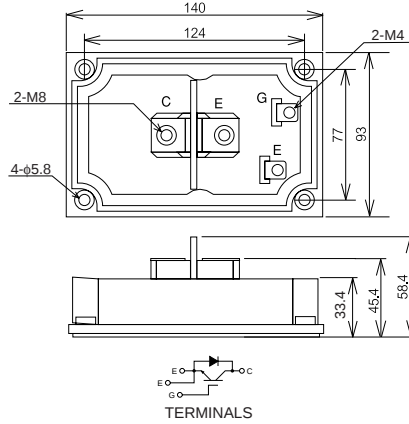
| Connection | Type          | Absolute Maximum Ratings |                       |                       | Characteristics                  |                             |                              |                            | Outline | Status |
|------------|---------------|--------------------------|-----------------------|-----------------------|----------------------------------|-----------------------------|------------------------------|----------------------------|---------|--------|
|            |               | V <sub>CE</sub> S<br>(V) | I <sub>C</sub><br>(A) | P <sub>C</sub><br>(W) | V <sub>CE</sub> (sat)<br>(V)Typ. | t <sub>on</sub><br>(μs)Max. | t <sub>off</sub><br>(μs)Max. | t <sub>r</sub><br>(μs)Max. |         |        |
| Single     | MBN1200D33A   | 3,300                    | 1,200                 | 12,000                | 4.1                              | 3.2                         | 5.6                          | 3.2                        | N - 1   | A      |
|            | MBN600C20     | 2,000                    | 600                   | 4,000                 | 4.4                              | 2.5                         | 5.9                          | 2.7                        | N - 3   | A      |
|            | MBN400C20     | 2,000                    | 400                   | 3,000                 | 4.2                              | 2.6                         | 5.9                          | 2.4                        | N - 4   | A      |
|            | MBN600GR12    | 1,200                    | 600                   | 3,570                 | 2.2                              | 1.0                         | 1.2                          | 0.4                        | N - 6   | A      |
|            | MBN400GR12    | 1,200                    | 400                   | 2,080                 | 2.2                              | 0.9                         | 1.1                          | 0.35                       | N - 5   | A      |
|            | MBN1200GS12AW | 1,200                    | 1,200                 | 5,600                 | 2.9                              | 2.2                         | 1.6                          | 0.55                       | N - 7   | A      |
|            | MBN600GS12AW  | 1,200                    | 600                   | 3,100                 | 2.7                              | 0.8                         | 1.2                          | 0.4                        | N - 6   | A      |
|            | MBN400GS12AW  | 1,200                    | 400                   | 2,000                 | 2.7                              | 0.7                         | 1.1                          | 0.35                       | N - 5   | A      |
|            | MBN400GS12BW  | 1,200                    | 400                   | 2,000                 | 2.7                              | 0.7                         | 1.1                          | 0.35                       | N - 5   | A      |
|            | MBN300GS12AW  | 1,200                    | 300                   | 1,700                 | 2.7                              | 0.7                         | 1.1                          | 0.35                       | N - 5   | A      |
| Chopper    | MBL800D33B    | 3,300                    | 800                   | 8,000                 | 4.1                              | 3.3                         | 5.0                          | 2.7                        | N - 1   | A      |
| Dual       | MBM300GR12    | 1,200                    | 300                   | 1,710                 | 2.2                              | 0.9                         | 1.1                          | 0.35                       | M - 9   | A      |
|            | MBM200GR12    | 1,200                    | 200                   | 1,130                 | 2.2                              | 0.8                         | 1.0                          | 0.35                       | M - 8   | A      |
|            | MBM150GR12    | 1,200                    | 150                   | 830                   | 2.2                              | 0.8                         | 1.0                          | 0.35                       | M - 8   | A      |
|            | MBM100GR12    | 1,200                    | 100                   | 590                   | 2.2                              | 0.8                         | 0.9                          | 0.35                       | M - 8   | A      |
|            | MBM300GR6     | 600                      | 300                   | 930                   | 2.1                              | 0.7                         | 1.0                          | 0.32                       | M - 8   | A      |
|            | MBM150GR6     | 600                      | 150                   | 520                   | 2.1                              | 0.7                         | 0.8                          | 0.3                        | M - 8   | A      |
|            | MBM300GS12AW  | 1,200                    | 300                   | 1,700                 | 2.7                              | 0.7                         | 1.1                          | 0.35                       | M - 4   | A      |
|            | MBM200GS12AW  | 1,200                    | 200                   | 1,000                 | 2.7                              | 0.55                        | 1.0                          | 0.35                       | M - 1   | A      |
|            | MBM200JS12AW  | 1,200                    | 200                   | 1,470                 | 2.7                              | 0.55                        | 1.0                          | 0.35                       | M - 3   | A      |
|            | MBM200JS12EW  | 1,200                    | 200                   | 1,470                 | 2.7                              | 0.55                        | 1.0                          | 0.35                       | M - 2   | A      |
|            | MBM150GS12AW  | 1,200                    | 150                   | 800                   | 2.7                              | 0.55                        | 1.0                          | 0.35                       | M - 1   | A      |
|            | MBM100GS12AW  | 1,200                    | 100                   | 600                   | 2.7                              | 0.55                        | 0.9                          | 0.35                       | M - 6   | A      |
|            | MBM75GS12AW   | 1,200                    | 75                    | 450                   | 2.7                              | 0.55                        | 0.9                          | 0.35                       | M - 6   | A      |
| Six - Pack | MBB200GS6AW   | 600                      | 200                   | 600                   | 1.9                              | 0.6                         | 0.9                          | 0.35                       | B - 1   | A      |
|            | MBB100GS12AW  | 1,200                    | 100                   | 600                   | 2.7                              | 0.55                        | 0.9                          | 0.35                       | B - 1   | A      |
|            | MBB75GS12AW   | 1,200                    | 75                    | 450                   | 2.7                              | 0.55                        | 0.9                          | 0.35                       | B - 1   | A      |

# Outline

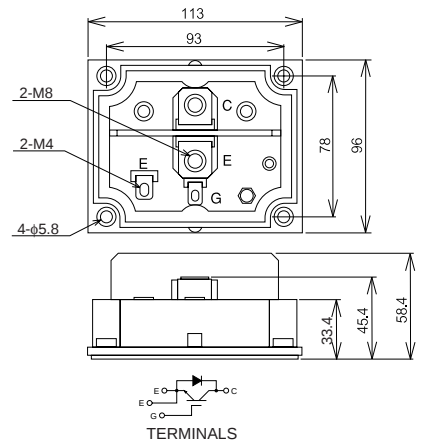
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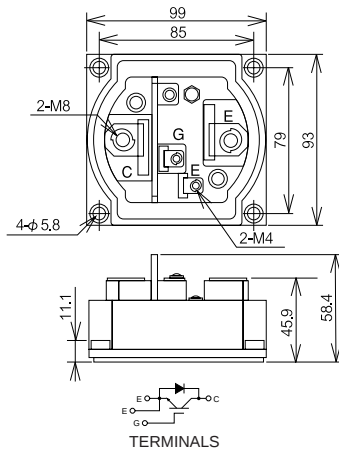
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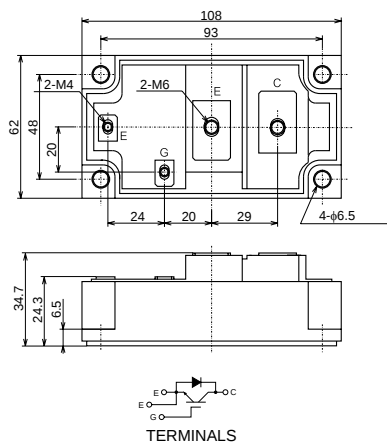
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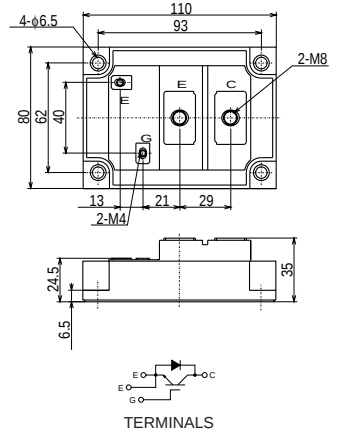
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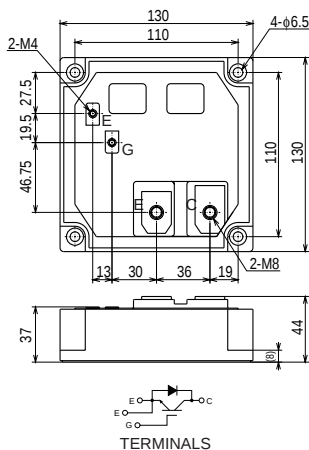
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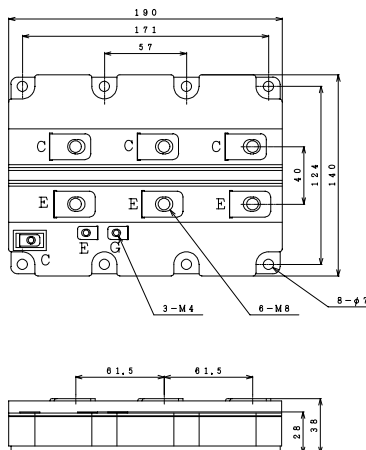
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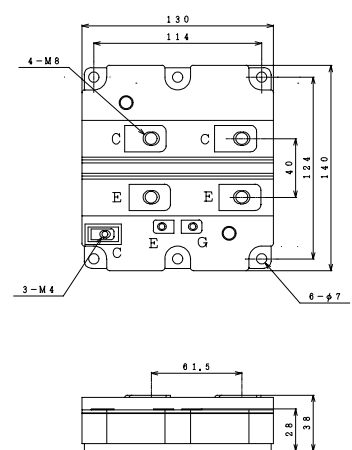
**N - 7**



**N - 9**



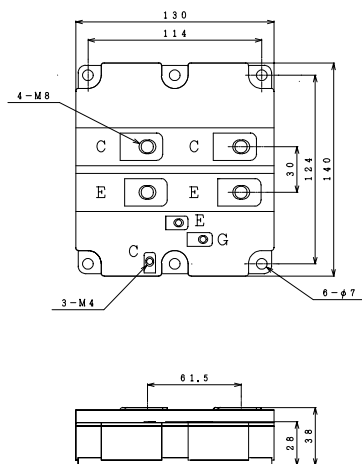
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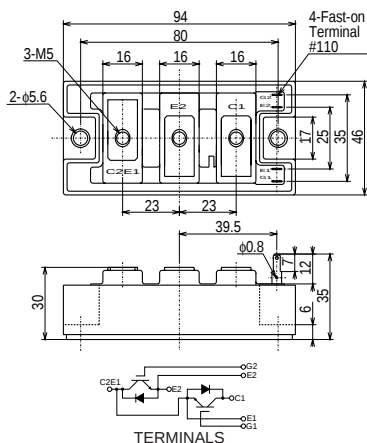
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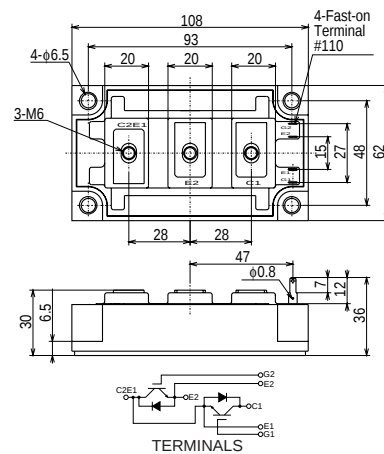
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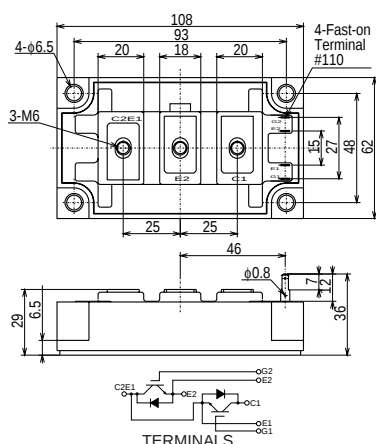
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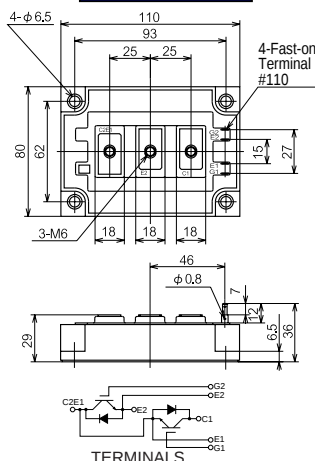
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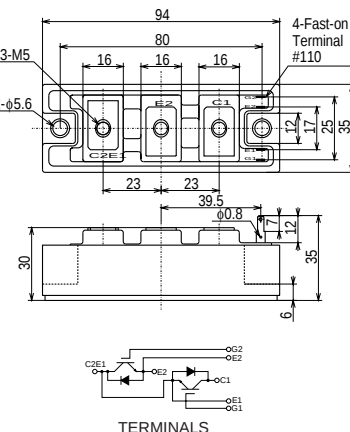
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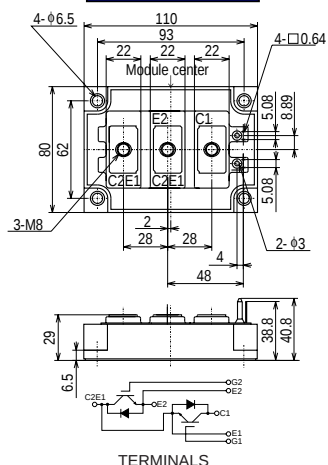
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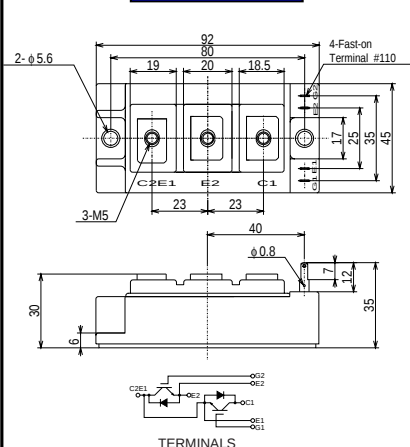
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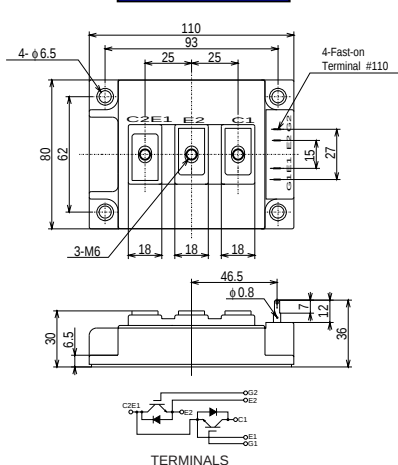
**M - 7**



**M - 8**

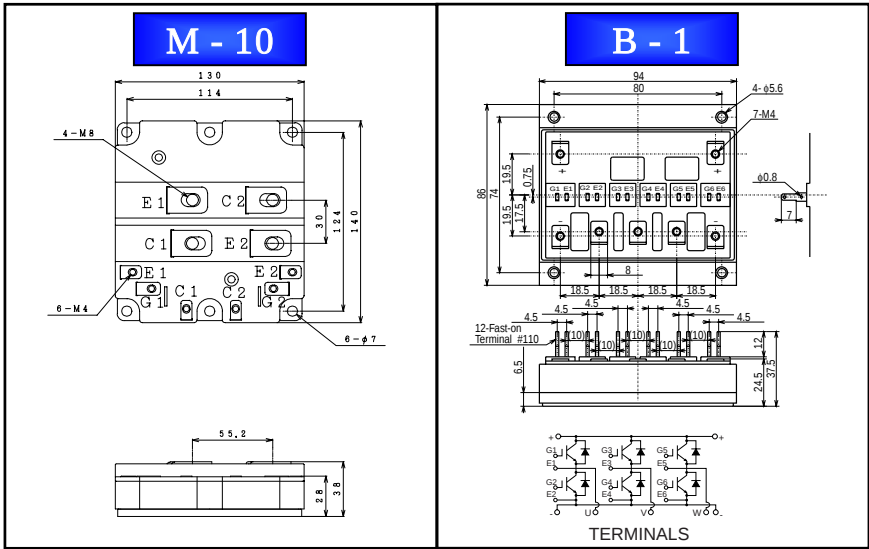


**M - 9**



## Outline

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