

## SLA7029M/SMA7022MU/SMA7029M

## 2-Phase Excitation

## ■ Absolute Maximum Ratings

(T<sub>a</sub>=25°C)

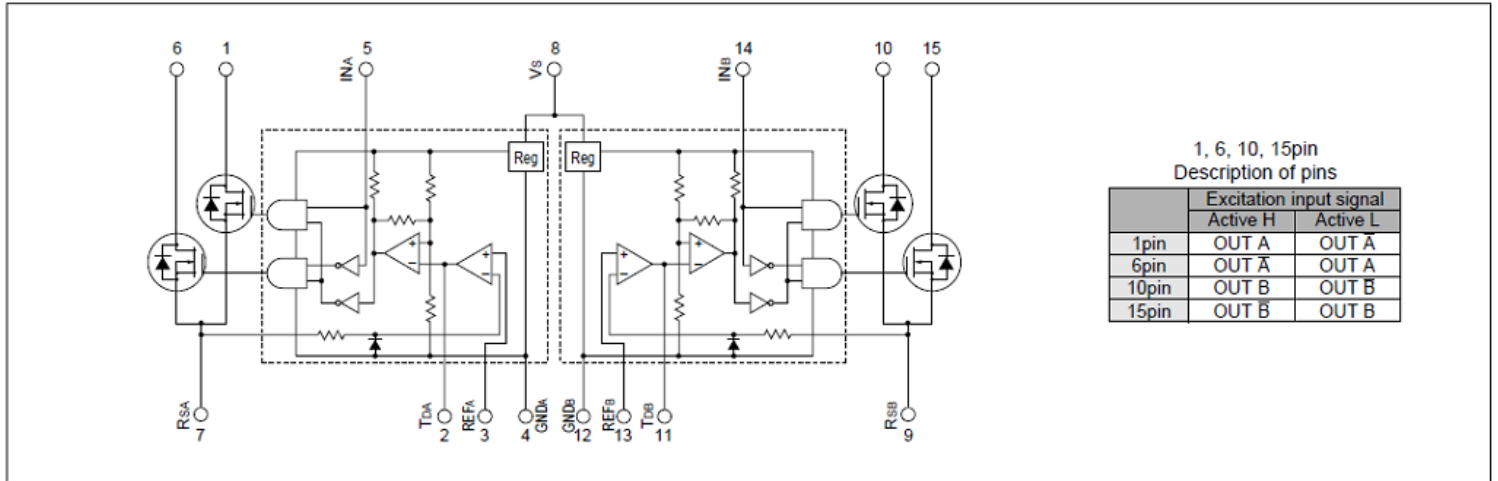
| Parameter                | Symbol           | Ratings                   |           |                           | Unit |
|--------------------------|------------------|---------------------------|-----------|---------------------------|------|
|                          |                  | SLA7029M                  | SMA7022MU | SMA7029M                  |      |
| Motor Supply Voltage     | V <sub>CC</sub>  | 46                        |           |                           | V    |
| FET Drain-Source Voltage | V <sub>DSS</sub> | 100                       |           |                           | V    |
| Control Supply Voltage   | V <sub>S</sub>   | 46                        |           |                           | V    |
| TTL Input Voltage        | V <sub>IN</sub>  | 7                         |           |                           | V    |
| Reference Voltage        | V <sub>REF</sub> | 2                         |           |                           | V    |
| Output Current           | I <sub>O</sub>   | 1.5                       | 1         | 1.5                       | A    |
| Power Dissipation        | P <sub>DI</sub>  | 4.5 (Without Heatsink)    |           | 4.0 (Without Heatsink)    | W    |
|                          | P <sub>DI</sub>  | 35 (T <sub>C</sub> =25°C) |           | 28 (T <sub>C</sub> =25°C) | W    |
| Channel Temperature      | T <sub>ch</sub>  | +150                      |           |                           | °C   |
| Storage Temperature      | T <sub>stg</sub> | -40 to +150               |           |                           | °C   |

## ■ Electrical Characteristics

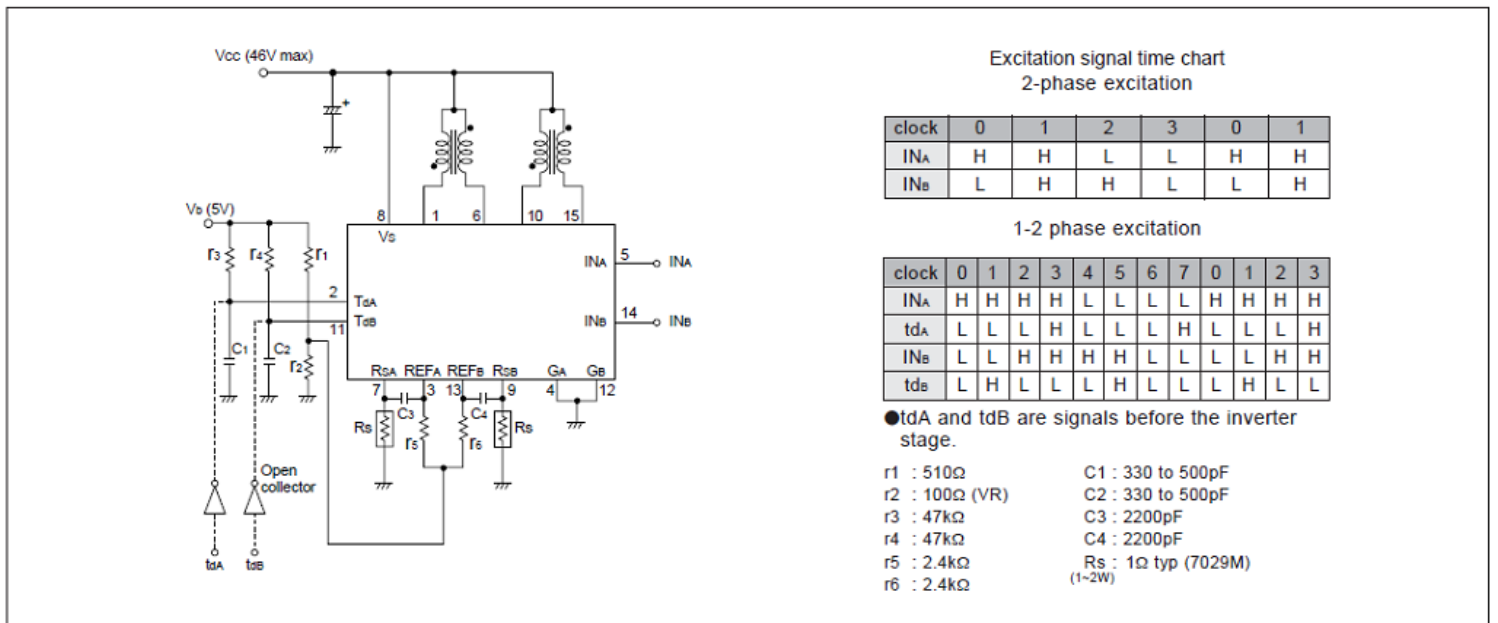
(T<sub>a</sub>=25°C)

| Parameter                       | Symbol                                     | Ratings                                      |      |  |  |      |  |  |      |      | Unit |
|---------------------------------|--|--|------|--|--|------|--|--|------|------|------|
|                                 |  | SLA7029M                                     |      |  | SMA7022MU                                    |      |  | SMA7029M                                     |      |      |      |
|                                 |  | min.   | typ. | max.                                       | min.   | typ. | max.                                       | min.   | typ. | max. |      |
| Control Supply Current          | I <sub>S</sub>                             |  | 10   | 15   |  | 10   | 15   |  | 10   | 15   | mA   |
|                                 | Condition                                  | V <sub>S</sub> =44V                          |      |  | V <sub>S</sub> =44V                          |      |  | V <sub>S</sub> =44V                          |      |      |      |
| Control Supply Voltage          | V <sub>S</sub>                             | 10   | 24   | 44   | 10   | 24   | 44   | 10   | 24   | 44   | V    |
| FET Drain-Source Voltage        | V <sub>DSS</sub>                           | 100  |      |  | 100  |      |  | 100  |      |      | V    |
|                                 | Condition                                  | V <sub>S</sub> =44V, I <sub>OSS</sub> =250μA |      |  | V <sub>S</sub> =44V, I <sub>OSS</sub> =250μA |      |  | V <sub>S</sub> =44V, I <sub>OSS</sub> =250μA |      |      |      |
| FET ON Voltage                  | V <sub>DS</sub>                            |  |      | 0.6  |  |      | 0.85                                       |  |      | 0.6  | V    |
|                                 | Condition                                  | I <sub>O</sub> =1A, V <sub>S</sub> =14V      |      |  | I <sub>O</sub> =1A, V <sub>S</sub> =14V      |      |  | I <sub>O</sub> =1A, V <sub>S</sub> =14V      |      |      |      |
| FET Drain Leakage Current       | I <sub>DSS</sub>                           |  |      | 4  |  |      | 4  |  |      | 4    | mA   |
|                                 | Condition                                  | V <sub>DSS</sub> =100V, V <sub>S</sub> =44V  |      |  | V <sub>DSS</sub> =100V, V <sub>S</sub> =44V  |      |  | V <sub>DSS</sub> =100V, V <sub>S</sub> =44V  |      |      |      |
| FET Diode Forward Voltage       | V <sub>SD</sub>                            |  |      | 1.1  |  |      | 1.2  |  |      | 1.1  | V    |
|                                 | Condition                                  | I <sub>O</sub> =1A                           |      |  | I <sub>O</sub> =1A                           |      |  | I <sub>O</sub> =1A                           |      |      |      |
| TTL Input Current               | I <sub>IH</sub>                            |  |      | 40   |  |      | 40   |  |      | 40   | μA   |
|                                 | Condition                                  | V <sub>IN</sub> =2.4V, V <sub>S</sub> =44V   |      |  | V <sub>IN</sub> =2.4V, V <sub>S</sub> =44V   |      |  | V <sub>IN</sub> =2.4V, V <sub>S</sub> =44V   |      |      |      |
|                                 | I <sub>IL</sub>                            |  |      | -0.8                                       |  |      | -0.8                                       |  |      | -0.8 | mA   |
| Condition                       | V <sub>IL</sub> =0.4V, V <sub>S</sub> =44V |  |      | V <sub>IL</sub> =0.4V, V <sub>S</sub> =44V |  |      | V <sub>IL</sub> =0.4V, V <sub>S</sub> =44V |  |      |      |      |
| TTL Input Voltage (Active High) | V <sub>IH</sub>                            | 2  |      |  | 2  |      |  | 2  |      |      | V    |
|                                 | Condition                                  | I <sub>O</sub> =1A                           |      |  | I <sub>O</sub> =1A                           |      |  | I <sub>O</sub> =1A                           |      |      |      |
|                                 | V <sub>IL</sub>                            |  |      | 0.8  |  |      | 0.8  |  |      | 0.8  |      |
| TTL Input Voltage (Active Low)  | V <sub>IH</sub>                            | 2  |      |  | 2  |      |  | 2  |      |      | V    |
|                                 | Condition                                  | V <sub>DSS</sub> =100V                       |      |  | V <sub>DSS</sub> =100V                       |      |  | V <sub>DSS</sub> =100V                       |      |      |      |
|                                 | V <sub>IL</sub>                            |  |      | 0.8  |  |      | 0.8  |  |      | 0.8  |      |
| Switching Time                  | T <sub>r</sub>                             |  | 0.5  |  |  | 0.5  |  |  | 0.5  |      | μs   |
|                                 | Condition                                  | V <sub>S</sub> =24V, I <sub>O</sub> =1A      |      |  | V <sub>S</sub> =24V, I <sub>O</sub> =0.8A    |      |  | V <sub>S</sub> =24V, I <sub>O</sub> =1A      |      |      |      |
|                                 | T <sub>stg</sub>                           |  | 0.7  |  |  | 0.7  |  |  | 0.7  |      |      |
|                                 | Condition                                  | V <sub>S</sub> =24V, I <sub>O</sub> =1A      |      |  | V <sub>S</sub> =24V, I <sub>O</sub> =0.8A    |      |  | V <sub>S</sub> =24V, I <sub>O</sub> =1A      |      |      |      |
|                                 | T <sub>f</sub>                             |  | 0.1  |  |  | 0.1  |  |  | 0.1  |      |      |
| Condition                       | V <sub>S</sub> =24V, I <sub>O</sub> =1A    |  |      | V <sub>S</sub> =24V, I <sub>O</sub> =0.8A  |  |      | V <sub>S</sub> =24V, I <sub>O</sub> =1A    |  |      |      |      |

## Internal Block Diagram

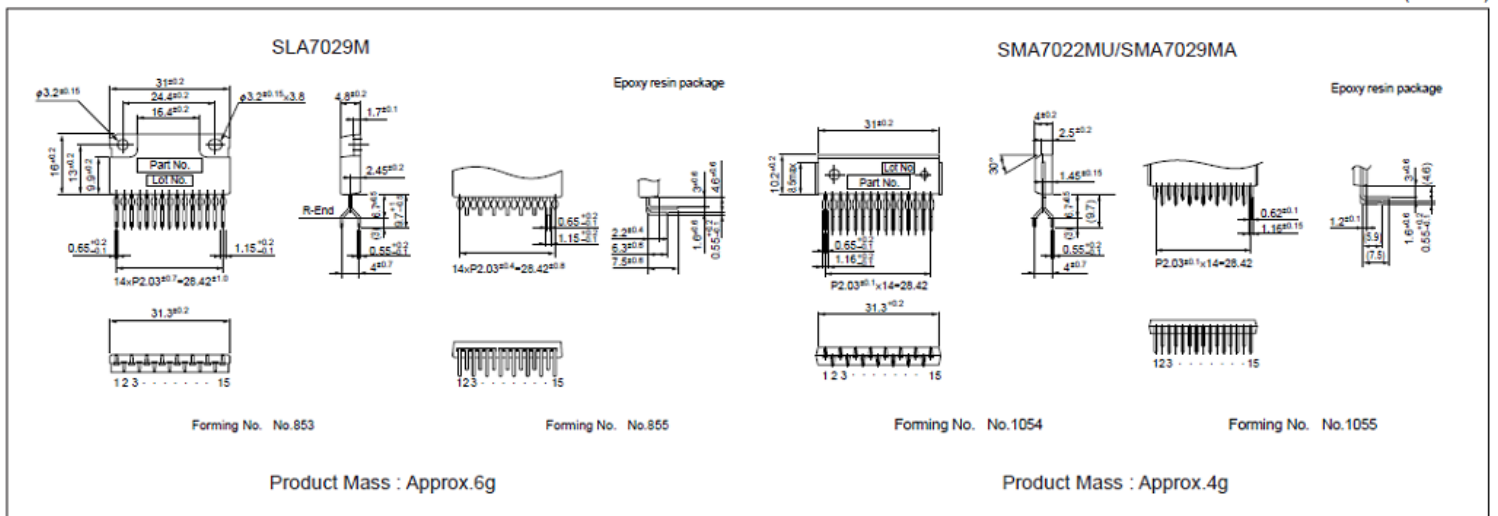


## Typical Connection Diagram (Recommended component values)



## External Dimensions (ZIP15 with Fin [SLA15Pin] /ZIP15[SMA15Pin])

(Unit:mm)



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