

## Diode Arrays

High-speed switching diode arrays and high voltage-withstand diode arrays are of NICHICON's standard series. They are combined to be conveniently used for both binary and decimal systems. High-speed series is ideal for computer peripherals, control boards and general electronic appliances. Besides, high voltage-withstand series is ideal for plasma displays, relay surge-preventive circuits.

Both of these series are in stock for prompt delivery. Any special requirements with customer's particular circuits will be also welcome. Please consult us for the details.

(Samples for the items listed below are not always available on stock, please contact our sales office for details together with your specific requirements.)

### High-speed switching diode array series

#### Absolute maximum ratings \*

| Items                     | Symbol    | Ratings   |
|---------------------------|-----------|-----------|
| Peak reverse voltage      | $V_{RM}$  | 40V       |
| DC reverse voltage        | $V_R$     | 40V       |
| Surge current (1 $\mu$ s) | $I_{FSM}$ | 4.0A      |
| Peak forward current      | $I_{FM}$  | 300mA     |
| Average rectified current | $I_o$     | 150mA*    |
| Storage temperature       | $T_{stg}$ | -25~+85°C |

\* 100mA for simultaneous energizing.

\* Maximum Current value applicable to each diode.

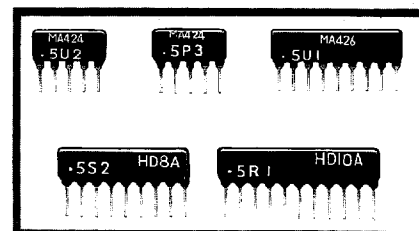
#### Electrical characteristics

$T_a$ : +25°C

| Items                 | Symbol   | Conditions             | Ratings |      |      | Unit    |
|-----------------------|----------|------------------------|---------|------|------|---------|
|                       |          |                        | Min.    | Typ. | Max. |         |
| Reverse current       | $I_R$    | $V_R = 40V$            | —       | —    | 0.5  | $\mu A$ |
| Forward voltage       | $V_{F1}$ | $I_F = 10mA$           | —       | 0.7  | 1.0  | V       |
| Forward voltage       | $V_{F2}$ | $I_F = 50mA$           | —       | 0.79 | 1.0  | V       |
| Forward voltage       | $V_{F3}$ | $I_F = 100mA$          | —       | 0.85 | 1.2  | V       |
| Reverse recovery time | $t_{rr}$ | $I_F = 10mA, V_R = 6V$ | —       | —    | 4.0  | nS      |

#### Series List

| Code     | Type  | Number of diodes | Common electrode | Dimensions (%Max.) |   |     | No. of Pins n | Circuit diagram |
|----------|-------|------------------|------------------|--------------------|---|-----|---------------|-----------------|
|          |       |                  |                  | W                  | H | T   |               |                 |
| ZHMA0423 | MA423 | 4                | Cathode          | 14                 | 9 | 3.5 | 5             |                 |
| ZHMA0424 | MA424 |                  | Anode            |                    |   |     |               |                 |
| ZHMA0425 | MA425 | 8                | Cathode          | 24                 | 9 | 3.5 | 9             |                 |
| ZHMA0426 | MA426 |                  | Anode            |                    |   |     |               |                 |
| ZHMA0427 | MA427 | 10               | Cathode          | 29                 | 9 | 3.5 | 11            |                 |
| ZHMA0428 | MA428 |                  | Anode            |                    |   |     |               |                 |
| ZHMA0429 | MA429 | 5                | Isolated         | 27                 | 9 | 3.5 | 10            |                 |
| ZHMA0430 | MA430 | 4                | Isolated         | 21.5               | 9 | 3.5 | 8             |                 |
| ZHMA0431 | MA431 | 6                | Cathode          | 19                 | 9 | 3.5 | 7             |                 |
| ZHMA0432 | MA432 |                  | Anode            |                    |   |     |               |                 |



### High voltage-withstand series

#### Absolute maximum ratings \*

| Items                     | Symbol    | Ratings   |
|---------------------------|-----------|-----------|
| Peak reverse voltage      | $V_{RM}$  | 220V      |
| Reverse DC voltage        | $V_R$     | 200V      |
| Surge current (1sec.)     | $I_S$     | 1A        |
| Peak forward current      | $I_{FM}$  | 600mA     |
| Average rectified current | $I_o$     | 200mA     |
| Storage temperature       | $T_{stg}$ | -25~+85°C |

\* Maximum Current value applicable to each diode.

#### Electrical characteristics

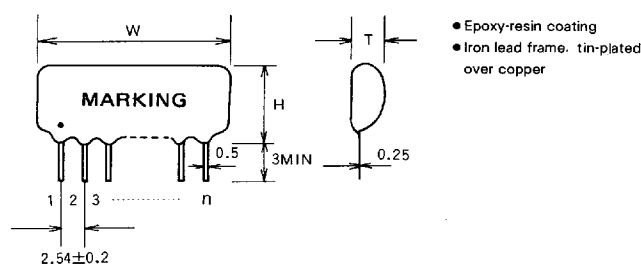
$T_a$ : +25°C

| Items                                                      | Symbol   | Conditions                          | Ratings |      |      | Unit    |
|------------------------------------------------------------|----------|-------------------------------------|---------|------|------|---------|
|                                                            |          |                                     | Min.    | Typ. | Max. |         |
| Reverse current                                            | $I_R$    | $V_R = 110V$                        | —       | —    | 1.0  | $\mu A$ |
| Forward voltage                                            | $V_F$    | $I_F = 50mA$                        | —       | —    | 1.3  | V       |
| Reverse voltage                                            | $V_R$    | $I_R = 100\mu A$                    | 220     | —    | —    | V       |
| Time required for recovery from reverse voltage or current | $t_{rr}$ | $I_F = I_R = 30mA, R_L = 100\Omega$ | —       | —    | 100  | ns      |

#### Series List

| Code     | Type   | Number of diodes | Common electrode | Dimensions (%Max.) |   |   | No. of Pins n | Circuit diagram |
|----------|--------|------------------|------------------|--------------------|---|---|---------------|-----------------|
|          |        |                  |                  | W                  | H | T |               |                 |
| ZHLA0650 | HD-4K  | 4                | Cathode          | 14                 | 9 | 3 | 5             |                 |
| ZHLA0651 | HD-4A  |                  | Anode            |                    |   |   |               |                 |
| ZHLA0652 | HD-8K  | 8                | Cathode          | 24                 | 9 | 3 | 9             |                 |
| ZHLA0653 | HD-8A  |                  | Anode            |                    |   |   |               |                 |
| ZHLA0654 | HD-10K | 10               | Cathode          | 29                 | 9 | 3 | 11            |                 |
| ZHLA0655 | HD-10A |                  | Anode            |                    |   |   |               |                 |
| ZHLA0656 | HD-4S  | 4                | Isolated         | 21.5               | 9 | 3 | 8             |                 |
| ZHLA0657 | HD-5S  | 5                | Isolated         | 27                 | 9 | 3 | 10            |                 |

#### Drawing



## RD Arrays

#### Series List

| Code     | Type   | Common electrode | No. of elements |       | Specifications |       |          | Dimensions (%Max.) |   |   | No. of pins n | Circuit diagram |
|----------|--------|------------------|-----------------|-------|----------------|-------|----------|--------------------|---|---|---------------|-----------------|
|          |        |                  | Resistor        | Diode | Resistance     | Tol.  | Loss (R) | W                  | H | T |               |                 |
| ZHMA2401 | MA2401 | Anode            | 8               | 8     | 330 $\Omega$   | ± 5 % | 60mW     | 24.5               | 7 | 4 | 9             |                 |
| ZHMA2402 | MA2402 | Anode            | 8               | 8     | 1 k $\Omega$   | ± 5 % | 60mW     | 24.5               | 7 | 4 | 9             |                 |

## Diode Mini-Arrays

## • Height.....5mm Max.

The mounting height of electronic device can be made substantially low-profile and compact.

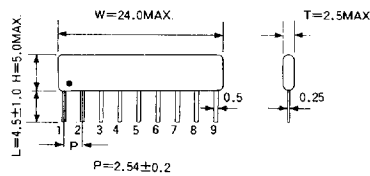
## • Thickness.....2.5mm Max.

Diode arrays can be placed in a row with 2.54mm pitch, and high density mounting is available at a rate of one diode per 0.1 sq. inch.

## • Electrical characteristics

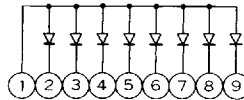
| Items                 | Symbol   | Conditions          | Ratings |      |      | Unit    |
|-----------------------|----------|---------------------|---------|------|------|---------|
|                       |          |                     | Min.    | Typ. | Max. |         |
| Reverse current       | $I_R$    | $V_R=35V$           | —       | —    | 0.5  | $\mu A$ |
| Forward voltage       | $V_{F1}$ | $I_F=10mA$          | —       | 0.75 | 1.0  | V       |
| Forward voltage       | $V_{F2}$ | $I_F=50mA$          | —       | 0.90 | 1.1  | V       |
| Forward voltage       | $V_{F3}$ | $I_F=100mA$         | —       | 0.95 | 1.2  | V       |
| Reverse recovery time | $t_{rr}$ | $I_F=10mA$ $V_R=6V$ | —       | —    | 4.0  | ns      |

## • Drawing

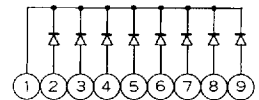


## • Circuit diagram

ZHLA1460



ZHLA1461



Any particular specifications are also available upon request.

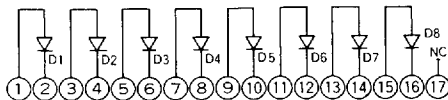
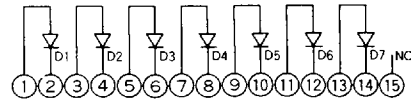
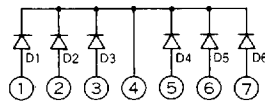
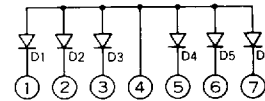
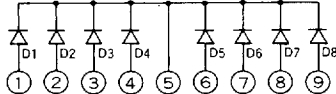
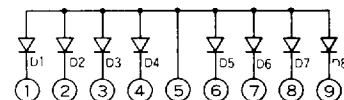
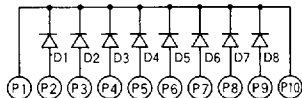
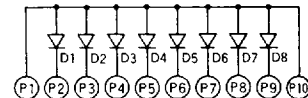
## Diode Arrays for Specific Layout

## • Absolute maximum ratings

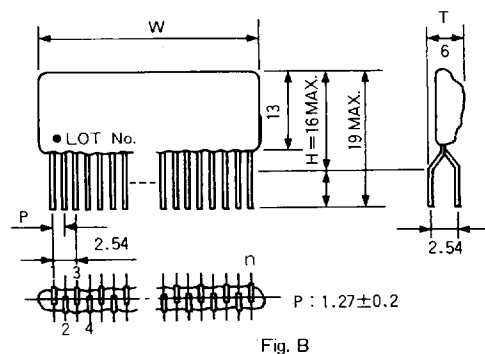
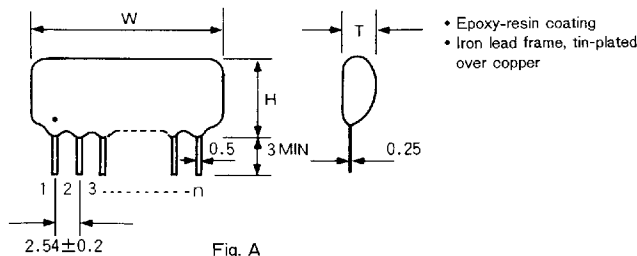
| Items                     | Symbol    | Ratings   |
|---------------------------|-----------|-----------|
| Peak reverse voltage      | $V_{RM}$  | 40V       |
| DC reverse voltage        | $V_R$     | 40V       |
| Surge current (1 $\mu$ s) | $I_{FSM}$ | 4.0A      |
| Peak forward current      | $I_{FM}$  | 300mA     |
| Average rectified current | $I_o$     | 100mA     |
| Storage temperature       | $T_{stg}$ | -25~+85°C |

## • Electrical characteristics

| Items                 | Symbol   | Conditions          | Ratings |      |      | Unit    |
|-----------------------|----------|---------------------|---------|------|------|---------|
|                       |          |                     | Min.    | Typ. | Max. |         |
| Reverse current       | $I_R$    | $V_R=40V$           | —       | —    | 0.5  | $\mu A$ |
| Forward voltage       | $V_{F1}$ | $I_F=10mA$          | —       | 0.7  | 1.0  | V       |
| Forward voltage       | $V_{F2}$ | $I_F=50mA$          | —       | 0.79 | 1.0  | V       |
| Forward voltage       | $V_{F3}$ | $I_F=100mA$         | —       | 0.85 | 1.2  | V       |
| Reverse recovery time | $t_{rr}$ | $I_F=10mA$ $V_R=6V$ | —       | —    | 4.0  | nS      |

ZHMA2906 23.5<sup>W</sup>×16<sup>H</sup>×6<sup>T</sup> (mm) (Fig. B)ZHMA2907 21<sup>W</sup>×16<sup>H</sup>×6<sup>T</sup> (mm) (Fig. B)ZHMA2901 19<sup>W</sup>×9<sup>H</sup>×3.5<sup>T</sup> (mm) (Fig. A)ZHMA2902 19<sup>W</sup>×9<sup>H</sup>×3.5<sup>T</sup> (mm) (Fig. A)ZHMA2911 24<sup>W</sup>×9<sup>H</sup>×3.5<sup>T</sup> (mm) (Fig. A)ZHMA2912 24<sup>W</sup>×9<sup>H</sup>×3.5<sup>T</sup> (mm) (Fig. A)ZHMA2913 26.5<sup>W</sup>×9<sup>H</sup>×3.5<sup>T</sup> (mm) (Fig. A)ZHMA2914 26.5<sup>W</sup>×9<sup>H</sup>×3.5<sup>T</sup> (mm) (Fig. A)

## • Drawing



Cautions : Full care to be taken when solder flow applied to those miniature products.