

# UNA0232

Transistor array to drive the small motor

## Features

- Small and lightweight
- Low power consumption
- Low-voltage drive
- With 4 elements incorporated

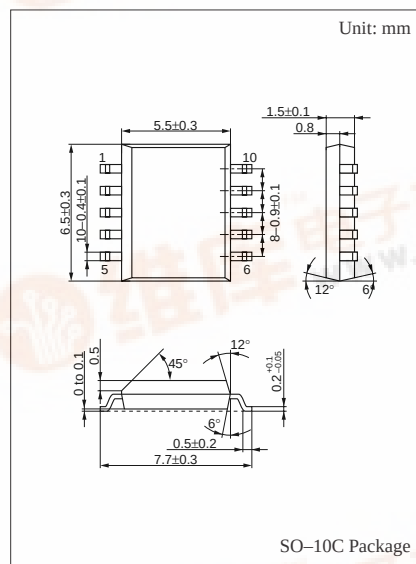
## Applications

- For motor drives
- Small motor drive circuits in general

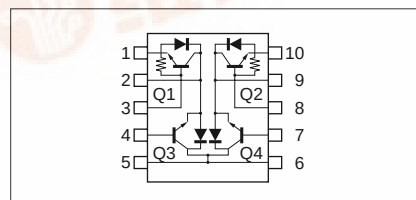
## Absolute Maximum Ratings (Ta=25±3°C)

| Parameter                    | Symbol    | Ratings     | Unit |
|------------------------------|-----------|-------------|------|
| Collector to base voltage    | $V_{CBO}$ | 12          | V    |
| Collector to emitter voltage | $V_{CEO}$ | 10          | V    |
| Emitter to base voltage      | $V_{EBO}$ | 7           | V    |
| Collector current            | $I_C$     | 1           | A    |
| Peak collector current       | $I_{CP}$  | 2           | A    |
| Total power dissipation      | $P_T^*$   | 0.5         | W    |
| Junction temperature         | $T_j$     | 150         | °C   |
| Storage temperature          | $T_{stg}$ | -55 to +150 | °C   |

\*  $T_C = 25^\circ\text{C}$  only when the elements are active



## Internal Connection



### ■ Electrical Characteristics (Ta=25°C)

#### ● UN0232 (Q<sub>1</sub>, Q<sub>2</sub>)

| Parameter                               | Symbol               | Conditions                                    | min | typ | max  | Unit |
|-----------------------------------------|----------------------|-----------------------------------------------|-----|-----|------|------|
| Collector to base voltage               | V <sub>CBO</sub>     | I <sub>C</sub> = 10μA, I <sub>E</sub> = 0     | 12  |     |      | V    |
| Collector to emitter voltage            | V <sub>CEO</sub>     | I <sub>C</sub> = 0.1mA, I <sub>B</sub> = 0    | 10  |     |      | V    |
| Emitter cutoff current                  | I <sub>EBO</sub>     | V <sub>EB</sub> = 5V, I <sub>C</sub> = 0      | 0.8 |     | 1.6  | mA   |
| Collector cutoff current                | I <sub>CBO</sub>     | V <sub>CB</sub> = 10V, I <sub>E</sub> = 0     |     |     | 1    | μA   |
| Forward current transfer ratio          | h <sub>FE</sub>      | V <sub>CE</sub> = 1V, I <sub>C</sub> = 0.5A*  | 200 |     | 700  |      |
| Collector to emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> = 0.5A, I <sub>B</sub> = 25mA* |     | 0.1 | 0.15 | V    |
| Bias resistance                         | R <sub>EB</sub>      |                                               | 3.3 | 4.7 | 6.1  | kΩ   |
| Forward voltage                         | V <sub>F</sub>       | I <sub>F</sub> = 1A                           |     |     | 1.5  | V    |

#### ● UN0232 (Q<sub>3</sub>, Q<sub>4</sub>)

| Parameter                               | Symbol               | Conditions                                    | min | typ | max  | Unit |
|-----------------------------------------|----------------------|-----------------------------------------------|-----|-----|------|------|
| Collector to base voltage               | V <sub>CBO</sub>     | I <sub>C</sub> = 10μA, I <sub>E</sub> = 0     | 12  |     |      | V    |
| Collector to emitter voltage            | V <sub>CEO</sub>     | I <sub>C</sub> = 0.1mA, I <sub>B</sub> = 0    | 10  |     |      | V    |
| Emitter to base voltage                 | V <sub>EBO</sub>     | I <sub>E</sub> = 10μA, I <sub>C</sub> = 0     | 7   |     |      | V    |
| Collector cutoff current                | I <sub>CBO</sub>     | V <sub>CB</sub> = 10V, I <sub>E</sub> = 0     |     |     | 1    | μA   |
| Forward current transfer ratio          | h <sub>FE</sub>      | V <sub>CE</sub> = 1V, I <sub>C</sub> = 0.5A*  | 200 |     | 700  |      |
| Collector to emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> = 0.5A, I <sub>B</sub> = 25mA* |     | 0.1 | 0.15 | V    |
| Forward voltage                         | V <sub>F</sub>       | I <sub>F</sub> = 1A                           |     |     | 1.5  | V    |

\*Pulse measurement