

# General purpose (dual digital transistors)

## EMH10 / UMH10N

### ●Structure

Epitaxial planar type  
NPN silicon transistor  
(Built-in resistor type)

### ●Features

- 1) Two DTC123J chips in a EMT or UMT package.
- 2) Mounting possible with EMT3 or UMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

### ●Packaging specifications

| Type   | Package                      | Taping |      |
|--------|------------------------------|--------|------|
|        | Code                         | T2R    | TN   |
|        | Basic ordering unit (pieces) | 8000   | 3000 |
| EMH10  |                              | ○      | —    |
| UMH10N |                              | —      | ○    |

### ●Absolute maximum ratings (Ta=25°C)

| Parameter            |              | Symbol                | Limits      | Unit            |
|----------------------|--------------|-----------------------|-------------|-----------------|
| Supply voltage       |              | V <sub>CC</sub>       | 50          | V               |
| Input voltage        |              | V <sub>IN</sub>       | 12          | V               |
|                      |              |                       | −5          |                 |
| Output current       |              | I <sub>O</sub>        | 100         | mA              |
|                      |              | I <sub>C</sub> (Max.) | 100         | mA              |
| Power dissipation    | EMH10,UMH10N | P <sub>d</sub>        | 150 (TOTAL) | mW <sup>*</sup> |
| Junction temperature |              | T <sub>j</sub>        | 150         | °C              |
| Storage temperature  |              | T <sub>stg</sub>      | −55~+150    | °C              |

\* 120mW per element must not be exceeded.

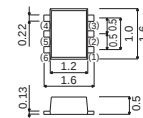
### ●Electrical characteristics (Ta=25°C)

| Parameter            | Symbol       | Min. | Typ. | Max. | Unit       | Conditions                         |
|----------------------|--------------|------|------|------|------------|------------------------------------|
| Input voltage        | $V_{I(off)}$ | —    | —    | 0.5  | V          | $V_{CC}=5V, I_O=100\mu A$          |
|                      | $V_{I(on)}$  | 1.1  | —    | —    |            | $V_O=0.3V, I_O=5mA$                |
| Output voltage       | $V_{O(on)}$  | —    | 0.1  | 0.3  | V          | $I_O/I_I=5mA/0.25mA$               |
| Input current        | $I_I$        | —    | —    | 3.6  | mA         | $V_I=5V$                           |
| Output current       | $I_{O(off)}$ | —    | —    | 0.5  | $\mu A$    | $V_{CC}=50V, V_I=0V$               |
| DC current gain      | $G_I$        | 80   | —    | —    | —          | $V_O=5V, I_O=10mA$                 |
| Transition frequency | $f_T$        | —    | 250  | —    | MHz        | $V_{CE}=10V, I_E=-5mA, f=100MHz$ * |
| Input resistance     | $R_1$        | 1.54 | 2.2  | 2.86 | k $\Omega$ | —                                  |
| Resistance ratio     | $R_2/R_1$    | 17   | 21   | 26   | —          | —                                  |

\* Transition frequency of the device

### ●Dimensions (Unit : mm)

#### EMH10

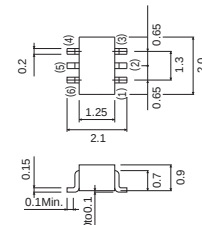


Each lead has same dimensions

Abbreviated symbol : H10

ROHM : EMT6

#### UMH10N

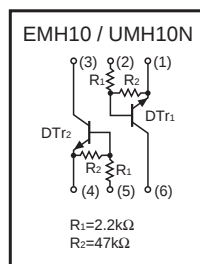


Each lead has same dimensions

ROHM : UMT6  
EIAJ : SC-88

Abbreviated symbol : H10

### ●Equivalent circuit



●Electrical characteristic curves

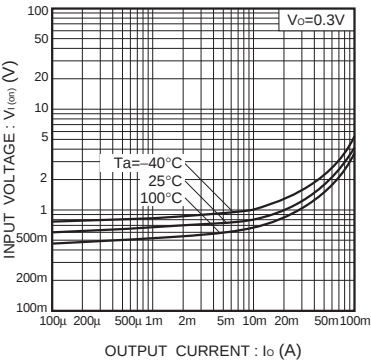


Fig.1 Input voltage vs. output current (ON characteristics)

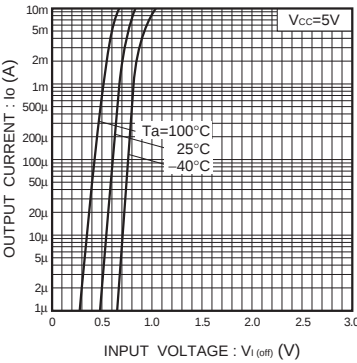


Fig.2 Output current vs. input voltage (OFF characteristics)

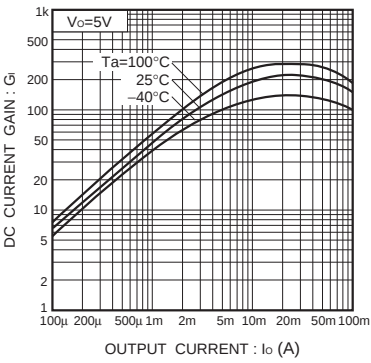


Fig.3 DC current gain vs. output current

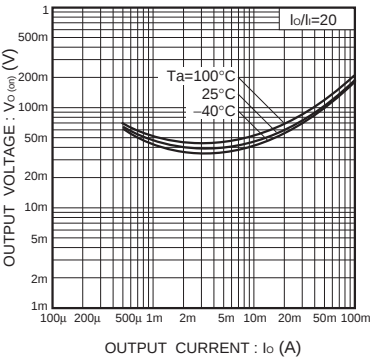


Fig.4 Output voltage vs. output current

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