# General purpose (dual digital transistors)

## EMH10 / UMH10N / IMH10A

### ●Features

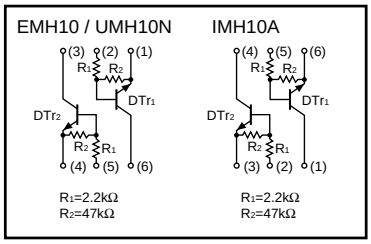
1) Two DTC123J chips in a EMT or UMT or SMT package.
2) Mounting possible with EMT3 or UMT3 or SMT3 automatic mounting machines.
3) Transistor elements are independent, eliminating interference.
4) Mounting cost and area can be cut in half.

### ●Structure

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

The following characteristics apply to both $DTr_1$ and $DTr_2$.

### ●Equivalent circuit

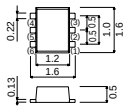



### ●Packaging specifications

| Type | Package | Taping | | |
|---|---|---|---|---|
| | Code | T2R | TN | T110 |
| | Basic ordering unit (pieces) | 8000 | 3000 | 3000 |
| EMH10 | | ○ | – | – |
| UMH10N | | – | ○ | – |
| IMH10A | | – | – | ○ |

### ●External dimensions (Unit : mm)

EMH10

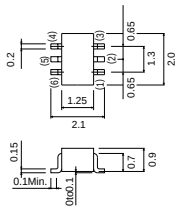



Each lead has same dimensions

Abbreviated symbol : H10

ROHM : EMT6

UMH10N

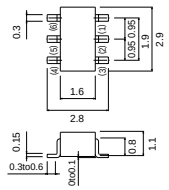



Each lead has same dimensions

ROHM : UMT6
EIAJ : SC-88

Abbreviated symbol : H10

IMH10A




Each lead has same dimensions

ROHM : SMT6
EIAJ : SC-74

Abbreviated symbol : H10

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

| Parameter | | Symbol | Limits | Unit |
|---|---|---|---|---|
| Supply voltage | | $V_{CC}$ | 50 | V |
| Input voltage | | $V_{IN}$ | 12 | V |
| | | | –5 | |
| Output current | | $I_O$ | 100 | mA |
| | | $I_{C\ (Max.)}$ | 100 | mA |
| Power dissipation | EMH10,UMH10N | Pd | 150 (TOTAL) | mW ∗1 |
| | IMH10A | | 300 (TOTAL) | mW ∗2 |
| Junction temperature | | Tj | 150 | °C |
| Storage temperature | | Tstg | –55~+150 | °C |

∗1 120mW per element must not be exceeded.
∗2 200mW 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, $I_O$=100μA |
| | $V_{I\ (on)}$ | 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 | μA | $V_{CC}$=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 | kΩ | – |
| Resistance ratio | $R_2/R_1$ | 17 | 21 | 26 | – | – |

∗ Transition frequency of the device

## ●Electrical characteristic curves

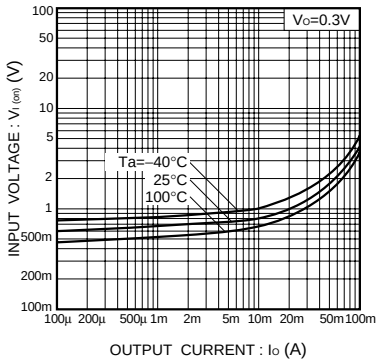



Fig.1 Input voltage vs. output current (ON characteristics)

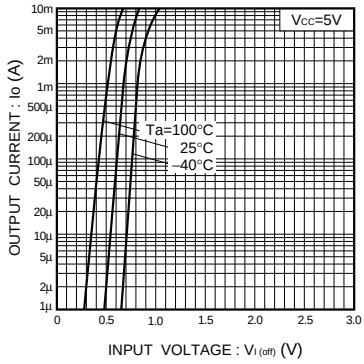



Fig.2 Output current vs. input voltage (OFF characteristics)

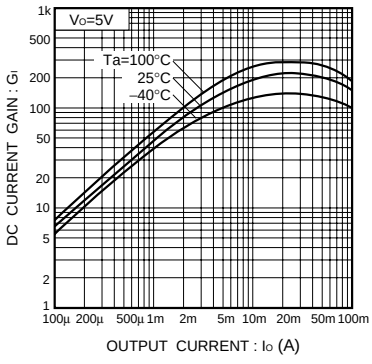



Fig.3 DC current gain vs. output current

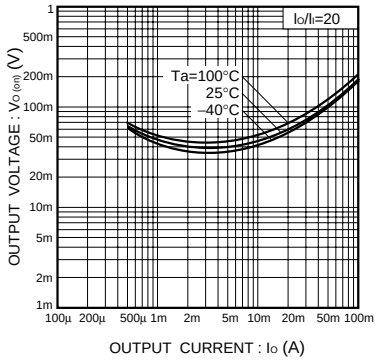



Fig.4 Output voltage vs. output current

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