

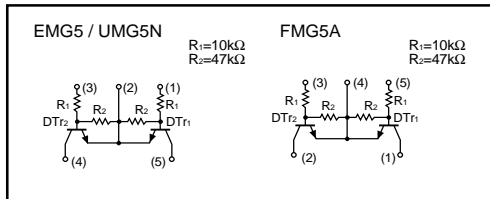
# Emitter common (dual digital transistors)

## EMG5 / UMG5N / FMG5A

●Features

- 1) Two DTC114Y chips in a EMT or UMT or SMT package.

●Equivalent circuit

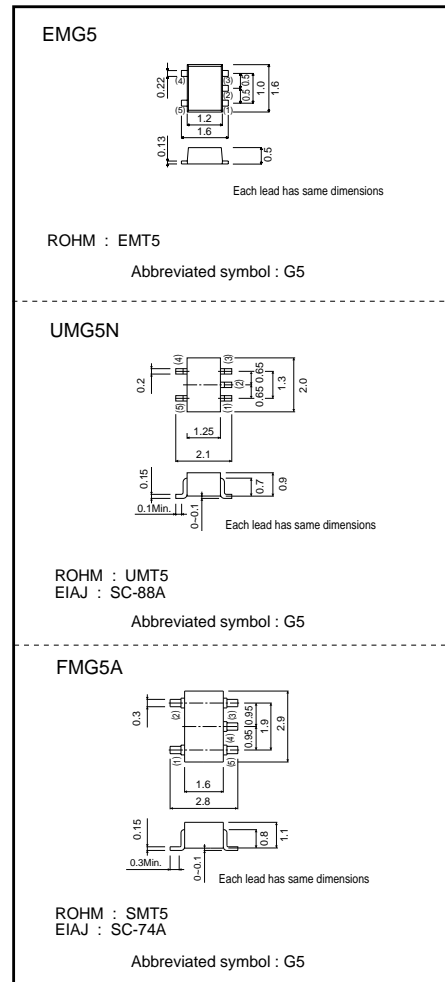


●Absolute maximum ratings (Ta = 25°C)

| Parameter            | Symbol                | Limits      | Unit |
|----------------------|-----------------------|-------------|------|
| Supply voltage       | V <sub>CC</sub>       | 50          | V    |
| Input voltage        | V <sub>IN</sub>       | 40          | V    |
|                      |                       | -6          |      |
| Output current       | I <sub>O</sub>        | 70          | mA   |
|                      | I <sub>C (Max.)</sub> | 100         |      |
| Power dissipation    | EMG5, UMG5N           | 150 (TOTAL) | mW   |
|                      | FMG5A                 | 300 (TOTAL) |      |
| Junction temperature | T <sub>J</sub>        | 150         | °C   |
| Storage temperature  | T <sub>stg</sub>      | -55 to +150 | °C   |

\*1 120mW per element must not be exceeded.  
\*2 200mW per element must not be exceeded.

●External dimensions (Unit : mm)



Transistors

●Electrical characteristics (Ta=25°C)

| Parameter            | Symbol       | Min. | Typ. | Max. | Unit      | Conditions                         |
|----------------------|--------------|------|------|------|-----------|------------------------------------|
| Input voltage        | $V_{I(off)}$ | –    | –    | 0.3  | V         | $V_{CC}=5V, I_o=100\mu A$          |
|                      | $V_{I(on)}$  | 1.4  | –    | –    |           | $V_o=0.3V, I_o=1mA$                |
| Output voltage       | $V_{O(on)}$  | –    | 0.1  | 0.3  | V         | $I_o=5mA, I_i=0.25mA$              |
| Input current        | $I_i$        | –    | –    | 0.88 | mA        | $V_i=5V$                           |
| Output current       | $I_{O(off)}$ | –    | –    | 0.5  | $\mu A$   | $V_{CC}=50V, V_i=0V$               |
| DC current gain      | $G_i$        | 68   | –    | –    | –         | $V_o=5V, I_o=5mA$                  |
| Transition frequency | $f_T$        | –    | 250  | –    | MHz       | $V_{CE}=10V, I_E=-5mA, f=100MHz$ * |
| Input resistance     | $R_1$        | 7    | 10   | 13   | $k\Omega$ | –                                  |
| Resistance ratio     | $R_2/R_1$    | 3.7  | 4.7  | 5.7  | –         | –                                  |

\* Transition frequency of the device

●Packaging specifications

| Type  | Package                      | Taping |      |      |
|-------|------------------------------|--------|------|------|
|       | Code                         | T2R    | TR   | T148 |
|       | Basic ordering unit (pieces) | 8000   | 3000 | 3000 |
| EMG5  | ○                            | –      | –    | –    |
| UMG5N | –                            | ○      | –    | –    |
| FMG5A | –                            | –      | –    | ○    |

●Electrical characteristics curves

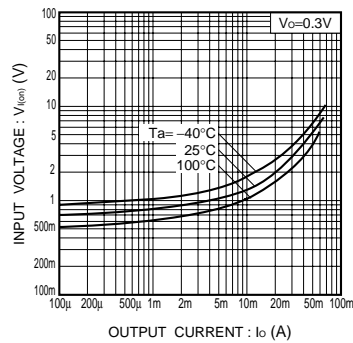


Fig.1 Input voltage vs. output current (ON characteristics)

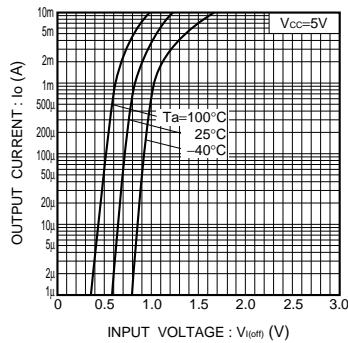


Fig.2 Output current vs. input voltage (OFF characteristics)

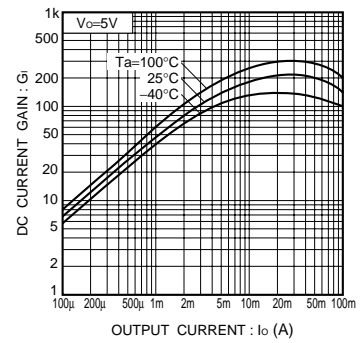


Fig.3 DC current gain vs. output current

## Transistors

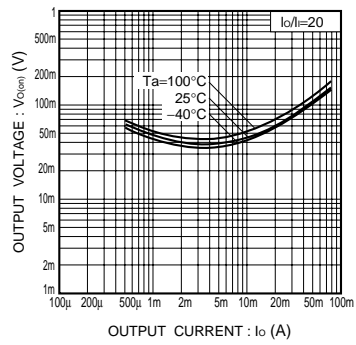


Fig.4 Output voltage vs. output current

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