

Dual digital transistors

IMH22

●Features

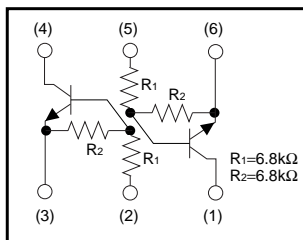
In addition to the features of regular digital transistors.

- 1) Low saturation voltage, typically
 $V_{CE(sat)} = 40\text{mV}$ at $I_c / I_B = 50\text{mA} / 2.5\text{mA}$, makes these transistors ideal for muting circuits.
- 2) These transistors can be used at high current levels,
 $I_c = 600\text{mA}$.
- 3) Two DTC663E chips in a SMT package.

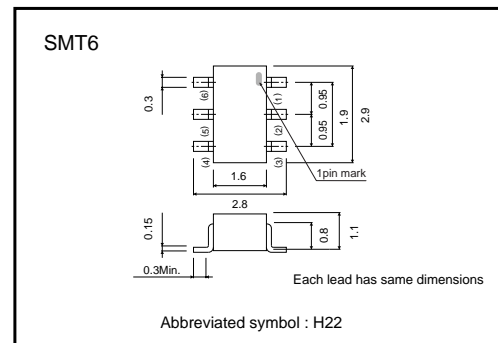
●Structure

NPN digital transistor
 (Built-in resistor type)

●Equivalent circuit



●External dimensions (Unit : mm)



●Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

| Parameter | Symbol | Limits | Unit |
|----------------------|-----------|-------------|------------------|
| Supply voltage | V_{CC} | 20 | V |
| Input voltage | V_{IN} | -20 to +20 | V |
| Output current | I_c | 600 | V |
| Power dissipation | P_d | 300(TOTAL) | mW * |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

* 200mW per element must not be exceeded.

Transistor

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|------------------------|--------------|------|------|------|-----------|-------------------------------------|
| Input voltage | $V_{I(OFF)}$ | – | – | 0.5 | V | $V_{CC}=5V, I_o=100\mu A$ |
| | $V_{I(ON)}$ | 2 | – | – | | $V_o=0.3V, I_o=10mA$ |
| Output voltage | $V_{O(ON)}$ | – | – | 150 | mV | $I_o/I_i=50mA/2.5mA$ |
| Input current | I_i | – | – | 1.3 | mA | $V_i=5V$ |
| Output current | $I_{O(OFF)}$ | – | – | 0.5 | μA | $V_{CC}=20V, V_i=0V$ |
| DC current gain | G_1 | 250 | – | – | – | $V_o=5V, I_o=50mA$ |
| Input resistance | R_1 | 4.76 | 6.8 | 8.84 | $k\Omega$ | – |
| Resistance ratio | R_2/R_1 | 0.8 | 1 | 1.2 | – | – |
| Transition frequency | f_r | – | 150 | – | MHz | $V_{CE}=10V, I_E=-50mA, f=100MHz$ * |
| Output "ON" resistance | R_{on} | – | 0.9 | – | Ω | $V_i=5V, R_L=1k\Omega, f=1kHz$ |

*Transition frequency of the device.

●Packaging specifications and hFE

| | | |
|-------|------------------------------|--------|
| Type | Package | SMT6 |
| | Packaging type | Taping |
| | Code | T110 |
| | Basic ordering unit (pieces) | 3000 |
| IMH22 | | ○ |

●Electrical characteristic curves

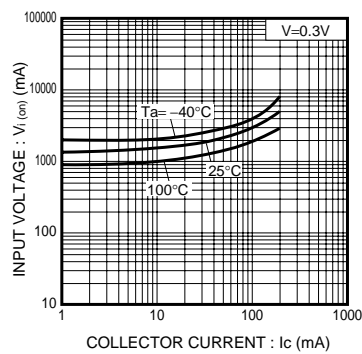


Fig.1 Input voltage vs. output current (ON characteristics)

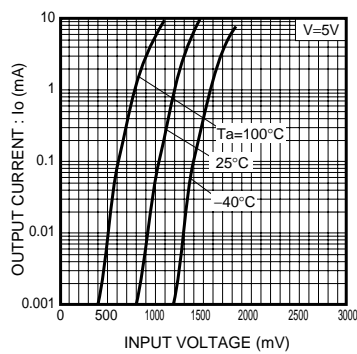


Fig.2 Output current vs. input voltage (OFF characteristics)

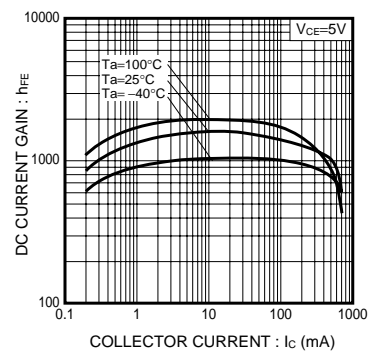


Fig.3 DC current gain vs. output current characteristics

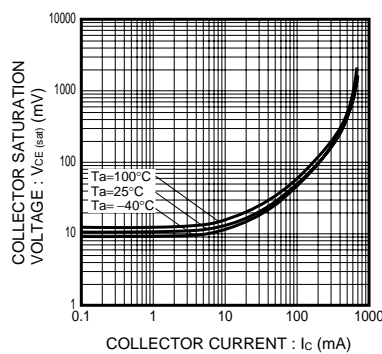


Fig.4 Output voltage vs. output current characteristics

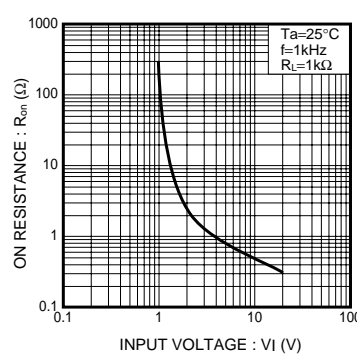


Fig.5 "ON" characteristics vs. input voltage characteristics

Transistor

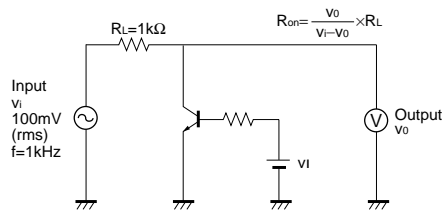
● R_{on} measurement circuit

Fig.4 Output "ON" resistance (R_{on}) measurement circuit

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