

Transistors

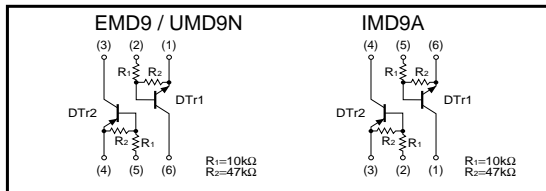
Digital Transistor (Dual Digital Transistors for Inverter Drive)

EMD9 / UMD9N / IMD9A

●Features

1) DTA114Y and DTC114Y transistors are built-in a EMT or UMT or SMT package.

●Equivalent circuit



●Package, marking, and packaging specifications

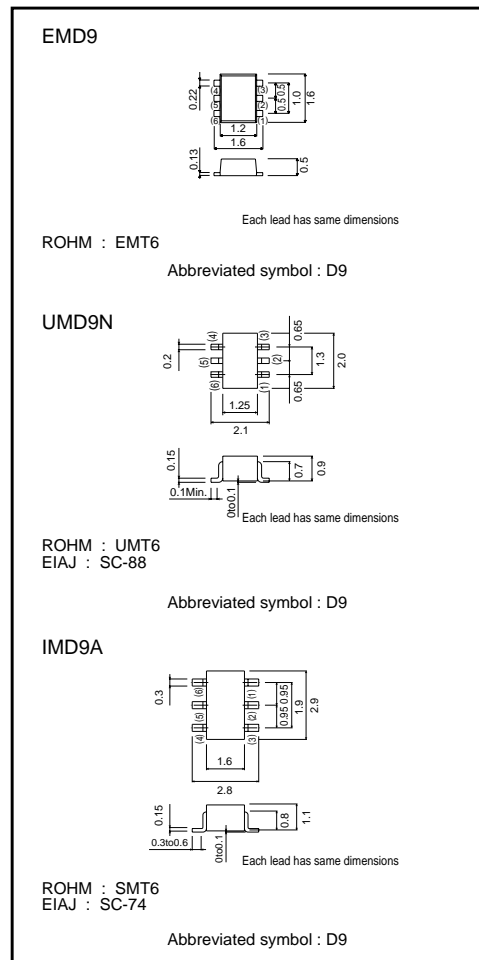
| Type | EMD9 | UMD9N | IMD9A |
|------------------------------|------|-------|-------|
| Package | EMT6 | UMT6 | SMT6 |
| Marking | D9 | D9 | D9 |
| Code | T2R | TR | T108 |
| Basic ordering unit (pieces) | 8000 | 3000 | 3000 |

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|----------------------|-----------------------|-------------|-------|
| Supply voltage | V _{CC} | 50 | V |
| Input voltage | V _{IN} | -6 to +40 | V |
| Output current | I _O | 70 | mA |
| Collector current | I _{C (Max.)} | 100 | mA |
| Power dissipation | EMD9, UMD9N | 150(TOTAL) | mW *1 |
| | IMD9A | 300(TOTAL) | mW *2 |
| Junction temperature | T _J | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

*1 120mW per element must not be exceeded. PNP type negative symbols have been omitted.
*2 200mW per element must not be exceeded. PNP type negative symbols have been omitted.

●External dimensions (Unit : mm)



●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 =100mA V _O =0.3V, I _I =1mA |
| | V _{I(on)} | 1.4 | - | - | | |
| 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 | mA | V _{CC} =50V, V _I =0V |
| DC current gain | G _I | 68 | - | - | - | I _O =5mA, V _O =5V |
| Transition frequency * | f _r | - | 250 | - | MHz | V _{CE} =10V, I _E =-5mA, f=100MHz |
| Input resistance | R ₁ | 7 | 10 | 13 | kΩ | - |
| Resistance ratio | R ₂ /R ₁ | 3.7 | 4.7 | 5.7 | - | - |

PNP type negative symbols have been omitted.
* Characteristics of built-in transistor.

Transistors

●Electrical characteristics curves DTr1 (DTC114Y)

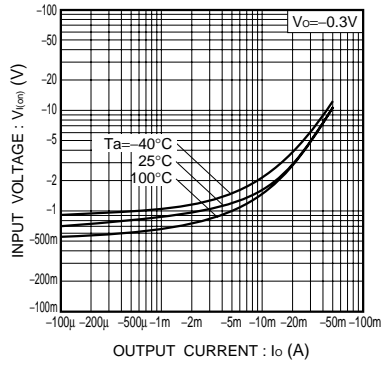


Fig.1 Input voltage vs. output current (ON characteristics)

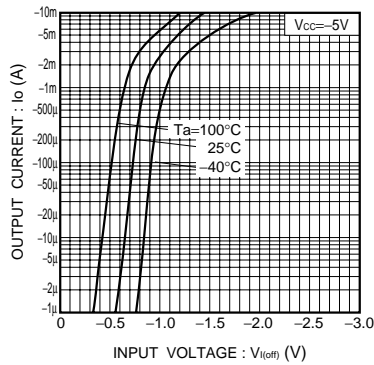


Fig.2 Output current vs. input voltage (OFF characteristics)

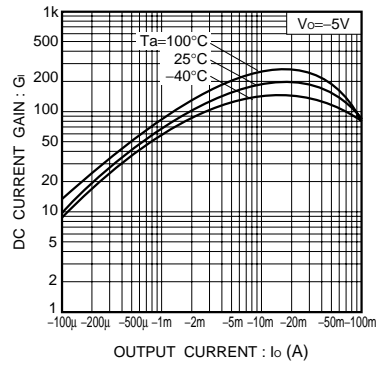


Fig.3 DC current gain vs. output current

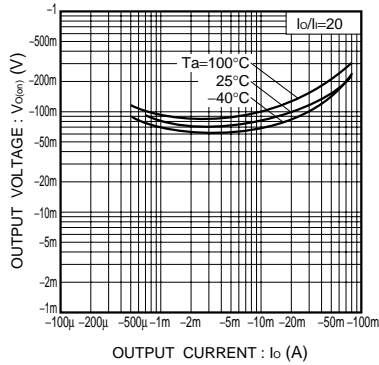


Fig.4 Output voltage vs. output current

Transistors

●Electrical characteristics curves DTr2 (DTA114Y)

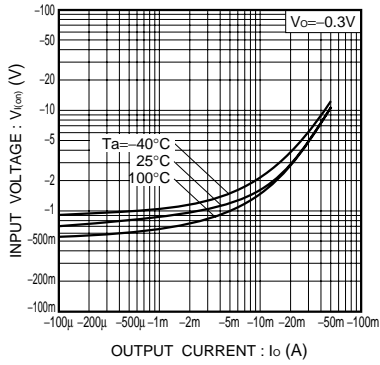


Fig.1 Input voltage vs. output current (ON characteristics)

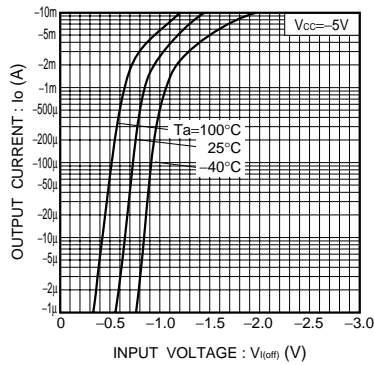


Fig.2 Output current vs. input voltage (OFF characteristics)

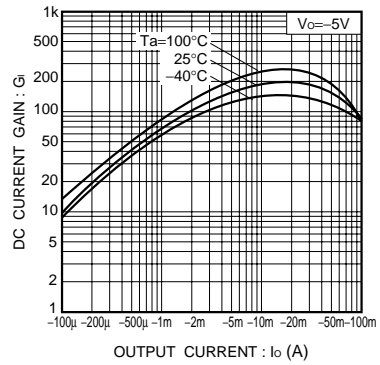


Fig.3 DC current gain vs. output current

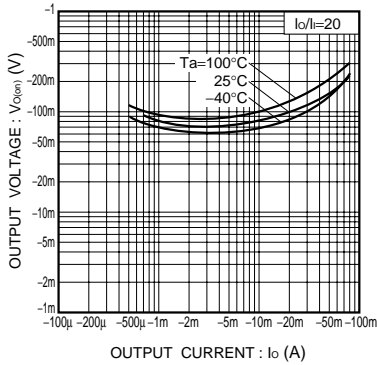


Fig.4 Output voltage vs. output current

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