

General purpose (dual digital transistors)

EMD6 / UMD6N / IMD6A

●Features

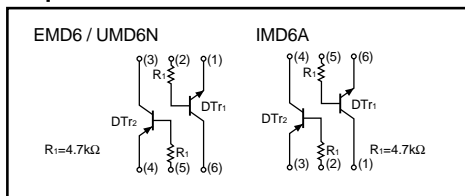
- 1) Both the DTA143T chip and DTC143T chip in an EMT or UMT or SMT package.
- 2) Mounting possible with EMT3 or UMT3 or SMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

●Structure

A PNP and NPN digital transistor
(each with a single built in resistor)

The following characteristics apply to both the DT_{r1} and DT_{r2}, however, the “-” sign on DT_{r2} values for the PNP type have been omitted.

●Equivalent circuit



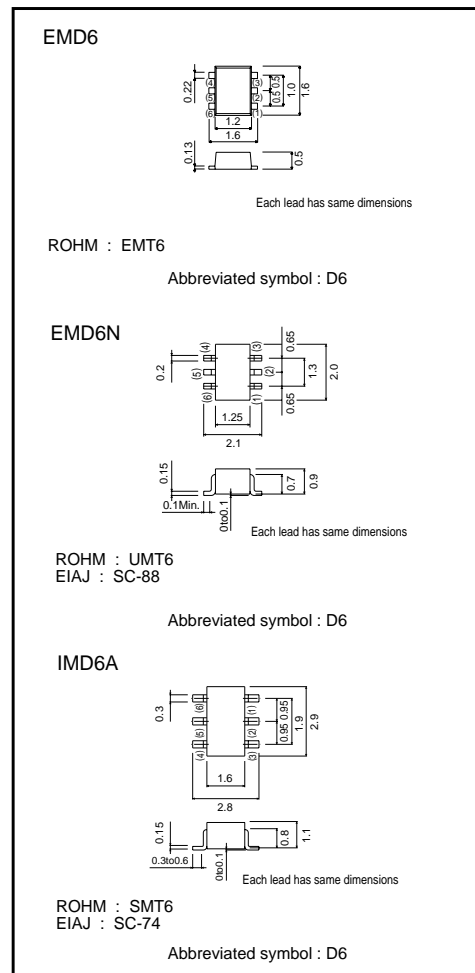
●Absolute maximum ratings (Ta = 25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|------------------|-------------|-------|
| Collector-base voltage | V _{CBO} | 50 | V |
| Collector-emitter voltage | V _{CEO} | 50 | V |
| Emitter-base voltage | V _{EBO} | 5 | V |
| Collector current | I _c | 100 | mA |
| Collector power dissipation | EMD6, UMD6N | 150 (TOTAL) | mW *1 |
| | IMD6A | 300 (TOTAL) | mW *2 |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55~+150 | °C |

*1 120mW per element must not be exceeded.

*2 200mW per element must not be exceeded.

●External dimensions (Units : mm)



Transistors

●Electrical characteristics (Ta = 25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|---|
| Collector-base breakdown voltage | BV _{CB0} | 50 | – | – | V | I _c =50μA |
| Collector-emitter breakdown voltage | BV _{CEO} | 50 | – | – | V | I _c =1mA |
| Emitter-base breakdown voltage | BV _{EB0} | 5 | – | – | V | I _E =50μA |
| Collector cutoff current | I _{CB0} | – | – | 0.5 | μA | V _{CB} =50V |
| Emitter cutoff current | I _{EB0} | – | – | 0.5 | μA | V _{EB} =4V |
| Collector-emitter saturation voltage | V _{CE(sat)} | – | – | 0.3 | V | I _c /I _B =5mA/0.25mA |
| DC current transfer ratio | h _{FE} | 100 | 250 | 600 | – | V _{CE} =5V, I _c =1mA |
| Transition frequency | f _T | – | 250 | – | MHz | V _{CE} =10mA, I _E =–5mA, f=100MHz * |
| Input resistance | R ₁ | 3.29 | 4.7 | 6.11 | kΩ | – |

* Transition frequency of the transistor

●Packaging specifications

| Type | Package | Taping | | |
|-------|------------------------------|--------|------|------|
| | Code | T2R | TR | T148 |
| | Basic ordering unit (pieces) | 8000 | 3000 | 3000 |
| EMD6 | ○ | — | — | — |
| UMD6N | — | ○ | — | — |
| IMD6A | — | — | — | ○ |

●Electrical characteristic curves

DTr1 (NPN)

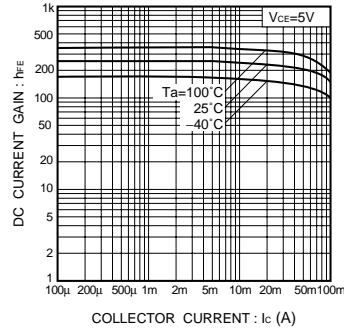


Fig.1 DC current gain vs. collector current

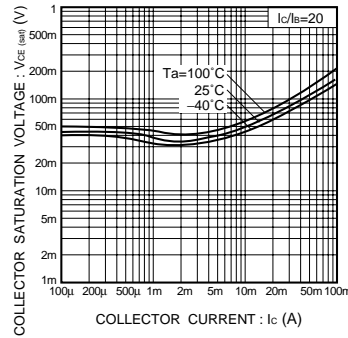


Fig.2 Collector-emitter saturation voltage vs. collector current

DTr2 (PNP)

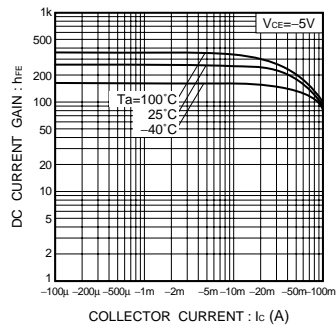


Fig.3 DC current gain vs. collector current

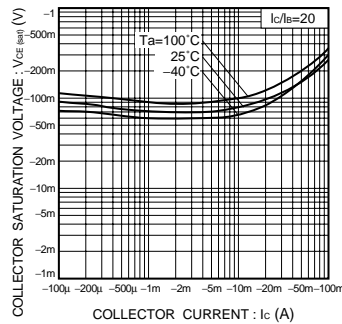


Fig.4 Collector-emitter saturation voltage vs. collector current