

# M.C.C.

Micro Commercial Components



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## DTC143EUA

## Digital Transistors

### Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epitaxial Planar Die Construction
- Complementary PNP Types Available
- Built-In Biasing Resistors
- Marking: 23
- Epoxy meets UL 94 V-0 flammability rating
- Moisure Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

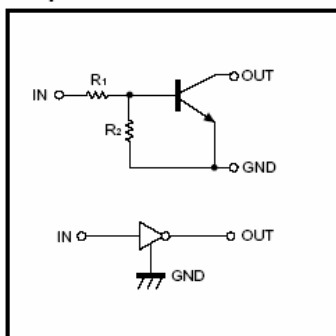
### Absolute maximum ratings @ 25°C

| Symbol    | Parameter            | Min | Typ | Max | Unit |
|-----------|----------------------|-----|-----|-----|------|
| $V_{CC}$  | Supply Voltage       | --- | --- | 50  | V    |
| $I_C$     | Collector current    | --- | 100 | --- | mA   |
| $V_{IN}$  | Input voltage        | -10 | --- | +30 | V    |
| $P_d$     | Power dissipation    | --- | 200 | --- | mW   |
| $T_j$     | Junction temperature | --- | 150 | --- | °C   |
| $T_{stg}$ | Storage temperature  | -55 | --- | 150 | °C   |

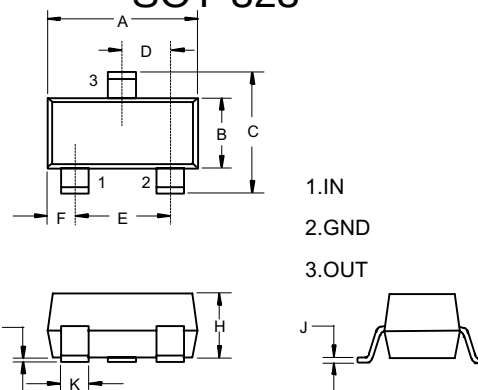
### Electrical Characteristics @ 25°C

| Symbol       | Parameter                                                      | Min  | Typ | Max  | Unit       |
|--------------|----------------------------------------------------------------|------|-----|------|------------|
| $V_{I(off)}$ | Input voltage ( $V_{CC}=5V$ , $I_O=100\mu A$ )                 | ---  | --- | 0.5  | V          |
| $V_{I(on)}$  | Input voltage ( $V_O=0.3V$ , $I_O=20mA$ )                      | 3.0  | --- | ---  | V          |
| $V_{O(on)}$  | Output voltage ( $I_O=10mA$ , $I_i=0.5mA$ )                    | ---  | --- | 0.3  | V          |
| $I_i$        | Input current ( $V_i=5V$ )                                     | ---  | --- | 1.8  | mA         |
| $I_{O(off)}$ | Output current ( $V_{CC}=50V$ , $V_i=0$ )                      | ---  | --- | 0.5  | $\mu A$    |
| $G_i$        | DC current gain ( $V_O=5V$ , $I_O=10mA$ )                      | 20   | --- | ---  |            |
| $R_i$        | Input resistance                                               | 3.29 | 4.7 | 6.11 | K $\Omega$ |
| $R_2/R_1$    | Resistance ratio                                               | 0.8  | 1   | 1.2  |            |
| $f_T$        | Transition frequency ( $V_{CE}=10V$ , $I_E=5mA$ , $f=100MHz$ ) | ---  | 250 | ---  | MHz        |

### Equivalent circuit



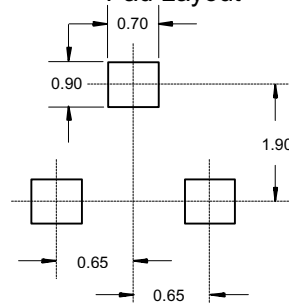
### SOT-323



### DIMENSIONS

| DIM | INCHES       |      | MM          |      | NOTE |
|-----|--------------|------|-------------|------|------|
|     | MIN          | MAX  | MIN         | MAX  |      |
| A   | .071         | .087 | 1.80        | 2.20 |      |
| B   | .045         | .053 | 1.15        | 1.35 |      |
| C   | .083         | .096 | 2.10        | 2.45 |      |
| D   | .026 Nominal |      | 0.65Nominal |      |      |
| E   | .047         | .055 | 1.20        | 1.40 |      |
| F   | .012         | .016 | .30         | .40  |      |
| G   | .000         | .004 | .000        | .100 |      |
| H   | .035         | .039 | .90         | 1.00 |      |
| J   | .004         | .010 | .100        | .250 |      |
| K   | .006         | .016 | .15         | .40  |      |

### Suggested Solder Pad Layout



[www.mccsemi.com](http://www.mccsemi.com)

## Typical Characteristics

### ●Electrical characteristic curves

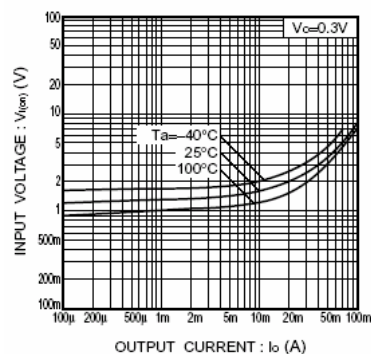


Fig.1 Input voltage vs. output current (ON characteristics)

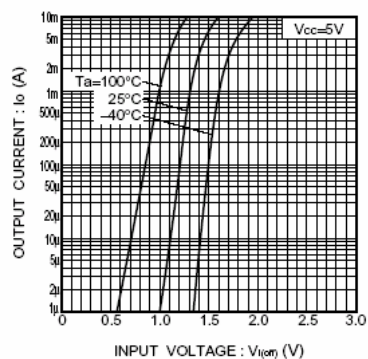


Fig.2 Output current vs. input voltage (OFF characteristics)

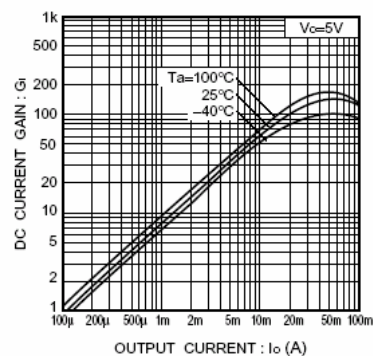


Fig.3 DC current gain vs. output current

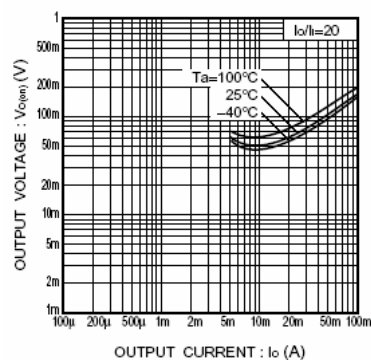


Fig.4 Output voltage vs. output current

## Ordering Information :

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel; 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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