

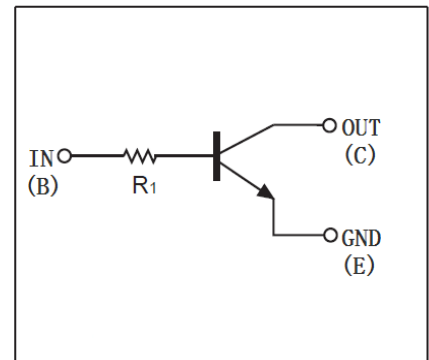
## DTC114TM/DTC114TE/DTC114TUA DTC114TKA/DTC114TCA/DTC114TSA

DIGITAL TRANSISTOR (NPN)

### FEATURES

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation, making device design easy

### • Equivalent Circuit



| Part Number  | MARKING <sup>(1)</sup>       | Package   | Packing Method | Pack Quantity |
|--------------|------------------------------|-----------|----------------|---------------|
| DTC114TM     | 04                           | SOT-723   | Reel           | 8000pcs/Reel  |
| DTC114TE     | 04                           | SOT-523   | Reel           | 3000pcs/Reel  |
| DTC114TUA    | 04                           | SOT-323   | Reel           | 3000pcs/Reel  |
| DTC114TKA    | 04                           | SOT-23-3L | Reel           | 3000pcs/Reel  |
| DTC114TCA    | 04                           | SOT-23    | Reel           | 3000pcs/Reel  |
| DTC114TSA    | C114 <sup>(2)</sup><br>T•XXX | TO-92S    | Bulk           | 1000pcs/Bag   |
| DTC114TSA-TA | C114 <sup>(2)</sup><br>T•XXX | TO-92S    | Tape           | 3000pcs/Box   |

Notes: (1). Solid dot = Green molding compound device, if none, the normal device.

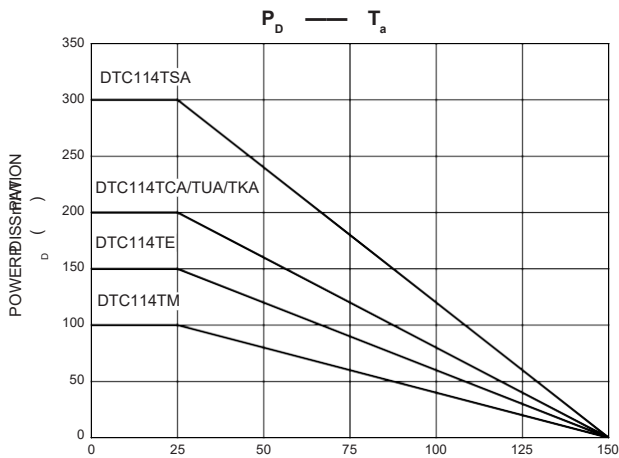
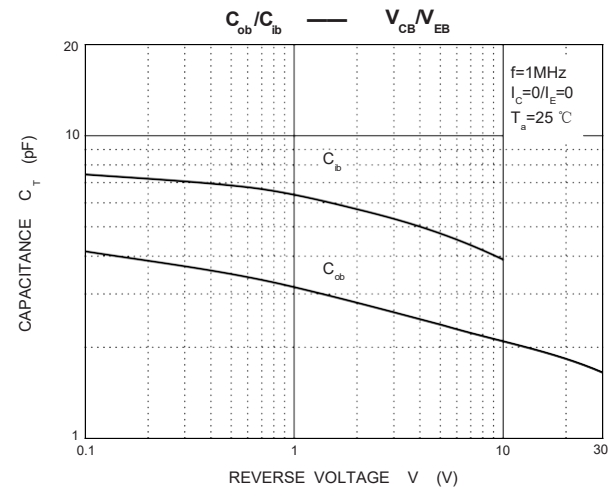
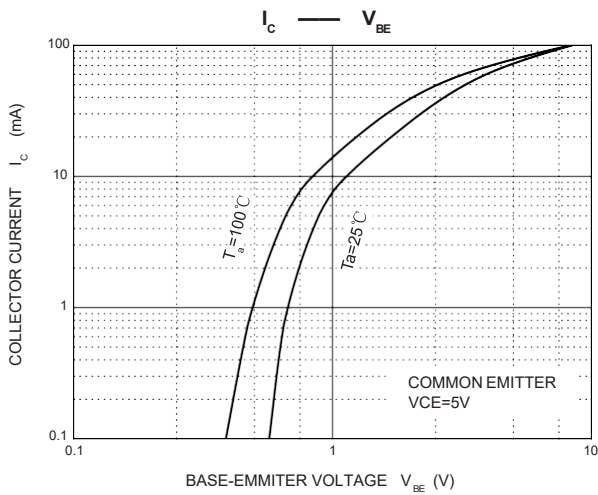
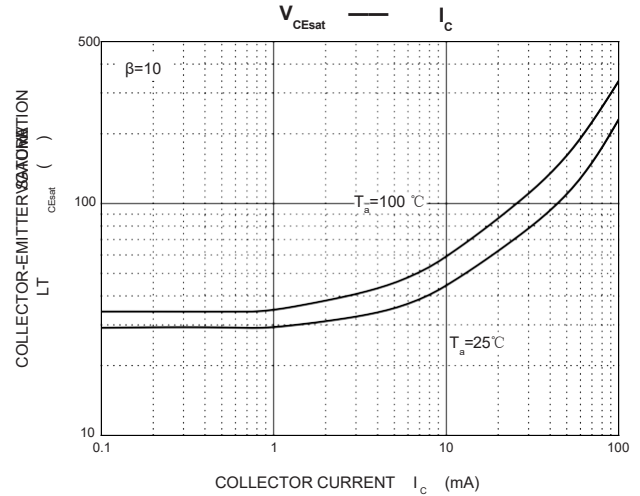
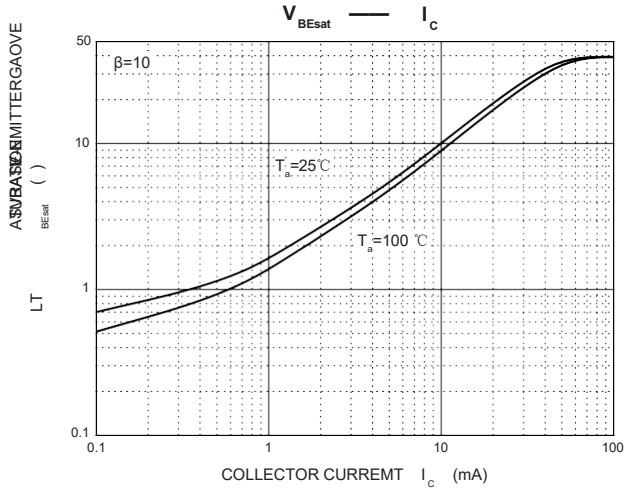
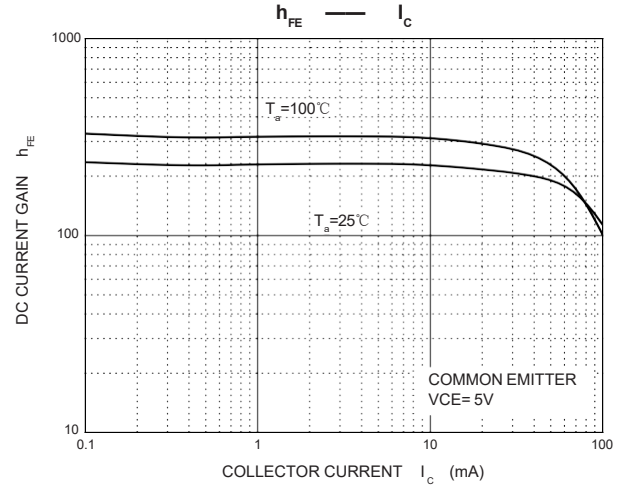
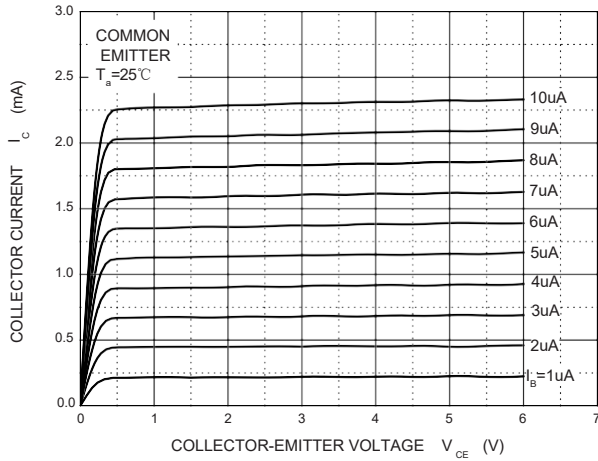
(2). XXX=Code

#### MAXIMUM RATINGS(Ta=25 °C unless otherwise noted)

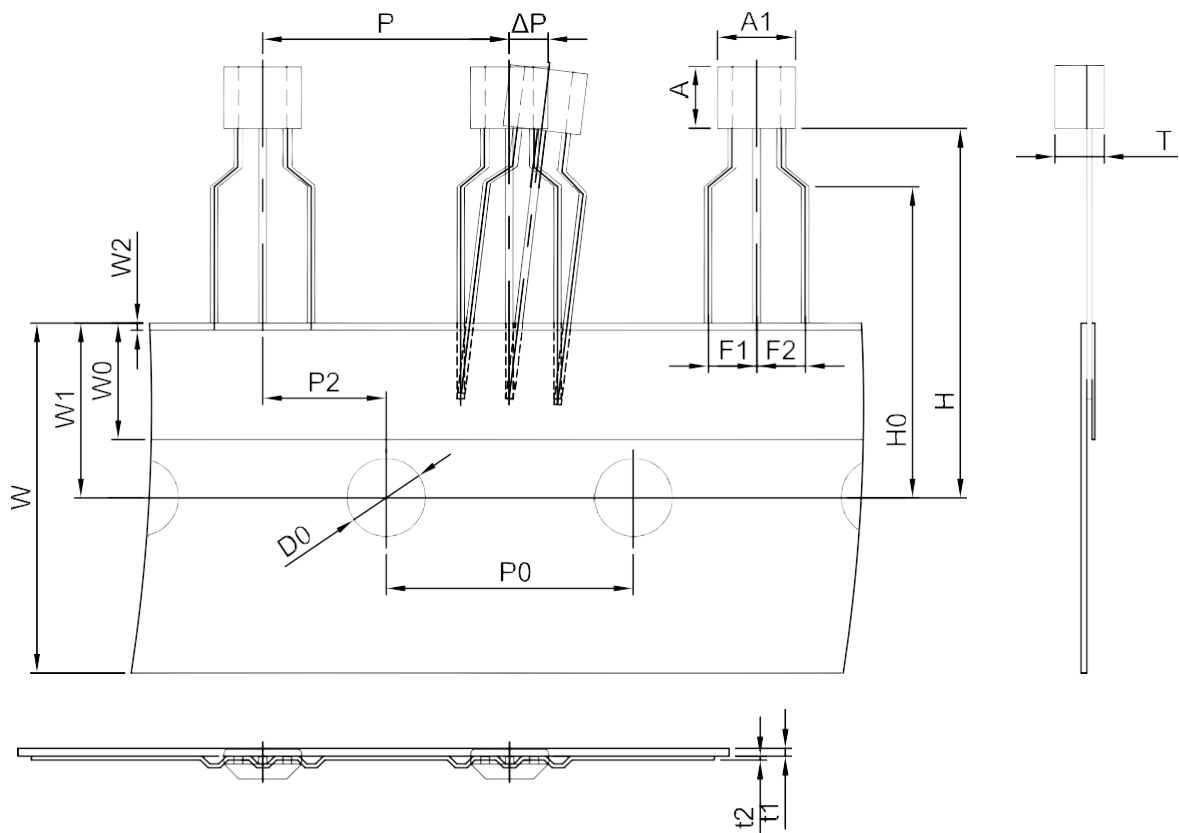
| Symbol                            | Parameter                                        | Limits(DTC114T□) |     |     |     |     |     | Unit |
|-----------------------------------|--------------------------------------------------|------------------|-----|-----|-----|-----|-----|------|
|                                   |                                                  | M                | E   | UA  | KA  | CA  | SA  |      |
| V <sub>CBO</sub>                  | Collector-Base Voltage                           | 50               |     |     |     |     |     | V    |
| V <sub>CEO</sub>                  | Collector-Emitter Voltage                        | 50               |     |     |     |     |     | V    |
| V <sub>EBO</sub>                  | Emitter-Base Voltage                             | 5                |     |     |     |     |     | V    |
| I <sub>C</sub>                    | Collector Current -Continuous                    | 100              |     |     |     |     |     | mA   |
| P <sub>D</sub>                    | Power Dissipation                                | 100              | 150 | 200 | 200 | 200 | 300 | mW   |
| T <sub>J</sub> , T <sub>stg</sub> | Operation Junction and Storage Temperature Range | -55~+150         |     |     |     |     |     | °C   |

#### ELECTRICAL CHARACTERISTICS (Ta=25 °C unless otherwise specified)

| Parameter                            | Symbol               | Conditions                                           | Min | Typ | Max | Unit |
|--------------------------------------|----------------------|------------------------------------------------------|-----|-----|-----|------|
| Collector-base breakdown voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> =50μA, I <sub>E</sub> =0              | 50  |     |     | V    |
| Collector-emitter breakdown voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> =1mA, I <sub>B</sub> =0               | 50  |     |     | V    |
| Emitter-base breakdown voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> =50μA, I <sub>C</sub> =0              | 5   |     |     | V    |
| Collector cut-off current            | I <sub>CBO</sub>     | V <sub>CB</sub> =50V, I <sub>E</sub> =0              |     |     | 0.5 | μA   |
| Emitter cut-off current              | I <sub>EBO</sub>     | V <sub>EB</sub> =4V, I <sub>C</sub> =0               |     |     | 0.5 | μA   |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =10mA, I <sub>B</sub> =1mA            |     |     | 0.3 | V    |
| DC current gain                      | h <sub>FE</sub>      | V <sub>CE</sub> =5V, I <sub>C</sub> =1mA             | 100 | 300 | 600 |      |
| Input resistor                       | R <sub>1</sub>       |                                                      | 7   | 10  | 13  | kΩ   |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz |     | 250 |     | MHz  |

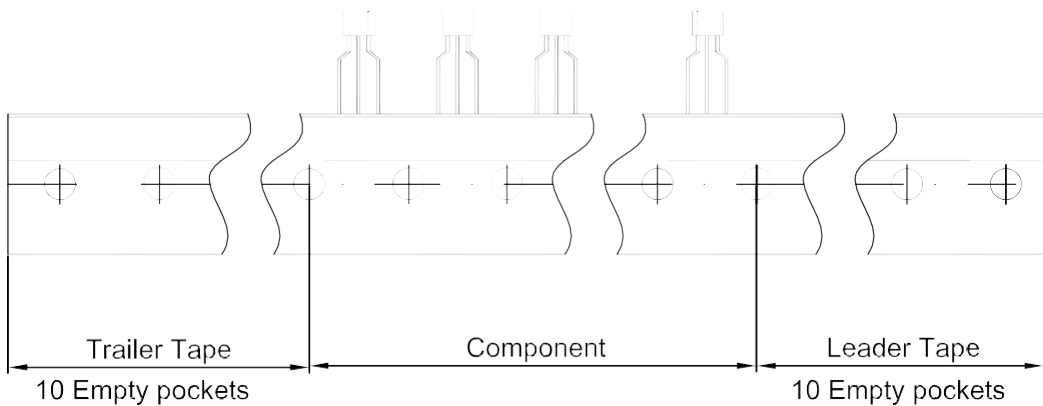
**Static Characteristic**


# TO-92S PACKAGE TAPING DIMENSION



Dimiensions are in millimeter

| A1  | A    | T    | P    | P0   | P2   | F1  | F2  | W          |
|-----|------|------|------|------|------|-----|-----|------------|
| 4.0 | 3.15 | 1.52 | 12.7 | 12.7 | 6.35 | 2.5 | 2.5 | 18.0       |
| W0  | W1   | W2   | H    | H0   | D0   | t1  | t2  | $\Delta P$ |
| 6.0 | 9.0  | 1.0  | 19.0 | 16.0 | 4.0  | 0.4 | 0.2 | 0          |



| Package | Box       | Box Size (mm) | Carton     | Carton Size (mm) |
|---------|-----------|---------------|------------|------------------|
| TO-92S  | 3,000 pcs | 330×184×40    | 30,000 pcs | 505×405×240      |