

## Digital Transistor

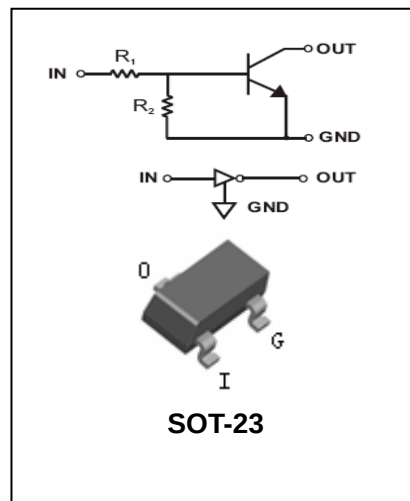
## DTC114ECA

### FEATURES

- Built-in bias resistor enable the configuration of an inverter circuit without connecting external input resistors.
- 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.



Lead-free



### APPLICATIONS

- The NPN style digital transistor.

### ORDERING INFORMATION

| Type No.  | Marking | Package Code |
|-----------|---------|--------------|
| DTC114ECA | 24      | SOT-23       |

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol         | Parameter                                   | Value       | Units |
|----------------|---------------------------------------------|-------------|-------|
| $V_{CC}$       | Supply Voltage                              | 50          | V     |
| $V_{IN}$       | Input Voltage                               | -10 to 40   | V     |
| $I_O$          | Output Current                              | 50          | mA    |
| $P_D$          | Power Dissipation                           | 200         | mW    |
| $T_j, T_{stg}$ | Operating and Storage and Temperature Range | -55 to +150 | °C    |

### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

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| Parameter                          | Symbol       | Test conditions                       | MIN | TYP | MAX  | UNIT       |
|------------------------------------|--------------|---------------------------------------|-----|-----|------|------------|
| Input Voltage                      | $V_{I(off)}$ | $V_{CC}=5V, I_O=100\mu A$             | -   | -   | 0.5  | V          |
|                                    | $V_{I(on)}$  | $V_O=0.3V, I_O=10mA$                  | 3   | -   | -    |            |
| Output Voltage                     | $V_{O(on)}$  | $I_O/I_I=10mA/0.5mA,$                 | -   | 0.1 | 0.3  | V          |
| Input Current                      | $I_I$        | $V_I=5V$                              | -   | -   | 0.88 | mA         |
| Output Current                     | $I_{O(off)}$ | $V_{CC}=50V, V_I=0V$                  | -   | -   | 0.5  | $\mu A$    |
| DC Current Gain                    | $G_I$        | $V_O=5V, I_O=5mA$                     | 30  | -   | -    |            |
| Input Resistor ( $R_1$ ) Tolerance | $R_1$        | -                                     | 7   | 10  | 13   | K $\Omega$ |
| Resistance Ratio                   | $R_2/R_1$    | -                                     | 0.8 | 1   | 1.2  | %          |
| Gain-Bandwidth Product             | $f_T$        | $V_{CE}=10V, I_E=-5mA,$<br>$f=100MHz$ | -   | 250 | -    | MHz        |

## PACKAGE OUTLINE

Plastic surface mounted package

SOT-23

| SOT-23               |            |      |
|----------------------|------------|------|
| Dim                  | Min        | Max  |
| A                    | 2.85       | 2.95 |
| B                    | 1.25       | 1.35 |
| C                    | 1.0Typical |      |
| D                    | 0.37       | 0.43 |
| E                    | 0.35       | 0.48 |
| G                    | 1.85       | 1.95 |
| H                    | 0.02       | 0.1  |
| J                    | 0.1Typical |      |
| K                    | 2.35       | 2.45 |
| All Dimensions in mm |            |      |

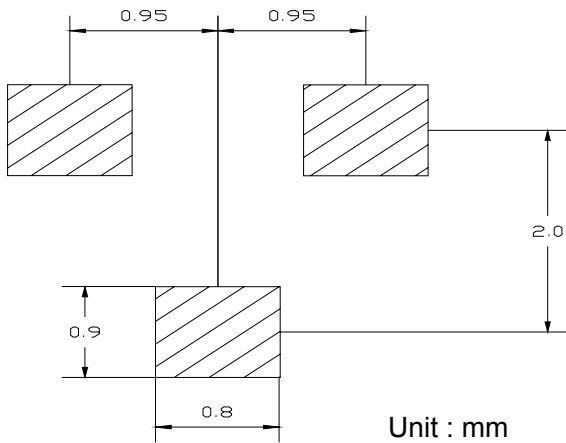
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**SOLDERING FOOTPRINT****PACKAGE INFORMATION**

| Device    | Package | Shipping       |
|-----------|---------|----------------|
| DTC114ECA | SOT-23  | 3000/Tape&Reel |