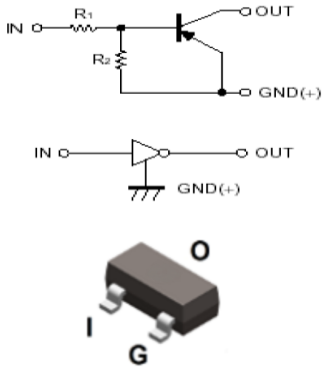
# DTA(R1=R2 SERIES)CA

**Digital Transistor(PNP)**

## FEATURES

- Epitaxial planar die construction.
- Complementary NPN types available(DTC).
- Built-in biasing resistors,$R_1$=$R_2$.
- Also available in lead free version.







**SOT-23**

## APPLICATIONS

- The PNP style digital transistor.

## ORDERING INFORMATION

| Type No. | Marking | Package Code |
|---|---|---|
| DTA114ECA | 14 | SOT-23 |
| DTA124ECA | 15 | SOT-23 |
| DTA143ECA | 13 | SOT-23 |
| DTA144ECA | 16 | SOT-23 |

## MAXIMUM RATING @ Ta=25℃ unless otherwise specified

| Symbol | Parameter | | Value | Units |
|---|---|---|---|---|
| $V_{CC}$ | Supply Voltage | | -50 | V |
| $V_{IN}$ | Input Voltage | DTA114ECA<br>DTA124ECA<br>DTA143ECA<br>DTA144ECA | +10 to -40<br>+10 to -40<br>+10 to -30<br>+10 to -40 | V |
| $I_O$ | Output Current | DTA114ECA<br>DTA124ECA<br>DTA143ECA<br>DTA144ECA | -50<br>-30<br>-100<br>-30 | mA |
| $I_C$(Max.) | Output current | ALL | -100 | mA |
| $P_D$ | Power Dissipation | | 200 | mW |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient Air *1 | | 409 | ℃/W |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case *1 | | 225 | ℃/W |
| $R_{\theta JL}$ | Thermal Resistance, Junction to Lead *1 | | 197 | ℃/W |
| $T_J$ | Junction Temperature | | -55 to +150 | ℃ |
| $T_{STG}$ | Operating and Storage and Temperature Range | | -55 to +150 | ℃ |

# DTA(R1=R2 SERIES)CA

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## ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

| Parameter | | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Input Voltage | | $V_{I(off)}$ | $V_{CC}$=-5V,$I_O$=-100μA | -0.5 | -1.1 | - | V |
| Input Voltage | DTA114ECA | $V_{I(on)}$ | $V_O$=-0.3V,$I_O$=-10mA | - | -1.9 | -3 | |
| | DTA124ECA | | $V_O$=-0.2V,$I_O$=-5mA | | | | |
| | DTA143ECA | | $V_O$=-0.3V,$I_O$=-20mA | | | | |
| | DTA144ECA | | $V_O$=-0.3V,$I_O$=-2mA | | | | |
| Output Voltage | | $V_{O(on)}$ | $I_O$/$I_I$=-10mA/-0.5mA, | - | -0.1 | -0.3 | V |
| Input Current | DTA114ECA | $I_I$ | $V_I$=-5V | - | - | -0.88 | mA |
| | DTA124ECA | | | | | -0.36 | |
| | DTA143ECA | | | | | -1.8 | |
| | DTA144ECA | | | | | -0.18 | |
| Output Current | | $I_{O(off)}$ | $V_{CC}$=-50V,$V_I$=0V | - | - | -0.5 | μA |
| DC Current Gain | DTA114ECA | $G_I$ | $V_O$=-5V,$I_O$=-5mA | 30 | - | - | |
| | DTA124ECA | | $V_O$=-5V,$I_O$=-5mA | 56 | | | |
| | DTA143ECA | | $V_O$=-5V,$I_O$=-10mA | 20 | | | |
| | DTA144ECA | | $V_O$=-5V,$I_O$=-5mA | 68 | | | |
| Input Resistor | DTA114ECA | $R_1$($R_2$) | | 7 | 10 | 13 | kΩ |
| | DTA124ECA | | | 15.4 | 22 | 28.6 | |
| | DTA143ECA | | | 3.29 | 4.7 | 6.11 | |
| | DTA144ECA | | | 32.9 | 47 | 61.1 | |
| Resistance Ratio | | $R_2$/$R_1$ | - | 0.8 | 1 | 1.2 | |
| Gain-Bandwidth Product | | $f_T$ | $V_{CE}$=-10V,$I_E$=5mA, f=100MHz | - | 250 | - | MHz |

Note 1: The data tested by surface mounted on a 15mm * 15mm * 1mm FR4-epoxy P.C.B

## TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

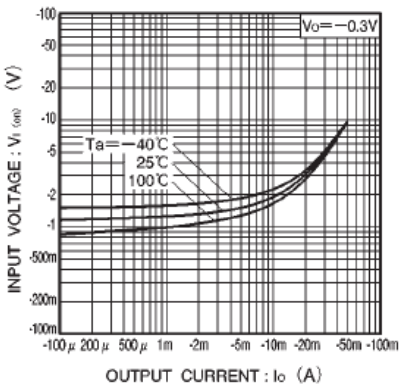


Fig.1 Input voltage vs. output current (ON characteristics)

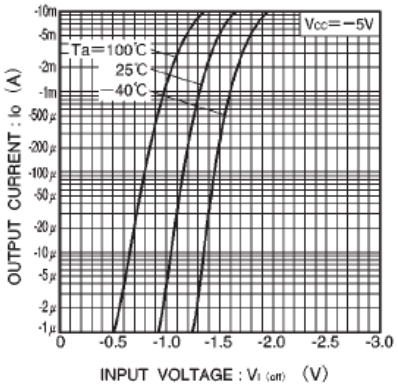


Fig.2 Output current vs. input voltage (OFF characteristics)

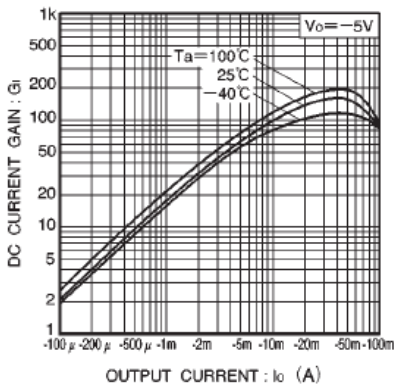


Fig.3 DC current gain vs. output current

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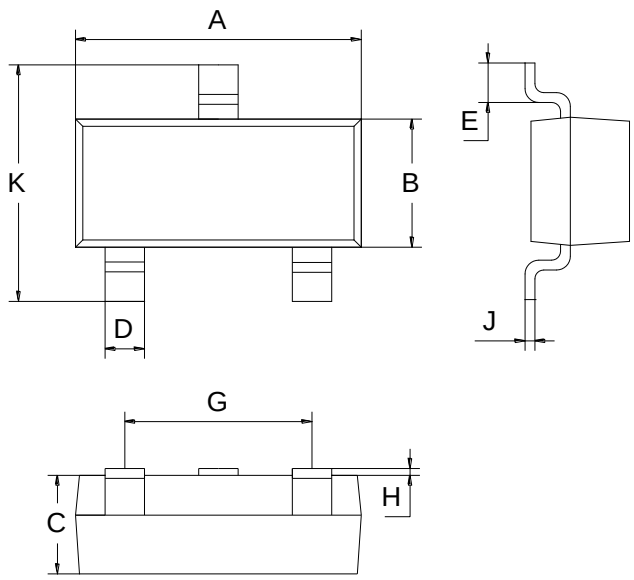
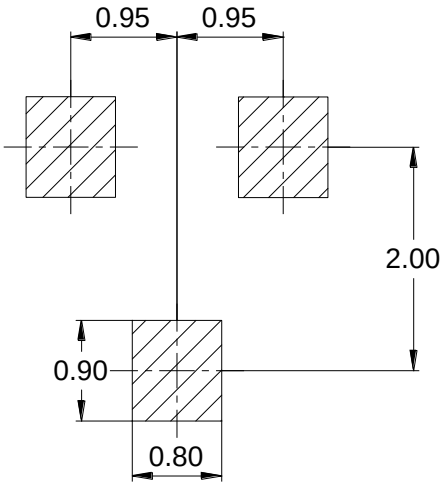
## PACKAGE OUTLINE

Plastic surface mounted package SOT-23




| SOT-23 | | |
|---|---|---|
| Dim | Min | Max |
| A | 2.70 | 3.10 |
| B | 1.10 | 1.50 |
| C | 0.90 | 1.10 |
| D | 0.30 | 0.50 |
| E | 0.35 | 0.48 |
| G | 1.80 | 2.00 |
| H | 0.02 | 0.10 |
| J | 0.05 | 0.15 |
| K | 2.20 | 2.60 |
| All Dimensions in mm | | |

## SOLDERING FOOTPRINT




Unit : mm

## PACKAGE INFORMATION

| Device | Package | Shipping |
|---|---|---|
| DTA114ECA/124ECA/143ECA/144ECA | SOT-23 | 3000 pcs / Tape & Reel |