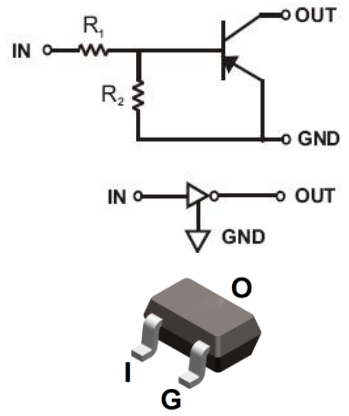
# Digital Transistor

# DTA($R_1$=$R_2$ SERIES)UA

## FEATURES

HF

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




SOT-323

## APPLICATIONS

- The PNP style digital transistor.

## ORDERING INFORMATION

| Type No. | Marking | Package Code |
|---|---|---|
| DTA114EUA | 14 | SOT-323 |
| DTA124EUA | 15 | SOT-323 |
| DTA143EUA | 13 | SOT-323 |
| DTA144EUA | 16 | SOT-323 |

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

| Symbol | Parameter | | Value | Units |
|---|---|---|---|---|
| $V_{CC}$ | Supply Voltage | | -50 | V |
| $V_{IN}$ | Input Voltage | DTA114EUA<br>DTA124EUA<br>DTA143EUA<br>DTA144EUA | +10 to -40<br>+10 to -40<br>+10 to -30<br>+10 to -40 | V |
| $I_O$ | Output Current | DTA114EUA<br>DTA124EUA<br>DTA143EUA<br>DTA144EUA | -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 | | 280 | ℃/W |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case *1 | | 160 | ℃/W |
| $R_{\theta JL}$ | Thermal Resistance, Junction to Lead *1 | | 210 | ℃/W |
| $T_J$ | Junction Temperature | | -55 to +150 | ℃ |
| $T_{STG}$ | Operating and Storage and Temperature Range | | -55 to +150 | ℃ |

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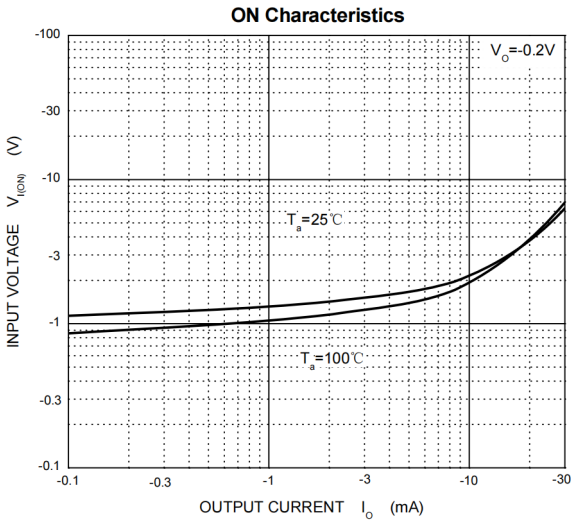
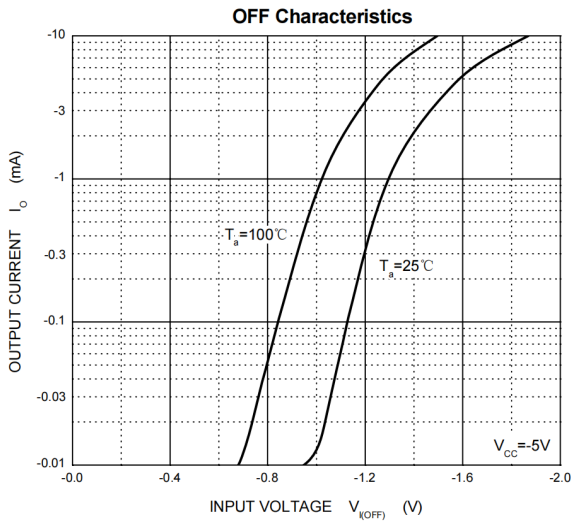
## ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

| 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 | DTA114EUA<br>DTA124EUA<br>DTA143EUA<br>DTA144EUA | $V_{I(on)}$ | $V_O$=-0.3V,$I_O$=-10mA<br>$V_O$=-0.2V,$I_O$=-5mA<br>$V_O$=-0.3V,$I_O$=-20mA<br>$V_O$=-0.3V,$I_O$=-2mA | - | -1.9 | -3 | |
| Output Voltage | | $V_{O(on)}$ | $I_O$/$I_I$=-10mA/-0.5mA, | - | -0.1 | -0.3 | V |
| Input Current | DTA114EUA<br>DTA124EUA<br>DTA143EUA<br>DTA144EUA | $I_I$ | $V_I$=-5V | - | - | -0.88<br>-0.36<br>-1.8<br>-0.18 | mA |
| Output Current | | $I_{O(off)}$ | $V_{CC}$=-50V,$V_I$=0V | - | - | -0.5 | μA |
| DC Current Gain | DTA114EUA<br>DTA124EUA<br>DTA143EUA<br>DTA144EUA | $G_I$ | $V_O$=-5V,$I_O$=-5mA<br>$V_O$=-5V,$I_O$=-5mA<br>$V_O$=-5V,$I_O$=-10mA<br>$V_O$=-5V,$I_O$=-5mA | 30<br>56<br>30<br>68 | - | - | |
| Input Resistor | DTA114EUA<br>DTA124EUA<br>DTA143EUA<br>DTA144EUA | $R_1$($R_2$) | | 7<br>15.4<br>3.29<br>32.9 | 10<br>22<br>4.7<br>47 | 13<br>28.6<br>6.11<br>61.1 | kΩ |
| Resistance Ratio | | $R_2$/$R_1$ | - | 0.8 | 1 | 1.2 | |
| Transition frequency | | $f_T$ | $V_O$ =-10V,$I_O$=-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



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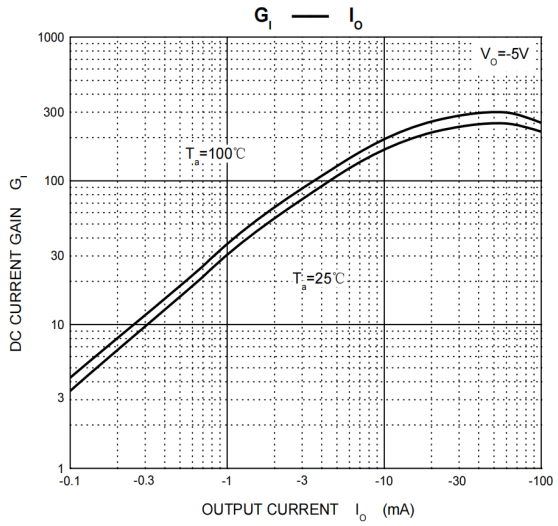


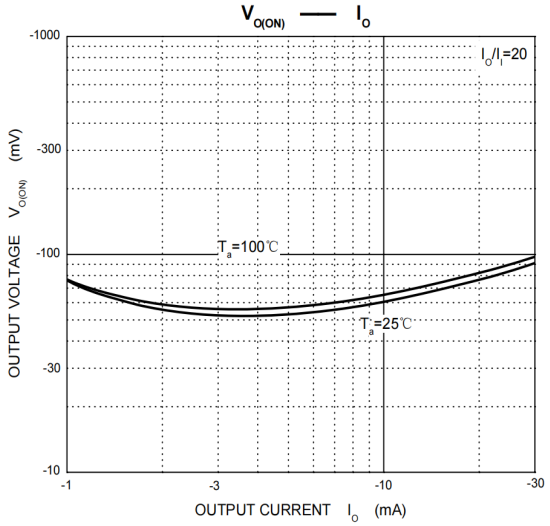


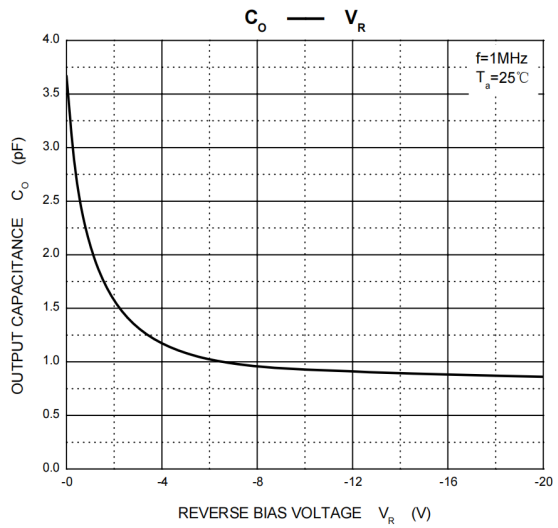


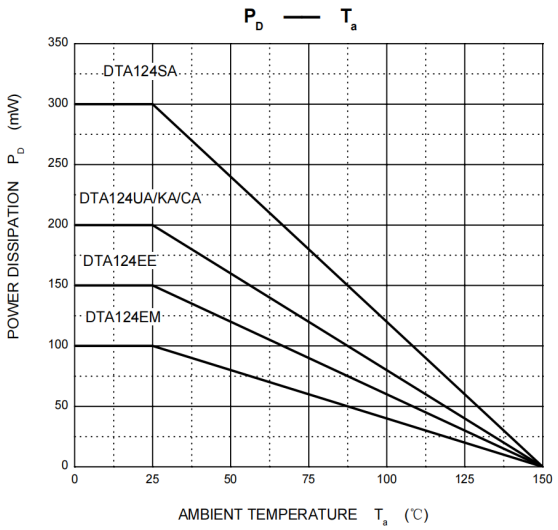

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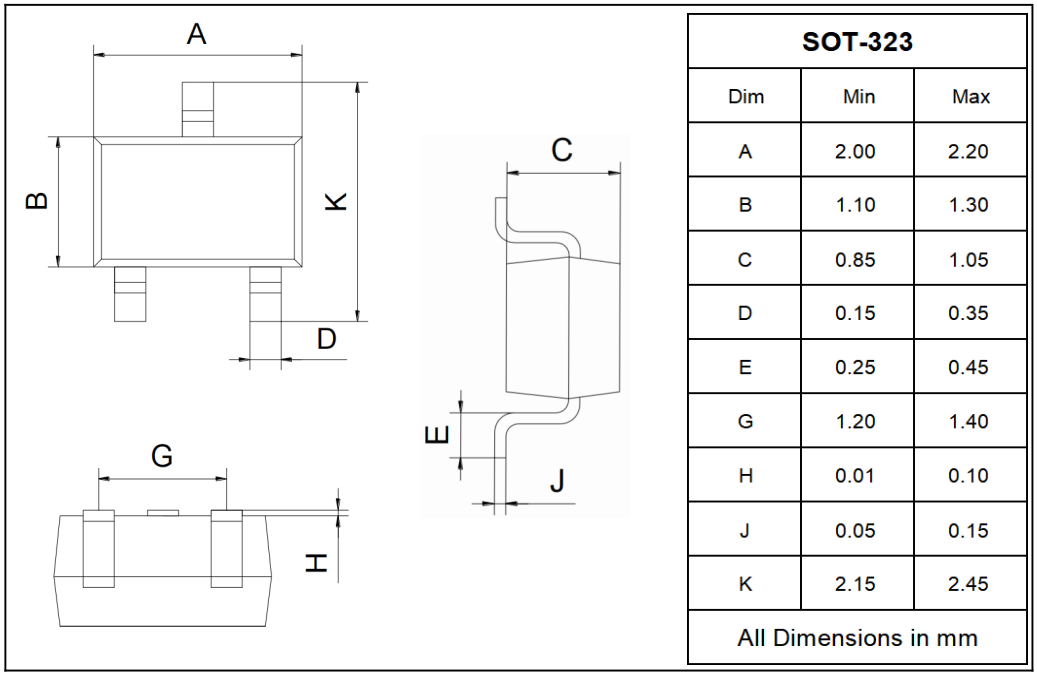
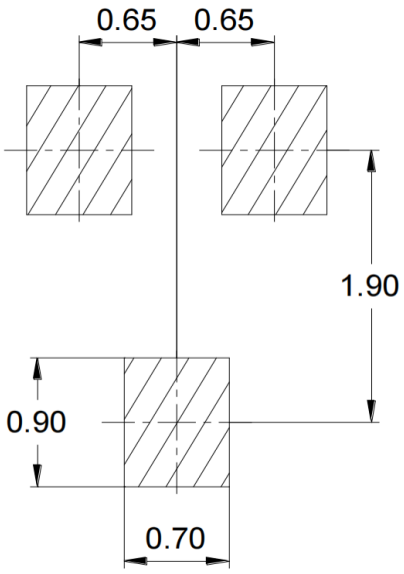
## PACKAGE OUTLINE

Plastic surface mounted package SOT-323




| SOT-323 | | |
|---|---|---|
| Dim | Min | Max |
| A | 2.00 | 2.20 |
| B | 1.10 | 1.30 |
| C | 0.85 | 1.05 |
| D | 0.15 | 0.35 |
| E | 0.25 | 0.45 |
| G | 1.20 | 1.40 |
| H | 0.01 | 0.10 |
| J | 0.05 | 0.15 |
| K | 2.15 | 2.45 |
| All Dimensions in mm | | |

## SOLDERING FOOTPRINT




Unit : mm

## PACKAGE INFORMATION

| Device | Package | Shipping |
|---|---|---|
| DTAXXXEUA | SOT-323 | 3000 pcs / Tape & Reel |