

# BRDTC143EKAQ

Rev.B Nov.-2024



DATA SHEET

Silicon NPN Digital transistor in a SOT-23 Plastic Package.

With built-in bias resistors, simplify circuit design, reduce a quantity of parts and manufacturing process, Qualified to AEC-Q101 Standar

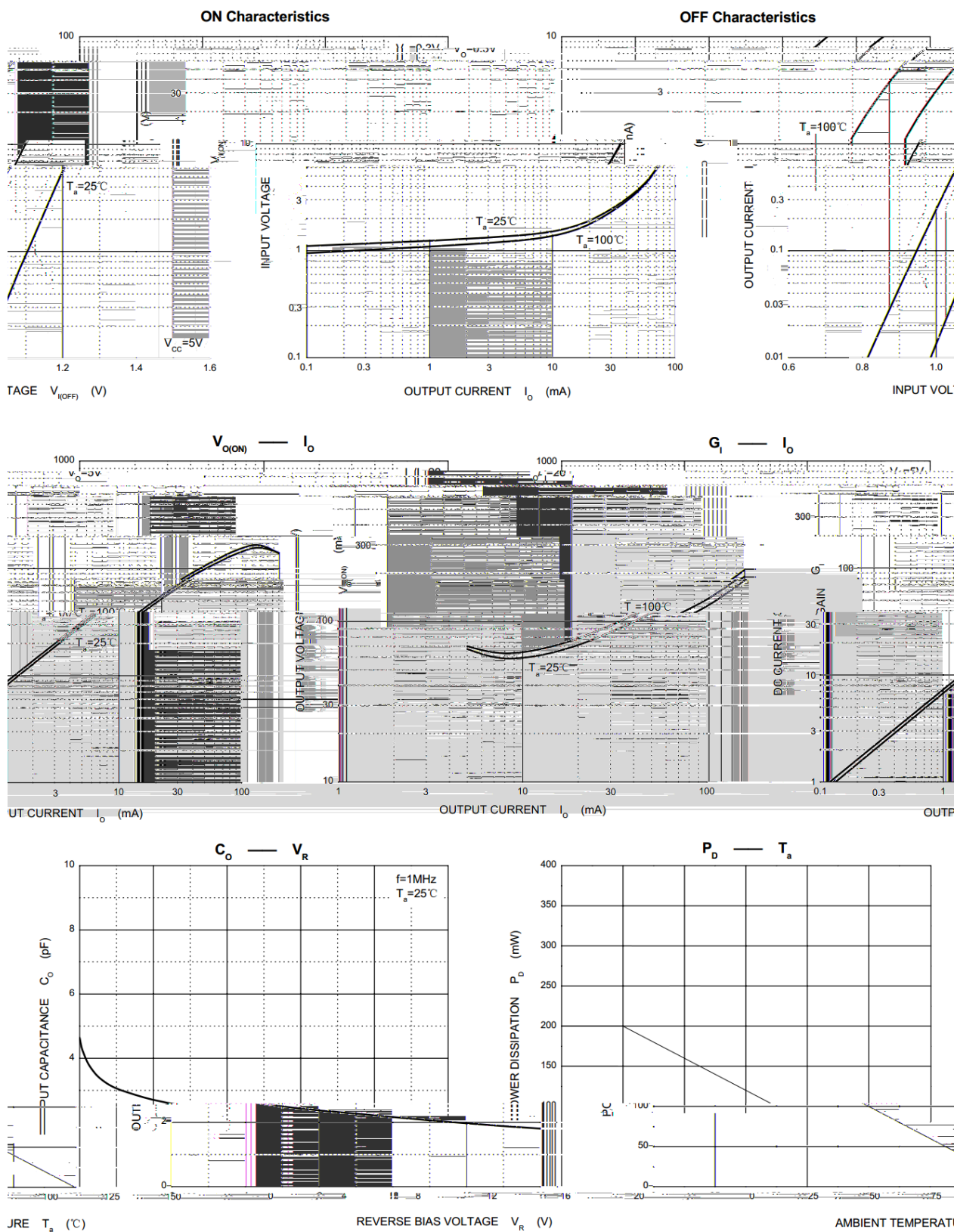
/ Absolute Maximum Ratings( $T_a=25^\circ\text{C}$ )

| Parameter                 | Symbol    | Rating    | Unit |
|---------------------------|-----------|-----------|------|
| Supply Voltage            | $V_{CC}$  | 50        | V    |
| Input Voltage             | $V_{IN}$  | -10~30    | V    |
| Output Current            | $I_O$     | 100       | mA   |
| Power Dissipation         | $P_D$     | 200       | mW   |
| Junction Temperature      | $T_j$     | 150       |      |
| Storage Temperature Range | $T_{stg}$ | -55 ~ 150 |      |

/ Electrical Characteristics( $T_a=25^\circ\text{C}$ )

| Parameter              | Symbol       | Test Conditions                         | Min  | Typ | Max  | Unit       |
|------------------------|--------------|-----------------------------------------|------|-----|------|------------|
| Input Voltage(OFF)     | $V_{I(off)}$ | $V_{CC}=5.0V$ $I_O=0.1mA$               | 0.5  |     |      | V          |
| Input Voltage(ON)      | $V_{I(on)}$  | $V_O=0.3V$ $I_O=20mA$                   |      |     | 3.0  | V          |
| Output Voltage         | $V_{O(on)}$  | $I_O=10mA$ $I_I=0.5mA$                  |      | 0.1 | 0.3  | V          |
| Input Current          | $I_I$        | $V_I=5.0V$                              |      |     | 1.8  | mA         |
| Output Cut-off Current | $I_{O(off)}$ | $V_{CC}=50V$ $V_I=0$                    |      |     | 0.5  | $\mu A$    |
| DC Current Gain        | $G_I$        | $V_O=5.0V$ $I_O=10mA$                   | 20   |     |      |            |
| Transition Frequency   | $f_T$        | $V_{CE}=10V$ $I_E=-5.0mA$<br>$f=100MHz$ |      | 250 |      | MHz        |
| Resistance1            | $R_1$        |                                         | 3.29 | 4.7 | 6.11 | K $\Omega$ |
| Resistance Ratio       | $R_2/R_1$    |                                         | 0.8  | 1.0 | 1.2  |            |

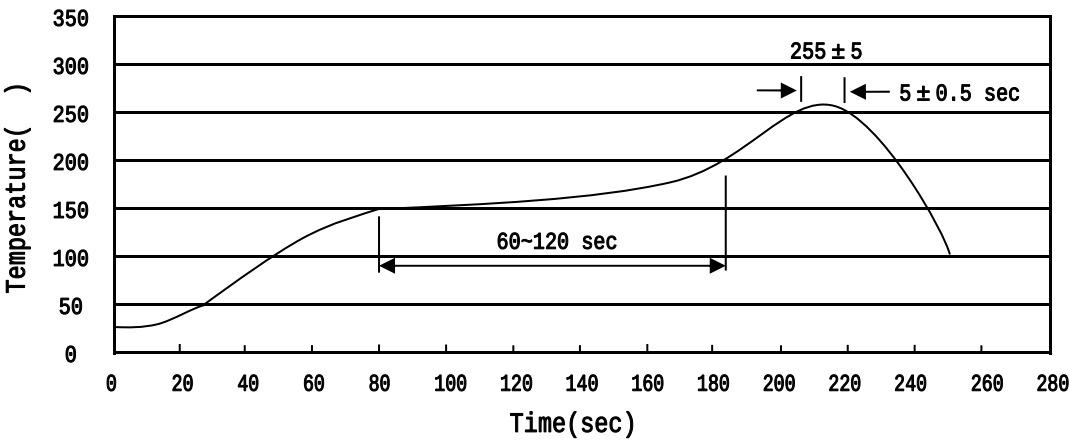
## / Electrical Characteristic Curve





**BRDTC143EKAQ**

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1

150 200

60 120sec;

1.Preheating:150~200 , Time:60~120sec.
- 2

255 5

5 0.5sec;

2.Peak Temp.:255 5 , Duration:5 0.5sec.
- 3

2 10 /sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260 5                      10 1 sec.                      Temp.:260±5                      Time:10±1 sec

/ Packaging SPEC.

/ REEL

| Package Type | Units      |                 |                 |                       |                 | Dimension (unit mm <sup>3</sup> ) |             |             |
|--------------|------------|-----------------|-----------------|-----------------------|-----------------|-----------------------------------|-------------|-------------|
|              | Units/Reel | Reels/Inner Box | Units/Inner Box | Inner Boxes/Outer Box | Units/Outer Box | Reel                              | Inner Box   | Outer Box   |
| SOT-23       | 3,000      | 10              | 30,000          | 6                     | 180,000         | 7 ×8                              | 180×120×180 | 390×385×205 |

/ Notices