

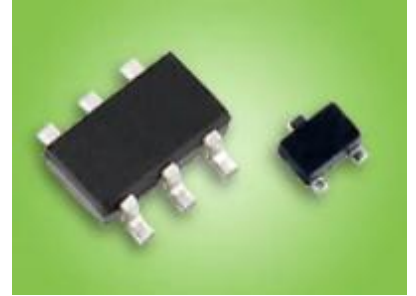
## Introduction to Toshiba Bias Resistor Built-in Transistors (Digital Transistors)

Toshiba has a lineup of transistors with built-in resistors (BRT: Bias Resistor Built-in Transistors) that combine various resistance values with NPN / PNP transistors (BJT: Bipolar junction transistors) in a small package.

### Toshiba, a leading company in transistors

Since Toshiba succeeded in developing a transistor in 1951, it has been one of the major transistor vendors [Note] who have continued to market products as a pioneer in the industry since the early days of semiconductors. We will continue to provide a wide range of highly reliable transistor products based on our experience in delivering products to many customers.

[Note] according to a survey by Toshiba (as of March 1<sup>st</sup>, 2021)



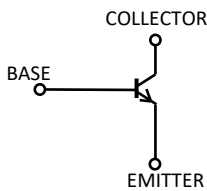
### High-quality, safe and secure delivery at plants in Japan and Thailand

Our transistor products are mainly surface-mount type small packages. High-quality, stable production at plants in Japan and Thailand enables safe and safety delivery. We will respond quickly and seriously to sudden delivery problems as well.

### Bias Resistor Built-in Transistors (Digital Transistors) overview

It is a transistor with a resistor added between the base, base - emitter of the bipolar transistor. For this reason, the circuit configuration easier with fewer external components such as bias resistors. The main use is for switching. The following is an example of adding a resistor to the NPN transistor / PNP transistor.

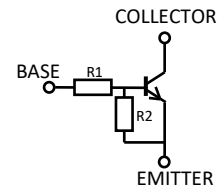
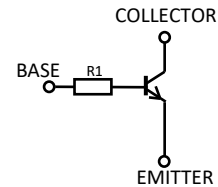
#### NPN Transistor



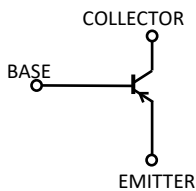
Add a resistor to the base terminal (input resistor)



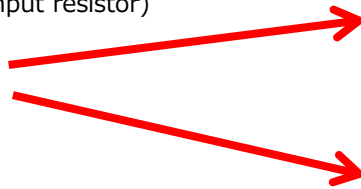
Base terminal and base-emitter terminal Add resistance between



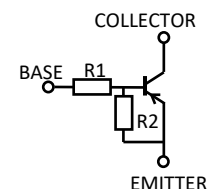
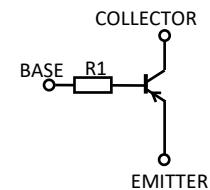
#### PNP Transistor



Add a resistor to the base terminal (input resistor)



Base terminal and base-emitter terminal Add resistance between

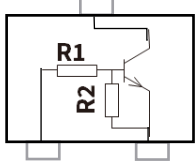
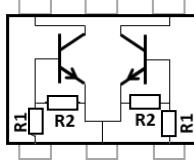
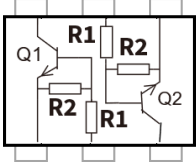


## Bias Resistor Built-in Transistors (Digital Transistors) Selection guide

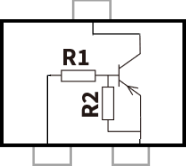
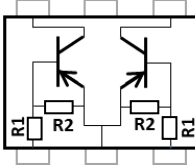
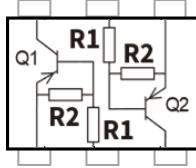
As shown in the figure below, we have a lineup, including 1in1 and 2in1 transistors with built-in resistors for NPN transistors and PNP transistors in the package.

### Internal Connections

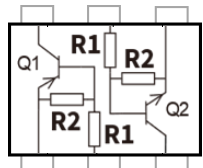

#### NPN type

| 1in1                                                                              | 2in1                                                                              |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| NPN x 1                                                                           | Common emitter<br>NPN x 2                                                         | Point-symmetrical<br>NPN x 2                                                      |
|  |  |  |

#### PNP type













| 1in1                                                                                | 2in1                                                                                |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| PNP x 1                                                                             | Common emitter<br>NPN x 2                                                           | Point-symmetrical<br>NPN x 2                                                        |
|  |  |  |




#### NPN+PNP type




| 2in1                                                                                |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Point-symmetrical<br>PNP+NPN                                                        | Point-symmetrical<br>NPN+PNP                                                        |
|  |  |

• Bias Resistor Built-in Transistors (Digital Transistors) selection table

[Single product]

| V <sub>CE0</sub>   (V) | I <sub>C</sub>   (mA) | Resistance                |                           | VESM (SOT-723)<br><br>1.2x1.2 |                                                                                   | SSM (SOT-416)<br><br>1.6x1.6 |                                                                                   | USM (SOT-323)<br><br>2.0x2.1 |                                                                                    | S-Mini (SOT-346)<br><br>2.9x2.5 |                                                                                     |     |  |     |  |
|------------------------|-----------------------|---------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|--|-----|--|
|                        |                       | R1 (typ.)                 | R2 (typ.)                 |                               |  |                              |  |                              |  |                                 |  |     |  |     |  |
|                        |                       | (kΩ)                      | (kΩ)                      | NPN                                                                                                            |                                                                                   | PNP                                                                                                           |                                                                                   | NPN                                                                                                           |                                                                                    | PNP                                                                                                                |                                                                                     | NPN |  | PNP |  |
|                        |                       | Part Number               |                           |                                                                                                                |                                                                                   |                                                                                                               |                                                                                   |                                                                                                               |                                                                                    |                                                                                                                    |                                                                                     |     |  |     |  |
| 50                     | 100                   | 4.7                       | 4.7                       | <a href="#">RN1101MFV</a>                                                                                      | <a href="#">RN2101MFV</a>                                                         | <a href="#">RN1101</a>                                                                                        | <a href="#">RN2101</a>                                                            | <a href="#">RN1301</a>                                                                                        | <a href="#">RN2301</a>                                                             | <a href="#">RN1401</a>                                                                                             | <a href="#">RN2401</a>                                                              |     |  |     |  |
|                        |                       | 10                        | 10                        | <a href="#">RN1102MFV</a>                                                                                      | <a href="#">RN2102MFV</a>                                                         | <a href="#">RN1102</a>                                                                                        | <a href="#">RN2102</a>                                                            | <a href="#">RN1302</a>                                                                                        | <a href="#">RN2302</a>                                                             | <a href="#">RN1402</a>                                                                                             | <a href="#">RN2402</a>                                                              |     |  |     |  |
|                        |                       | 22                        | 22                        | <a href="#">RN1103MFV</a>                                                                                      | <a href="#">RN2103MFV</a>                                                         | <a href="#">RN1103</a>                                                                                        | <a href="#">RN2103</a>                                                            | <a href="#">RN1303</a>                                                                                        | <a href="#">RN2303</a>                                                             | <a href="#">RN1403</a>                                                                                             | <a href="#">RN2403</a>                                                              |     |  |     |  |
|                        |                       | 47                        | 47                        | <a href="#">RN1104MFV</a>                                                                                      | <a href="#">RN2104MFV</a>                                                         | <a href="#">RN1104</a>                                                                                        | <a href="#">RN2104</a>                                                            | <a href="#">RN1304</a>                                                                                        | <a href="#">RN2304</a>                                                             | <a href="#">RN1404</a>                                                                                             | <a href="#">RN2404</a>                                                              |     |  |     |  |
|                        |                       | 2.2                       | 47                        | <a href="#">RN1105MFV</a>                                                                                      | <a href="#">RN2105MFV</a>                                                         | <a href="#">RN1105</a>                                                                                        | <a href="#">RN2105</a>                                                            | <a href="#">RN1305</a>                                                                                        | <a href="#">RN2305</a>                                                             | <a href="#">RN1405</a>                                                                                             | <a href="#">RN2405</a>                                                              |     |  |     |  |
|                        |                       | 4.7                       | 47                        | <a href="#">RN1106MFV</a>                                                                                      | <a href="#">RN2106MFV</a>                                                         | <a href="#">RN1106</a>                                                                                        | <a href="#">RN2106</a>                                                            | <a href="#">RN1306</a>                                                                                        | <a href="#">RN2306</a>                                                             | <a href="#">RN1406</a>                                                                                             | <a href="#">RN2406</a>                                                              |     |  |     |  |
|                        |                       | 10                        | 47                        | <a href="#">RN1107MFV</a>                                                                                      | <a href="#">RN2107MFV</a>                                                         | <a href="#">RN1107</a>                                                                                        | <a href="#">RN2107</a>                                                            | <a href="#">RN1307</a>                                                                                        | <a href="#">RN2307</a>                                                             | <a href="#">RN1407</a>                                                                                             | <a href="#">RN2407</a>                                                              |     |  |     |  |
|                        |                       | 22                        | 47                        | <a href="#">RN1108MFV</a>                                                                                      | <a href="#">RN2108MFV</a>                                                         | <a href="#">RN1108</a>                                                                                        | <a href="#">RN2108</a>                                                            | <a href="#">RN1308</a>                                                                                        | <a href="#">RN2308</a>                                                             | <a href="#">RN1408</a>                                                                                             | <a href="#">RN2408</a>                                                              |     |  |     |  |
|                        |                       | 47                        | 22                        | <a href="#">RN1109MFV</a>                                                                                      | <a href="#">RN2109MFV</a>                                                         | <a href="#">RN1109</a>                                                                                        | <a href="#">RN2109</a>                                                            | <a href="#">RN1309</a>                                                                                        | <a href="#">RN2309</a>                                                             | <a href="#">RN1409</a>                                                                                             | <a href="#">RN2409</a>                                                              |     |  |     |  |
|                        |                       | 4.7                       | -                         | <a href="#">RN1110MFV</a>                                                                                      | <a href="#">RN2110MFV</a>                                                         | <a href="#">RN1110</a>                                                                                        | <a href="#">RN2110</a>                                                            | <a href="#">RN1310</a>                                                                                        | <a href="#">RN2310</a>                                                             | <a href="#">RN1410</a>                                                                                             | <a href="#">RN2410</a>                                                              |     |  |     |  |
|                        |                       | 10                        | -                         | <a href="#">RN1111MFV</a>                                                                                      | <a href="#">RN2111MFV</a>                                                         | <a href="#">RN1111</a>                                                                                        | <a href="#">RN2111</a>                                                            | <a href="#">RN1311</a>                                                                                        | <a href="#">RN2311</a>                                                             | <a href="#">RN1411</a>                                                                                             | <a href="#">RN2411</a>                                                              |     |  |     |  |
|                        |                       | 22                        | -                         | <a href="#">RN1112MFV</a>                                                                                      | <a href="#">RN2112MFV</a>                                                         | <a href="#">RN1112</a>                                                                                        | <a href="#">RN2112</a>                                                            | <a href="#">RN1312</a>                                                                                        | <a href="#">RN2312</a>                                                             | <a href="#">RN1412</a>                                                                                             | <a href="#">RN2412</a>                                                              |     |  |     |  |
|                        |                       | 47                        | -                         | <a href="#">RN1113MFV</a>                                                                                      | <a href="#">RN2113MFV</a>                                                         | <a href="#">RN1113</a>                                                                                        | <a href="#">RN2113</a>                                                            | <a href="#">RN1313</a>                                                                                        | <a href="#">RN2313</a>                                                             | <a href="#">RN1413</a>                                                                                             | <a href="#">RN2413</a>                                                              |     |  |     |  |
|                        |                       | 1                         | 10                        | <a href="#">RN1114MFV</a>                                                                                      | <a href="#">RN2114MFV</a>                                                         | <a href="#">RN1114</a>                                                                                        | <a href="#">RN2114</a>                                                            | <a href="#">RN1314</a>                                                                                        | -                                                                                  | <a href="#">RN1414</a>                                                                                             | <a href="#">RN2414</a>                                                              |     |  |     |  |
|                        |                       | 2.2                       | 10                        | <a href="#">RN1115MFV</a>                                                                                      | <a href="#">RN2115MFV</a>                                                         | <a href="#">RN1115</a>                                                                                        | <a href="#">RN2115</a>                                                            | <a href="#">RN1315</a>                                                                                        | <a href="#">RN2315</a>                                                             | <a href="#">RN1415</a>                                                                                             | <a href="#">RN2415</a>                                                              |     |  |     |  |
|                        |                       | 4.7                       | 10                        | <a href="#">RN1116MFV</a>                                                                                      | <a href="#">RN2116MFV</a>                                                         | <a href="#">RN1116</a>                                                                                        | <a href="#">RN2116</a>                                                            | <a href="#">RN1316</a>                                                                                        | <a href="#">RN2316</a>                                                             | <a href="#">RN1416</a>                                                                                             | <a href="#">RN2416</a>                                                              |     |  |     |  |
|                        |                       | 10                        | 4.7                       | <a href="#">RN1117MFV</a>                                                                                      | <a href="#">RN2117MFV</a>                                                         | <a href="#">RN1117</a>                                                                                        | <a href="#">RN2117</a>                                                            | <a href="#">RN1317</a>                                                                                        | <a href="#">RN2317</a>                                                             | <a href="#">RN1417</a>                                                                                             | <a href="#">RN2417</a>                                                              |     |  |     |  |
|                        |                       | 47                        | 10                        | <a href="#">RN1118MFV</a>                                                                                      | -                                                                                 | <a href="#">RN1118</a>                                                                                        | -                                                                                 | <a href="#">RN1318</a>                                                                                        | <a href="#">RN2318</a>                                                             | <a href="#">RN1418</a>                                                                                             | <a href="#">RN2418</a>                                                              |     |  |     |  |
|                        |                       | 1                         | -                         | <a href="#">RN1119MFV</a>                                                                                      | <a href="#">RN2119MFV</a>                                                         | -                                                                                                             | -                                                                                 | -                                                                                                             | -                                                                                  | -                                                                                                                  | -                                                                                   |     |  |     |  |
|                        |                       | 100                       | 100                       | <a href="#">RN1130MFV</a>                                                                                      | <a href="#">RN2130MFV</a>                                                         | -                                                                                                             | -                                                                                 | -                                                                                                             | -                                                                                  | -                                                                                                                  | -                                                                                   |     |  |     |  |
| 100                    | -                     | <a href="#">RN1131MFV</a> | <a href="#">RN2131MFV</a> | -                                                                                                              | -                                                                                 | -                                                                                                             | -                                                                                 | -                                                                                                             | -                                                                                  |                                                                                                                    |                                                                                     |     |  |     |  |
| 200                    | -                     | <a href="#">RN1132MFV</a> | <a href="#">RN2132MFV</a> | -                                                                                                              | -                                                                                 | -                                                                                                             | -                                                                                 | -                                                                                                             | -                                                                                  |                                                                                                                    |                                                                                     |     |  |     |  |

| V <sub>CE0</sub>   (V) | I <sub>C</sub>   (mA) | Resistance  |           | SOT23 (SOT-23)<br><br>2.9x2.4 |                                                                                     |     |  |
|------------------------|-----------------------|-------------|-----------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|--|
|                        |                       | R1 (typ.)   | R2 (typ.) |                               |  |     |  |
|                        |                       | (kΩ)        | (kΩ)      | NPN                                                                                                              |                                                                                     | PNP |  |
|                        |                       | Part Number |           |                                                                                                                  |                                                                                     |     |  |
| 50                     | 100                   | 4.7         | 4.7       | <a href="#">TDTC143E</a>                                                                                         | <a href="#">TDTA143E</a>                                                            |     |  |
|                        |                       | 10          | 10        | <a href="#">TDTC114E</a>                                                                                         | <a href="#">TDTA114E</a>                                                            |     |  |
|                        |                       | 22          | 22        | <a href="#">TDTC124E</a>                                                                                         | <a href="#">TDTA124E</a>                                                            |     |  |
|                        |                       | 47          | 47        | <a href="#">TDTC144E</a>                                                                                         | <a href="#">TDTA144E</a>                                                            |     |  |
|                        |                       | 2.2         | 47        | <a href="#">TDTC123J</a>                                                                                         | <a href="#">TDTA123J</a>                                                            |     |  |
|                        |                       | 4.7         | 47        | <a href="#">TDTC143Z</a>                                                                                         | <a href="#">TDTA143Z</a>                                                            |     |  |
|                        |                       | 10          | 47        | <a href="#">TDTC114Y</a>                                                                                         | <a href="#">TDTA114Y</a>                                                            |     |  |

| V <sub>CE0</sub>   (V) | I <sub>C</sub>   (mA) | Resistance  |           | S-Mini (SOT-346)<br><br>2.9x2.5 |                                                                                       |     |  |
|------------------------|-----------------------|-------------|-----------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----|--|
|                        |                       | R1 (typ.)   | R2 (typ.) |                                 |  |     |  |
|                        |                       | (kΩ)        | (kΩ)      | NPN                                                                                                                  |                                                                                       | PNP |  |
|                        |                       | Part Number |           |                                                                                                                      |                                                                                       |     |  |
| 50                     | 800                   | 1           | 1         | <a href="#">RN1421</a>                                                                                               | <a href="#">RN2421</a>                                                                |     |  |
|                        |                       | 2.2         | 2.2       | <a href="#">RN1422</a>                                                                                               | <a href="#">RN2422</a>                                                                |     |  |
|                        |                       | 4.7         | 4.7       | <a href="#">RN1423</a>                                                                                               | <a href="#">RN2423</a>                                                                |     |  |
|                        |                       | 10          | 10        | <a href="#">RN1424</a>                                                                                               | <a href="#">RN2424</a>                                                                |     |  |
|                        |                       | 0.47        | 10        | <a href="#">RN1425</a>                                                                                               | <a href="#">RN2425</a>                                                                |     |  |
|                        |                       | 1           | 10        | <a href="#">RN1426</a>                                                                                               | <a href="#">RN2426</a>                                                                |     |  |
|                        |                       | 2.2         | 10        | <a href="#">RN1427</a>                                                                                               | <a href="#">RN2427</a>                                                                |     |  |

• Bias Resistor Built-in Transistors (Digital Transistors) selection table

[2in1 product]

• Common emitter

| V <sub>CEoL</sub>   (V) | I <sub>cL</sub>   (mA) | Resistance  |           | ESV<br>(SOT-553)<br>1.6x1.6 |                          | USV<br>(SOT-353)<br>2.0x2.1 |                        | SMV<br>(SOT-25)<br>2.9x2.8 |                        |
|-------------------------|------------------------|-------------|-----------|-----------------------------|--------------------------|-----------------------------|------------------------|----------------------------|------------------------|
|                         |                        | R1 (typ.)   | R2 (typ.) |                             |                          |                             |                        |                            |                        |
|                         |                        | (kΩ)        | (kΩ)      | NPNx2                       | PNPx2                    | NPNx2                       | PNPx2                  | NPNx2                      | PNPx2                  |
|                         |                        | Part Number |           |                             |                          |                             |                        |                            |                        |
| 50                      | 100                    | 4.7         | 4.7       | <a href="#">RN1701JE</a>    | <a href="#">RN2701JE</a> | <a href="#">RN1701</a>      | <a href="#">RN2701</a> | <a href="#">RN1501</a>     | <a href="#">RN2501</a> |
|                         |                        | 10          | 10        | <a href="#">RN1702JE</a>    | <a href="#">RN2702JE</a> | <a href="#">RN1702</a>      | <a href="#">RN2702</a> | <a href="#">RN1502</a>     | <a href="#">RN2502</a> |
|                         |                        | 22          | 22        | <a href="#">RN1703JE</a>    | <a href="#">RN2703JE</a> | <a href="#">RN1703</a>      | <a href="#">RN2703</a> | <a href="#">RN1503</a>     | <a href="#">RN2503</a> |
|                         |                        | 47          | 47        | <a href="#">RN1704JE</a>    | <a href="#">RN2704JE</a> | <a href="#">RN1704</a>      | <a href="#">RN2704</a> | <a href="#">RN1504</a>     | <a href="#">RN2504</a> |
|                         |                        | 2.2         | 47        | <a href="#">RN1705JE</a>    | <a href="#">RN2705JE</a> | <a href="#">RN1705</a>      | <a href="#">RN2705</a> | <a href="#">RN1505</a>     | <a href="#">RN2505</a> |
|                         |                        | 4.7         | 47        | <a href="#">RN1706JE</a>    | <a href="#">RN2706JE</a> | <a href="#">RN1706</a>      | <a href="#">RN2706</a> | <a href="#">RN1506</a>     | <a href="#">RN2506</a> |
|                         |                        | 10          | 47        | <a href="#">RN1707JE</a>    | <a href="#">RN2707JE</a> | <a href="#">RN1707</a>      | <a href="#">RN2707</a> | <a href="#">RN1507</a>     | <a href="#">RN2507</a> |
|                         |                        | 22          | 47        | <a href="#">RN1708JE</a>    | <a href="#">RN2708JE</a> | <a href="#">RN1708</a>      | <a href="#">RN2708</a> | <a href="#">RN1508</a>     | -                      |
|                         |                        | 47          | 22        | <a href="#">RN1709JE</a>    | <a href="#">RN2709JE</a> | <a href="#">RN1709</a>      | <a href="#">RN2709</a> | <a href="#">RN1509</a>     | -                      |
|                         |                        | 4.7         | -         | <a href="#">RN1710JE</a>    | <a href="#">RN2710JE</a> | <a href="#">RN1710</a>      | <a href="#">RN2710</a> | <a href="#">RN1510</a>     | <a href="#">RN2510</a> |
|                         |                        | 10          | -         | <a href="#">RN1711JE</a>    | <a href="#">RN2711JE</a> | <a href="#">RN1711</a>      | <a href="#">RN2711</a> | <a href="#">RN1511</a>     | <a href="#">RN2511</a> |
|                         |                        | 22          | -         | -                           | <a href="#">RN2712JE</a> | -                           | -                      | -                          | -                      |
|                         |                        | 47          | -         | -                           | <a href="#">RN2713JE</a> | -                           | -                      | -                          | -                      |



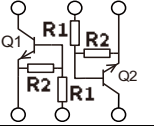
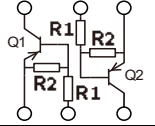
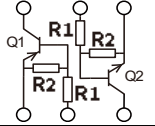
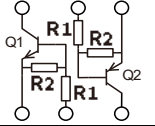












































• Point-symmetrical



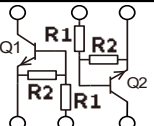
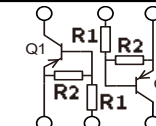
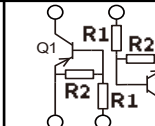
































| V <sub>CEoL</sub>   (V) | I <sub>cL</sub>   (mA) | Resistance  |           | ES6<br>(SOT-563)<br>1.6x1.6 |                          |                          |                          |
|-------------------------|------------------------|-------------|-----------|-----------------------------|--------------------------|--------------------------|--------------------------|
|                         |                        | R1 (typ.)   | R2 (typ.) |                             |                          |                          |                          |
|                         |                        | (kΩ)        | (kΩ)      | NPNx2                       | PNPx2                    | PNP+NPN                  | NPN+PNP                  |
|                         |                        | Part Number |           |                             |                          |                          |                          |
| 50                      | 100                    | 4.7         | 4.7       | <a href="#">RN1901FE</a>    | <a href="#">RN2901FE</a> | <a href="#">RN4901FE</a> | <a href="#">RN4981FE</a> |
|                         |                        | 10          | 10        | <a href="#">RN1902FE</a>    | <a href="#">RN2902FE</a> | <a href="#">RN4902FE</a> | <a href="#">RN4982FE</a> |
|                         |                        | 22          | 22        | <a href="#">RN1903FE</a>    | <a href="#">RN2903FE</a> | <a href="#">RN4903FE</a> | <a href="#">RN4983FE</a> |
|                         |                        | 47          | 47        | <a href="#">RN1904FE</a>    | <a href="#">RN2904FE</a> | <a href="#">RN4904FE</a> | <a href="#">RN4984FE</a> |
|                         |                        | 2.2         | 47        | <a href="#">RN1905FE</a>    | <a href="#">RN2905FE</a> | <a href="#">RN4905FE</a> | <a href="#">RN4985FE</a> |
|                         |                        | 4.7         | 47        | <a href="#">RN1906FE</a>    | <a href="#">RN2906FE</a> | <a href="#">RN4906FE</a> | <a href="#">RN4986FE</a> |
|                         |                        | 10          | 47        | <a href="#">RN1907FE</a>    | <a href="#">RN2907FE</a> | <a href="#">RN4907FE</a> | <a href="#">RN4987FE</a> |
|                         |                        | 22          | 47        | <a href="#">RN1908FE</a>    | <a href="#">RN2908FE</a> | <a href="#">RN4908FE</a> | <a href="#">RN4988FE</a> |
|                         |                        | 47          | 22        | <a href="#">RN1909FE</a>    | <a href="#">RN2909FE</a> | <a href="#">RN4909FE</a> | <a href="#">RN4989FE</a> |
|                         |                        | 4.7         | -         | <a href="#">RN1910FE</a>    | <a href="#">RN2910FE</a> | <a href="#">RN4910FE</a> | <a href="#">RN4990FE</a> |
|                         |                        | 10          | -         | <a href="#">RN1911FE</a>    | <a href="#">RN2911FE</a> | <a href="#">RN4911FE</a> | <a href="#">RN4991FE</a> |

•Bias Resistor Built-in Transistors (Digital Transistors) selection table

[2in1 product]

•Point-symmetrical

| V <sub>CE0</sub>   (V) | I <sub>C</sub>   (mA) | Resistance |           | <div style="text-align: center;">  <p><b>US6</b><br/>(SOT-363)</p>  <p>2.0x2.1</p> </div> |                                                                                                              |                                                                                                              |                                                                                                             |
|------------------------|-----------------------|------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
|                        |                       | R1 (typ.)  | R2 (typ.) |                                                                                                                                                                             |                             |                            |                          |
|                        |                       | (kΩ)       | (kΩ)      | NPNx2                                                                                                                                                                                                                                                        | PNPx2                                                                                                        | PNP+NPN                                                                                                      | NPN+PNP                                                                                                     |
|                        |                       |            |           | Part Number                                                                                                                                                                                                                                                  |                                                                                                              |                                                                                                              |                                                                                                             |
| 50                     | 100                   | 4.7        | 4.7       | <a href="#">RN1901</a>                                                                                                                                                      | <a href="#">RN2901</a>      | <a href="#">RN4901</a>    | <a href="#">RN4981</a>   |
|                        |                       | 10         | 10        | <a href="#">RN1902</a>                                                                                                                                                      | <a href="#">RN2902</a>      | <a href="#">RN4902</a>    | <a href="#">RN4982</a>   |
|                        |                       | 22         | 22        | <a href="#">RN1903</a>                                                                                                                                                      | <a href="#">RN2903</a>      | <a href="#">RN4903</a>    | <a href="#">RN4983</a>   |
|                        |                       | 47         | 47        | <a href="#">RN1904</a>                                                                                                                                                      | <a href="#">RN2904</a>      | <a href="#">RN4904</a>    | <a href="#">RN4984</a>   |
|                        |                       | 2.2        | 47        | <a href="#">RN1905</a>                                                                                                                                                      | <a href="#">RN2905</a>      | <a href="#">RN4905</a>    | <a href="#">RN4985</a>   |
|                        |                       | 4.7        | 47        | <a href="#">RN1906</a>                                                                                                                                                      | <a href="#">RN2906</a>      | <a href="#">RN4906</a>    | <a href="#">RN4986</a>   |
|                        |                       | 10         | 47        | <a href="#">RN1907</a>                                                                                                                                                      | <a href="#">RN2907</a>      | <a href="#">RN4907</a>    | <a href="#">RN4987</a>   |
|                        |                       | 22         | 47        | <a href="#">RN1908</a>                                                                                                                                                      | <a href="#">RN2908</a>      | <a href="#">RN4908</a>    | <a href="#">RN4988</a>   |
|                        |                       | 47         | 22        | <a href="#">RN1909</a>                                                                                                                                                      | <a href="#">RN2909</a>      | <a href="#">RN4909</a>    | <a href="#">RN4989</a>   |
|                        |                       | 4.7        | -         | <a href="#">RN1910</a>                                                                                                                                                     | <a href="#">RN2910</a>     | <a href="#">RN4910</a>   | <a href="#">RN4990</a>  |
|                        |                       | 10         | -         | <a href="#">RN1911</a>                                                                                                                                                    | <a href="#">RN2911</a>    | <a href="#">RN4911</a>  | -                                                                                                           |
| 47/2.2                 | 47/47                 | -          | -         | -                                                                                                                                                                                                                                                            | <a href="#">RN49A2</a>  |                                                                                                              |                                                                                                             |

| V <sub>CE0</sub>   (V) | I <sub>C</sub>   (mA) | Resistance |           | <div style="text-align: center;">  <p><b>SM6</b><br/>(SOT-26)</p>  <p>2.9x2.8</p> </div> |                                                                                                            |                                                                                                              |
|------------------------|-----------------------|------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
|                        |                       | R1 (typ.)  | R2 (typ.) |                                                                                                                                                                              |                         |                         |
|                        |                       | (kΩ)       | (kΩ)      | NPNx2                                                                                                                                                                                                                                                           | PNPx2                                                                                                      | PNP+NPN                                                                                                      |
|                        |                       |            |           | Part Number                                                                                                                                                                                                                                                     |                                                                                                            |                                                                                                              |
| 50                     | 100                   | 4.7        | 4.7       | <a href="#">RN1601</a>                                                                                                                                                       | <a href="#">RN2601</a>  | <a href="#">RN4601</a>  |
|                        |                       | 10         | 10        | <a href="#">RN1602</a>                                                                                                                                                       | <a href="#">RN2602</a>  | <a href="#">RN4602</a>  |
|                        |                       | 22         | 22        | <a href="#">RN1603</a>                                                                                                                                                       | <a href="#">RN2603</a>  | <a href="#">RN4603</a>  |
|                        |                       | 47         | 47        | <a href="#">RN1604</a>                                                                                                                                                       | <a href="#">RN2604</a>  | <a href="#">RN4604</a>  |
|                        |                       | 2.2        | 47        | <a href="#">RN1605</a>                                                                                                                                                       | <a href="#">RN2605</a>  | <a href="#">RN4605</a>  |
|                        |                       | 4.7        | 47        | <a href="#">RN1606</a>                                                                                                                                                       | <a href="#">RN2606</a>  | <a href="#">RN4606</a>  |
|                        |                       | 10         | 47        | <a href="#">RN1607</a>                                                                                                                                                       | <a href="#">RN2607</a>  | <a href="#">RN4607</a>  |
|                        |                       | 22         | 47        | <a href="#">RN1608</a>                                                                                                                                                       | <a href="#">RN2608</a>  | <a href="#">RN4608</a>  |
|                        |                       | 47         | 22        | <a href="#">RN1609</a>                                                                                                                                                       | -                                                                                                          | <a href="#">RN4609</a>  |
|                        |                       | 4.7        | ∞         | <a href="#">RN1610</a>                                                                                                                                                       | <a href="#">RN2610</a>  | <a href="#">RN4610</a>  |
|                        |                       | 10         | ∞         | <a href="#">RN1611</a>                                                                                                                                                       | -                                                                                                          | <a href="#">RN4611</a>  |
| 22                     | ∞                     | -          | -         | <a href="#">RN4612</a>                                                                                                                                                     |                                                                                                            |                                                                                                              |

## LINK

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