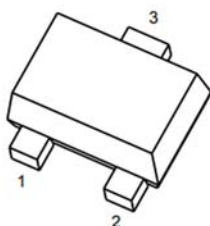
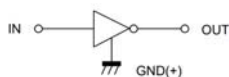
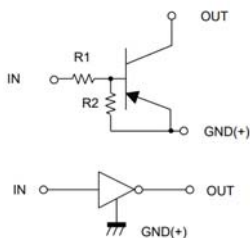


## PNP Digital Transistors (Built-in Resistors)

Internal Structure



- 1. IN
- 2. GND
- 3. OUT

**SOT-723**

### Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

### Application

- Signal amplification
- Switching circuit

### Mechanical data

- **Package:** SOT-723
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

### ■ Maximum Ratings ( $T_a=25^{\circ}\text{C}$ Unless otherwise specified)

| Item                 | Symbol    | Unit               | Conditions | Value       |
|----------------------|-----------|--------------------|------------|-------------|
| Device marking code  |           |                    |            | 15          |
| Supply voltage       | $V_{CC}$  | V                  |            | -50         |
| Input voltage        | $V_{IN}$  | V                  |            | -40 to +10  |
| Output current       | $I_O$     | mA                 |            | -100        |
| Power dissipation    | $P_D$     | mW                 |            | 100         |
| Junction temperature | $T_J$     | $^{\circ}\text{C}$ |            | -55 to +150 |
| Storage temperature  | $T_{STG}$ | $^{\circ}\text{C}$ |            | -55 to +150 |



## DTA124EM

### ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| Item                 | Symbol                         | Unit | Conditions                                           | Min  | Typ | Max   |
|----------------------|--------------------------------|------|------------------------------------------------------|------|-----|-------|
| Input voltage        | V <sub>I(off)</sub>            | V    | V <sub>CC</sub> =-5V, I <sub>O</sub> =-100uA         | -0.5 |     |       |
|                      | V <sub>I(on)</sub>             | V    | V <sub>O</sub> =-0.2V, I <sub>O</sub> =-5mA          |      |     | -3.0  |
| Output voltage       | V <sub>O(on)</sub>             | V    | I <sub>O</sub> /I <sub>I</sub> =-10mA/-0.5 mA        |      |     | -0.3  |
| Input current        | I <sub>I</sub>                 | mA   | V <sub>I</sub> =-5V                                  |      |     | -0.36 |
| Output current       | I <sub>O(off)</sub>            | uA   | V <sub>CC</sub> =-50V, V <sub>I</sub> =0             |      |     | -0.5  |
| DC current gain      | G <sub>I</sub>                 |      | V <sub>O</sub> =-5V, I <sub>O</sub> =-10mA           | 56   |     |       |
| Input resistance     | R <sub>1</sub>                 | kΩ   |                                                      | 15.4 | 22  | 28.6  |
| Resistance ratio     | R <sub>2</sub> /R <sub>1</sub> |      |                                                      | 0.8  | 1   | 1.2   |
| Transition frequency | f <sub>T</sub>                 | MHz  | V <sub>O</sub> =-10V, I <sub>O</sub> =-5mA, f=100MHz |      | 250 |       |

### ■ Thermal Characteristics

| Parameter                               | Symbol                           | Unit | Value |
|-----------------------------------------|----------------------------------|------|-------|
| Thermal resistance, junction-to-ambient | R <sub>θJ-A</sub> <sup>(1)</sup> | °C/W | 1250  |
| Thermal resistance, junction-to-case    | R <sub>θJ-C</sub> <sup>(1)</sup> | °C/W | 1000  |

#### Note:

(1) Thermal resistance from junction to ambient and from junction to case mounted on P.C.B. with 25.4mm\*25.4mm copper pad areas

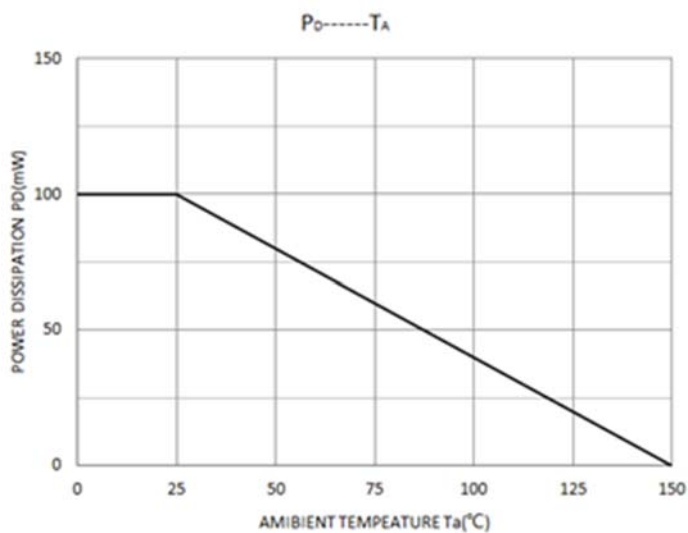
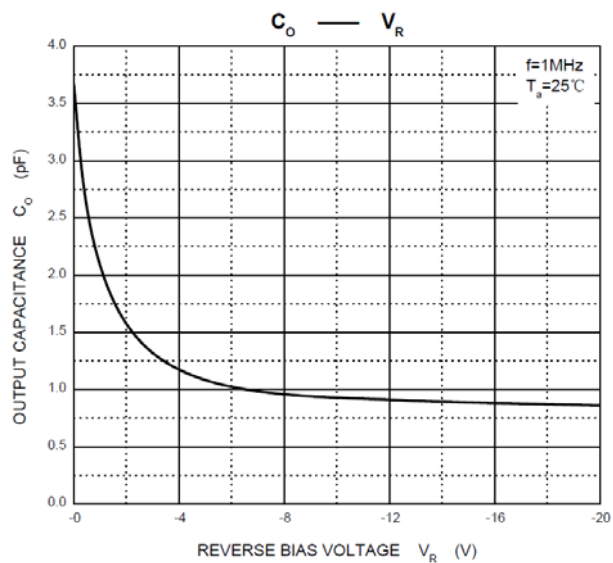
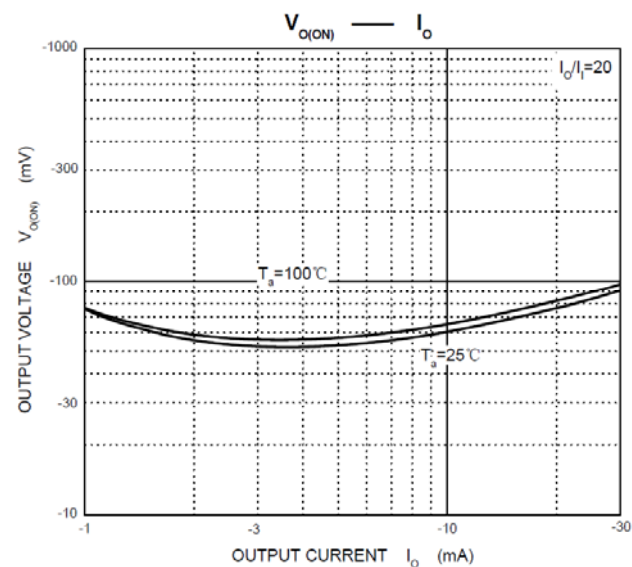
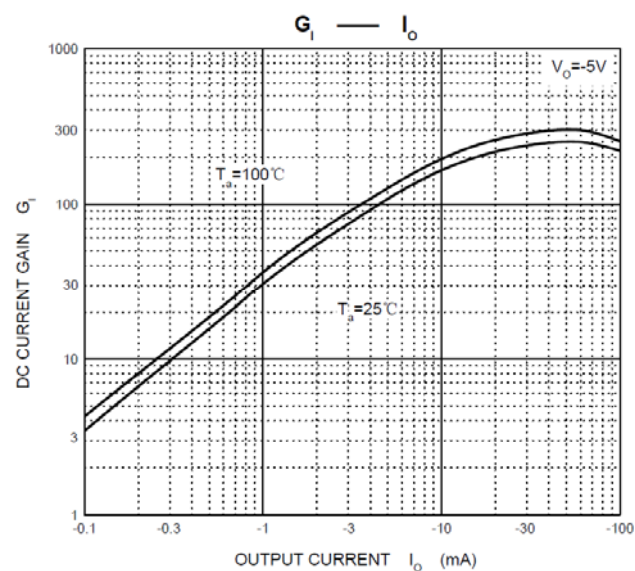
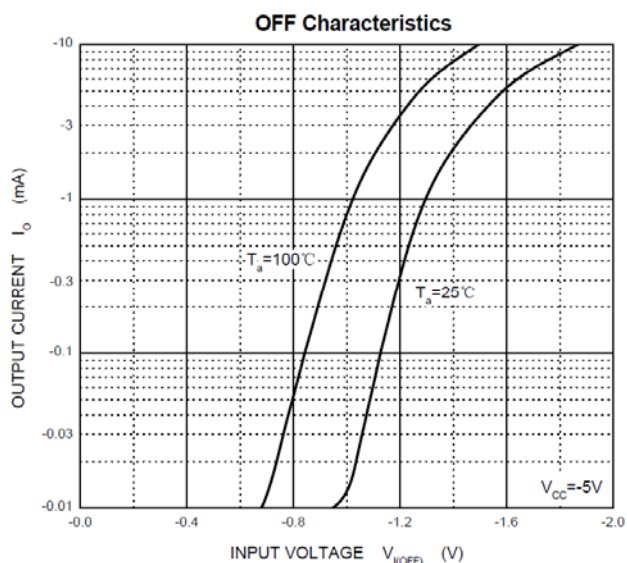
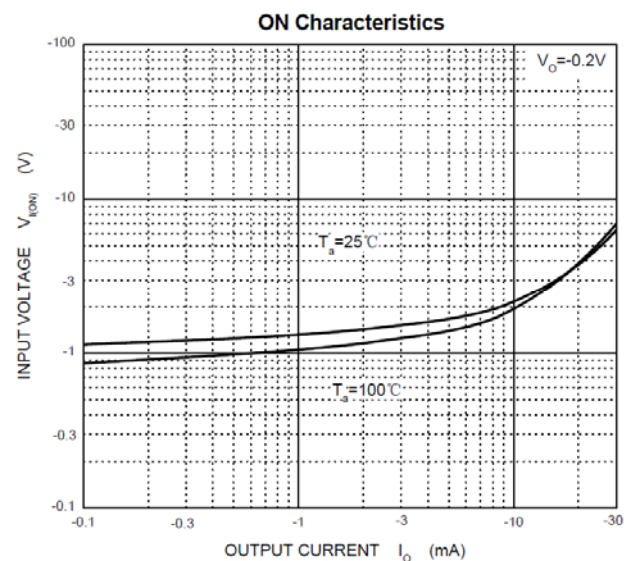
### ■ Ordering Information

| Preferred P/N | Packing code | Unit weight(g)     | Minimum package(pcs) | Inner box quantity(pcs) | Outer carton quantity(pcs) | Delivery mode |
|---------------|--------------|--------------------|----------------------|-------------------------|----------------------------|---------------|
| DTA124EM      | F2           | Approximate 0.0013 | 8000                 | 80000                   | 320000                     | 7" reel       |



## DTA124EM

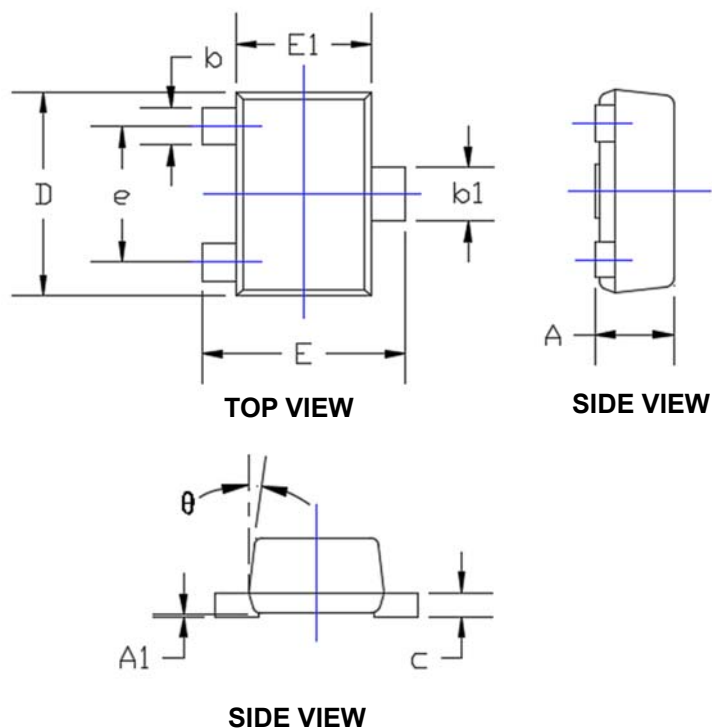
### ■Characteristics(Typical)





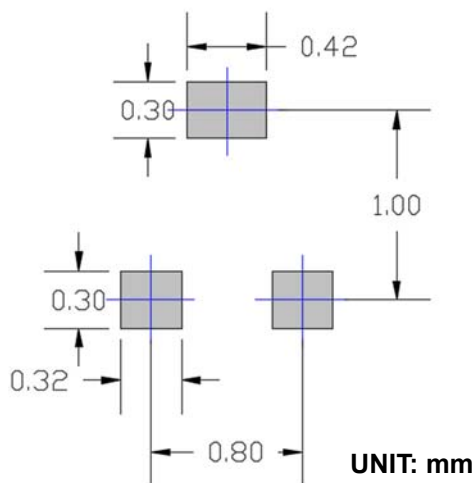
## DTA124EM

### ■ Outline Dimensions



| SYMBOL   | DIMENSIONS |       |            |       |
|----------|------------|-------|------------|-------|
|          | INCHES     |       | Millimeter |       |
|          | MIN.       | MAX.  | MIN.       | MAX.  |
| A        | 0.017      | 0.022 | 0.430      | 0.550 |
| A1       | 0.000      | 0.002 | 0.000      | 0.050 |
| b        | 0.007      | 0.011 | 0.170      | 0.270 |
| b1       | 0.011      | 0.015 | 0.270      | 0.370 |
| c        | 0.003      | 0.008 | 0.080      | 0.200 |
| D        | 0.045      | 0.049 | 1.150      | 1.250 |
| E        | 0.045      | 0.049 | 1.150      | 1.250 |
| E1       | 0.030      | 0.033 | 0.750      | 0.850 |
| e        | 0.031TYP.  |       | 0.800TYP.  |       |
| $\theta$ | 7°REF.     |       | 7°REF.     |       |

### ■ Suggested Pad Layout





## DTA124EM

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