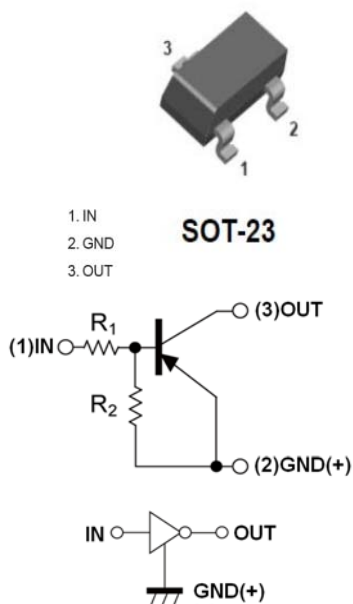


## PNP Digital Transistors (Built-in Resistors)



### 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-23
- **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  |           |                    |            | AB          |
| 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                 |            | 200         |
| Junction temperature | $T_J$     | $^{\circ}\text{C}$ |            | -55 to +150 |
| Storage temperature  | $T_{STG}$ | $^{\circ}\text{C}$ |            | -55 to +150 |



## DTA115ECA

### ■ 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> =-100μA         | -0.5 |     |       |
|                      | V <sub>I(on)</sub>             | V    | V <sub>O</sub> =-0.3V, I <sub>O</sub> =-1mA          |      |     | -3.0  |
| Output voltage       | V <sub>O(on)</sub>             | V    | I <sub>O</sub> / I <sub>I</sub> = -5mA / -0.25mA     |      |     | -0.3  |
| Input current        | I <sub>I</sub>                 | mA   | V <sub>I</sub> =-5V                                  |      |     | -0.15 |
| Output current       | I <sub>O(off)</sub>            | μA   | 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> = -5mA           | 80   |     |       |
| Input resistance     | R <sub>1</sub>                 | kΩ   |                                                      | 70   | 100 | 130   |
| Resistance ratio     | R <sub>2</sub> /R <sub>1</sub> |      |                                                      | 0.8  | 1.0 | 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>θJA</sub> <sup>(1)</sup> | °C/W | 625   |
| Thermal resistance, junction-to-case    | R <sub>θJC</sub> <sup>(1)</sup> | °C/W | 500   |

Note:

(1) Device mounted on PCB, single-sided copper, with standard footprint

### ■ Ordering Information

| Preferred P/N | Packing code | Unit weight(g)    | Minimum package(pcs) | Inner box quantity(pcs) | Outer carton quantity(pcs) | Delivery mode |
|---------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| DTA115ECA     | F2           | Approximate 0.009 | 3000                 | 30000                   | 120000                     | 7" reel       |



## ■ Characteristics

Fig. 1 - DC Current Gain Characteristics

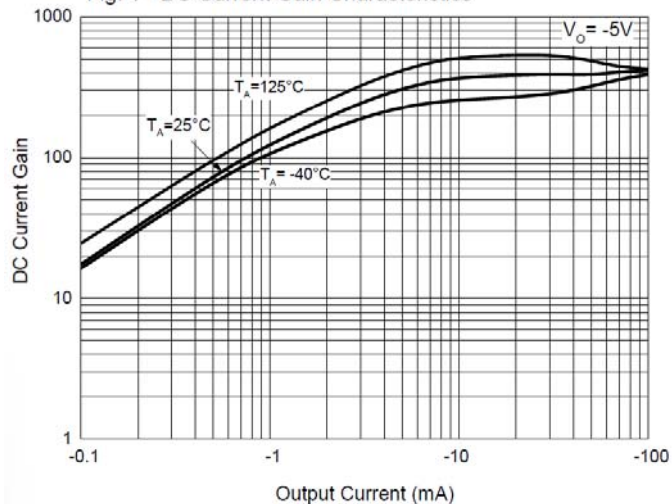


Fig. 2 - Input Voltage (on) Characteristics

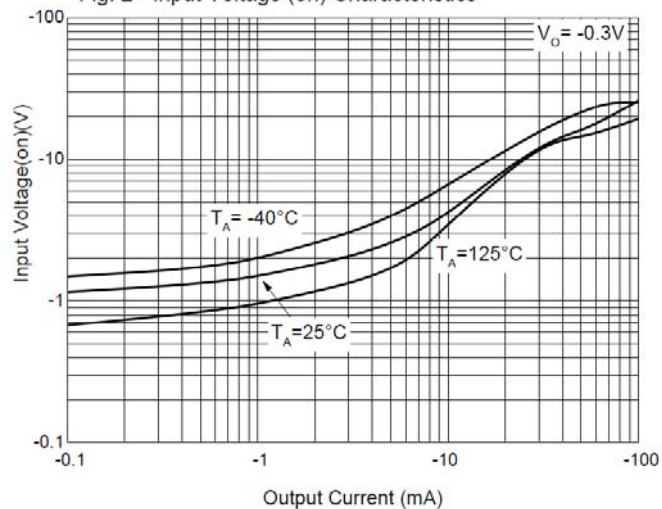


Fig. 3 - Input Voltage (off) Characteristics

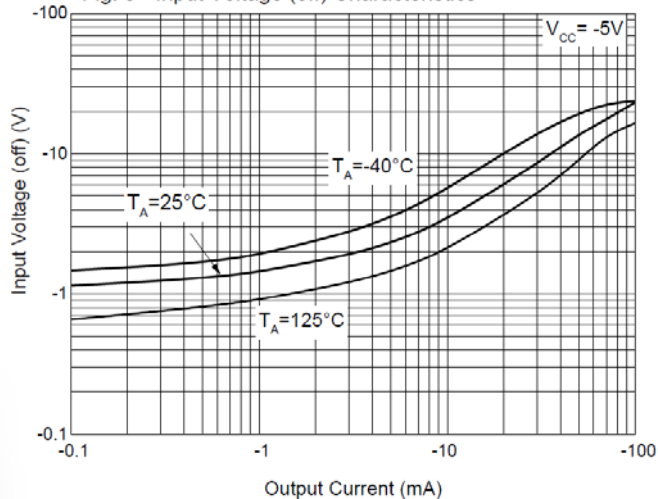


Fig. 4 - Output Voltage Characteristics

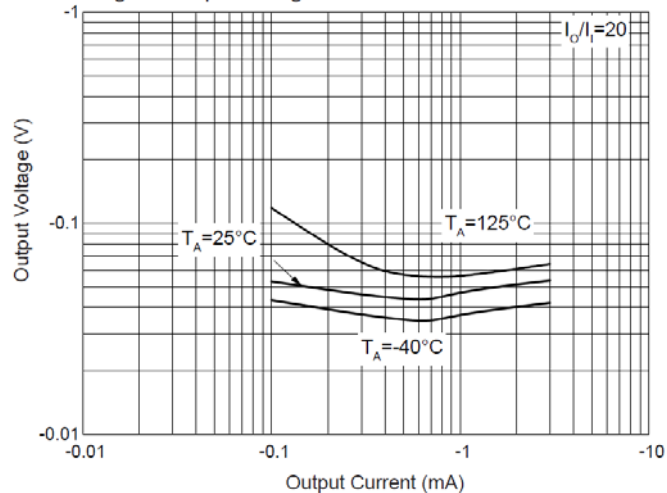
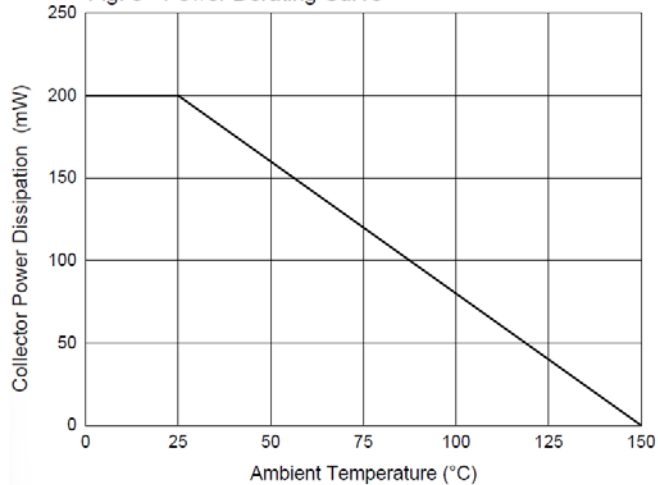


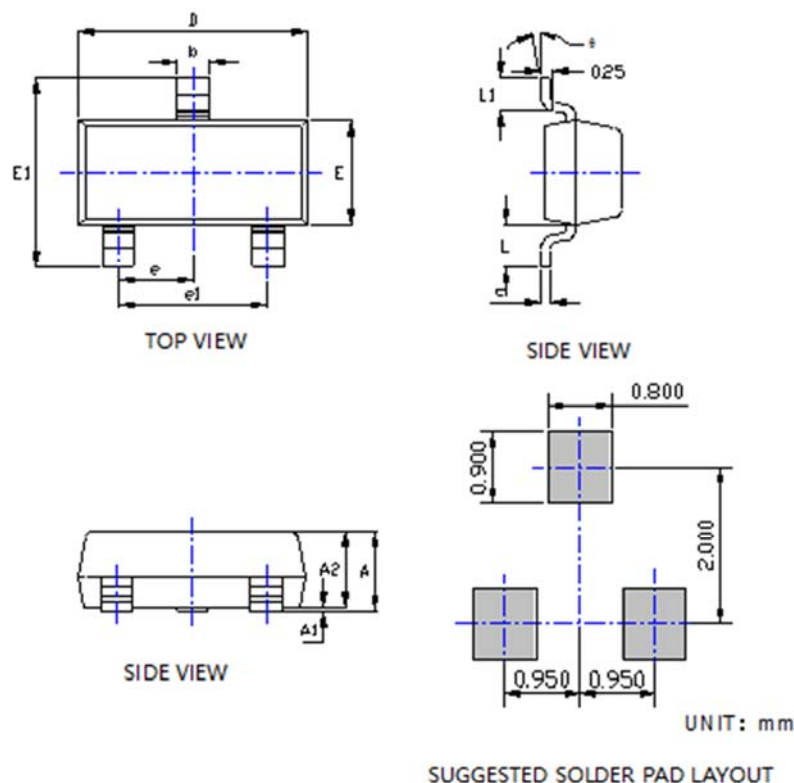
Fig. 5 - Power Derating Curve





# DTA115ECA

## ■ Outline Dimensions



| SYMBOL | DIMENSIONS |       |            |       |
|--------|------------|-------|------------|-------|
|        | INCHES     |       | Millimeter |       |
|        | MIN.       | MAX.  | MIN.       | MAX.  |
| A      | 0.035      | 0.045 | 0.900      | 1.150 |
| A1     | 0.000      | 0.004 | 0.000      | 0.100 |
| A2     | 0.035      | 0.041 | 0.900      | 1.050 |
| b      | 0.012      | 0.020 | 0.300      | 0.500 |
| c      | 0.004      | 0.008 | 0.100      | 0.200 |
| D      | 0.110      | 0.118 | 2.800      | 3.000 |
| E      | 0.047      | 0.055 | 1.200      | 1.400 |
| E1     | 0.089      | 0.100 | 2.250      | 2.550 |
| e      | 0.037TYP   |       | 0.950TYP   |       |
| e1     | 0.071      | 0.079 | 1.800      | 2.000 |
| L      | 0.022REF   |       | 0.550REF   |       |
| L1     | 0.012      | 0.020 | 0.300      | 0.500 |
| θ      | 0°         | 8°    | 0°         | 8°    |

NOTE:  
 1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.  
 2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.  
 3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

### Note:

- All dimensions are in millimeters (mm) unless otherwise specified.  
[所有尺寸均以毫米为单位, 除非另有说明]
- General tolerances:  $\pm 0.10\text{mm}$  unless otherwise specified.  
[通用公差为 $\pm 0.10\text{mm}$ , 除非另有说明]
- Dimensions and tolerances per ASME Y14.5M-2018.  
[尺寸和公差遵循 ASME Y14.5M-2018 标准]
- All dimensions shown are exclusive of burrs and gate residues. Burrs and gate vestiges shall not exceed 0.15 mm in maximum.  
[所有尺寸均不包括毛刺和浇口残留。毛刺与浇口残留的尺寸最大不得超过 0.15mm]
- Dimension b does not include dambar protrusion of max 0.100 mm per side.  
[尺寸b不包括单边最大0.100 mm的中筋凸出部分]
- Dimensions D and E are the overall extreme outer dimensions of the mold compound. These dimensions exclude mold flash, lead flash, protrusions and burrs but include the maximum allowable mold mismatch.  
[D和E是塑封体的外部极限尺寸, 不包括包封溢料、内引线溢料、凸出部分以及胶体毛刺, 但是包含了包封错位的最大尺寸]
- Formed leads shall be planar with respect to one another within a maximum of 0.076 mm relative to the seating plane.  
[成型的管脚应为同一平面, 共面性最大为0.1mm]
- ★It is the key size.  
[★ 标记为关键尺寸]



## DTA115ECA

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