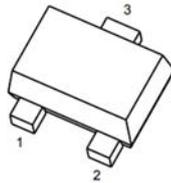
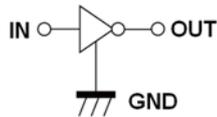
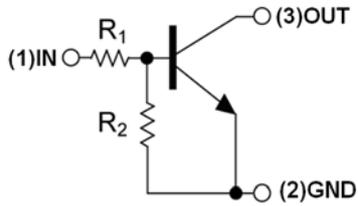


NPN Digital Transistors (Built-in Resistors)



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 | | | | 29 |
| Supply voltage | V_{CC} | V | | 50 |
| Input voltage | V_{IN} | V | | -10 to +40 |
| 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 |



DTC115EM

RoHS
COMPLIANT

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

| Item | Symbol | Unit | Conditions | Min | Typ | Max |
|----------------------|--------------------------------|------|---|-----|-----|-----|
| Input voltage | V _{I(off)} | V | V _{CC} =5V, I _O =100uA | 0.5 | | |
| | V _{I(on)} | V | V _O =0.3V, I _O =1mA | | | 3.0 |
| Output voltage | V _{O(on)} | V | I _O / I _I =5mA/0.25 mA | | | 0.3 |
| Input current | I _I | mA | V _I =5V | | | 3.6 |
| Output current | I _{O(off)} | uA | V _{CC} =50V, V _I =0 | | | 0.1 |
| DC current gain | G _I | | V _O =5V, I _O =5mA | 82 | | |
| Input resistance | R ₁ | kΩ | | 70 | 100 | 130 |
| Resistance ratio | R ₂ /R ₁ | | | 0.8 | 1 | 1.2 |
| Transition frequency | f _T | MHz | V _O =10V, I _O =-5mA, f=100MHz | | 250 | |

■ Thermal Characteristics

| Parameter | Symbol | Unit | Value |
|---|----------------------------------|------|-------|
| Thermal resistance, junction-to-ambient | R _{θJ-A} ⁽¹⁾ | °C/W | 1250 |
| Thermal resistance, junction-to-case | R _{θJ-C} ⁽¹⁾ | °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 |
|---------------|--------------|--------------------|----------------------|-------------------------|----------------------------|---------------|
| DTC115EM | F2 | Approximate 0.0013 | 8000 | 80000 | 320000 | 7" reel |



■ Characteristics(Typical)

Fig. 1 - DC Current Gain Characteristics

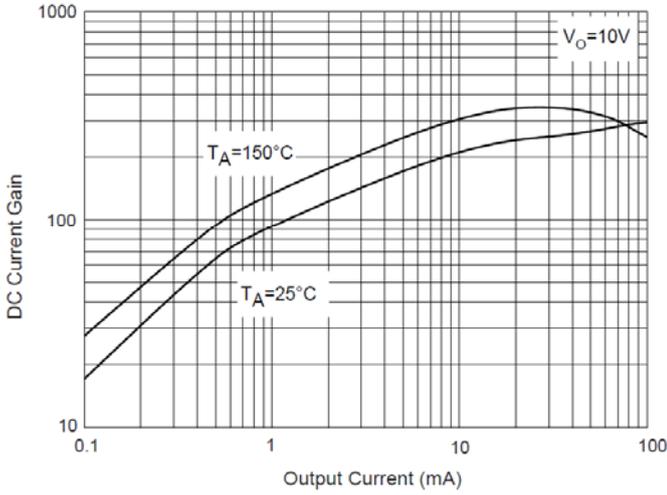


Fig. 2 - Input Voltage (on) Characteristics

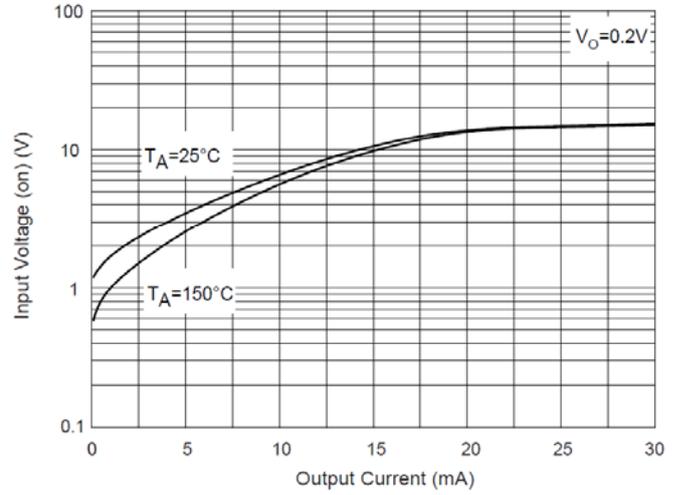


Fig. 3 - Input Voltage (on) Characteristics

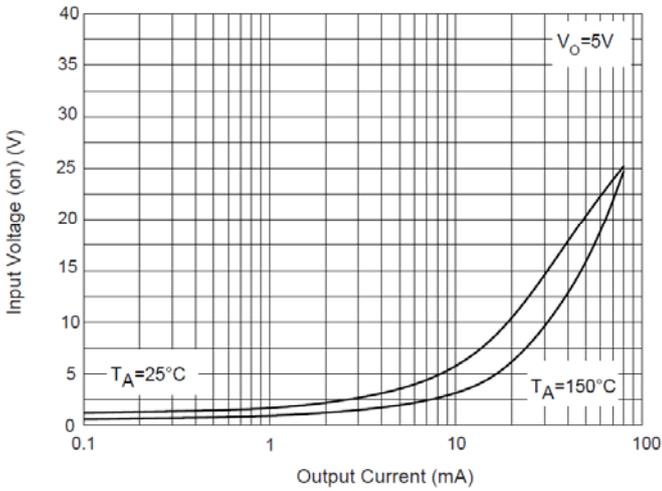


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

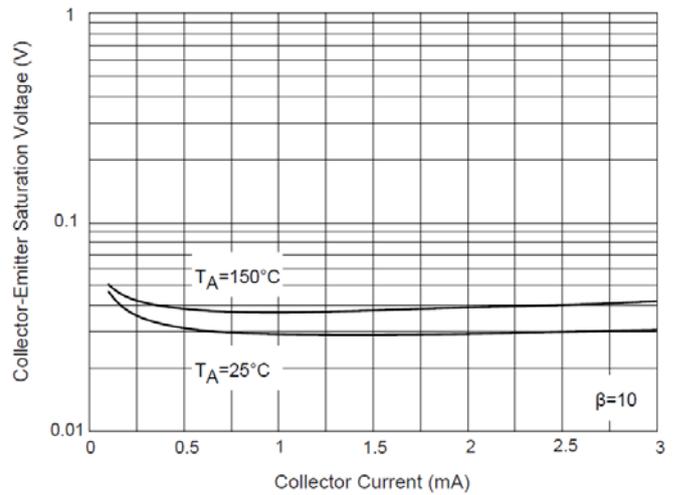
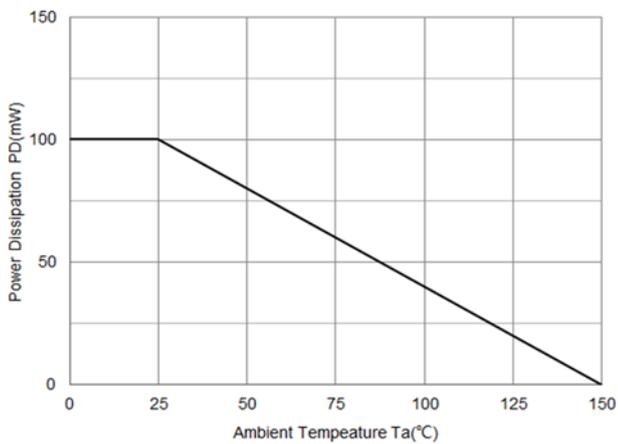
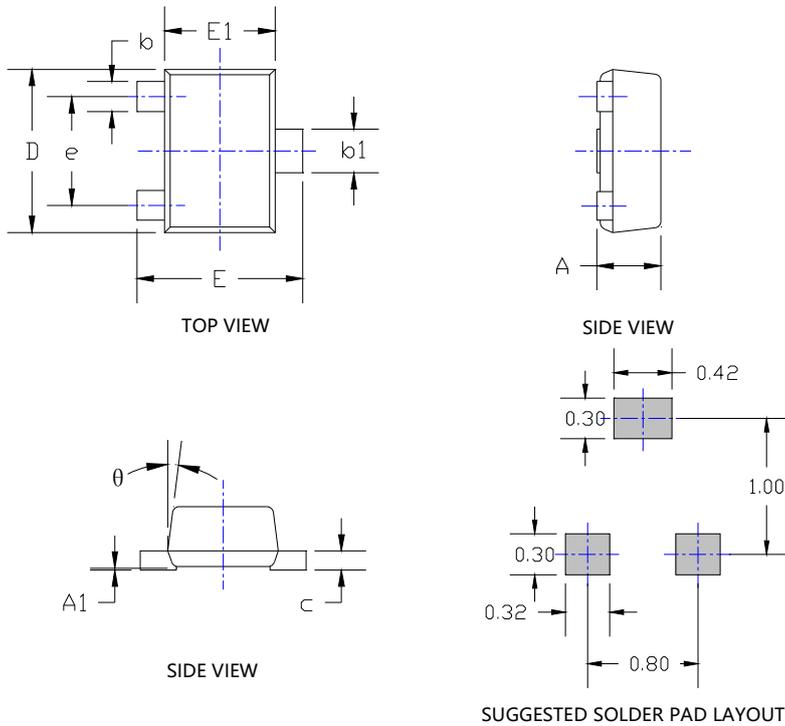


Fig5. P_D ----- T_A





■ 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 | 0.031 TYP. | | 0.800 TYP. | |
| θ | 7° REF. | | 7° REF. | |

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: ± 0.10 mm unless otherwise specified.
[通用公差为 ± 0.10 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 $E1$ 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 $E1$ 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]



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