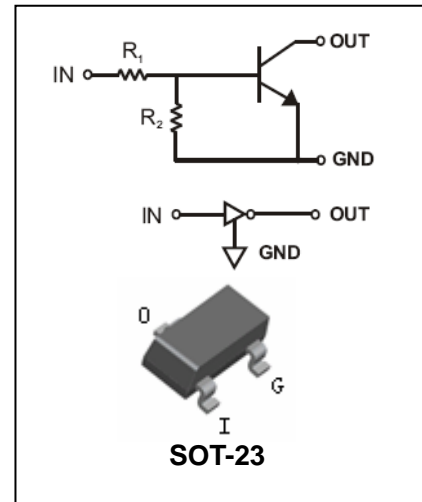


Digital Transistor

DTC(R₁=R₂ SERIES)CA

FEATURES

- Epitaxial planar die construction.
- Complementary PNP types available(DTA).
- Built-in biasing resistors,R₁=R₂
- Also available in lead free version.



APPLICATIONS

- The NPN style digital transistor.

ORDERING INFORMATION

| Type No. | Marking | Package Code |
|-----------|---------|--------------|
| DTC114ECA | 24 | SOT-23 |
| DTC143ECA | 23 | SOT-23 |
| DTC124ECA | 25 | SOT-23 |
| DTC144ECA | 26 | SOT-23 |

MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Value | Units | |
|-----------------------------------|---|--|--|------|
| V _{CC} | Supply Voltage | 50 | V | |
| V _{IN} | Input Voltage | DTC114ECA DTC124ECA DTC143ECA DTC144ECA | -10 to+40 -10 to+40 -10 to+30 -10 to+40 | V |
| I _O | Output Current | DTC114ECA DTC124ECA DTC143ECA DTC144ECA | 50 30 100 100 | mA |
| I _C (Max.) | Output current | ALL | 100 | mA |
| P _D | Power Dissipation | | 200 | mW |
| R _{θJA} | Thermal Resistance, Junction to Ambient Air | | 625 | °C/W |
| T _J , T _{stg} | Operating and Storage and Temperature Range | | -55 to +150 | °C |

Digital Transistor

DTC(R₁=R₂ SERIES)CA

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|----------------------------------|---|----------------------|-----------------------|-----------------------------|------|
| Input Voltage | V _{I(off)} | V _{CC} =5V, I _O =100μA | 0.5 | 1.1 | - | V |
| Input Voltage | V _{I(on)} | DTC143ECA V _O =0.3V, I _O =20mA | - | 1.9 | 3 | |
| DTC114ECA V _O =0.3V, I _O =10mA | | | | | | |
| DTC144ECA V _O =0.3V, I _O =2mA | | | | | | |
| DTC124ECA V _O =0.3V, I _O =5mA | | | | | | |
| Output Voltage | V _{O(on)} | I _O /I _I =10mA/0.5mA, | - | 0.1 | 0.3 | V |
| Input Current | I _I | V _I =5V | - | - | 1.8 0.88 0.18 0.36 | mA |
| Output Current | I _{O(off)} | V _{CC} =50V, V _I =0V | - | - | 0.5 | μA |
| DC Current Gain | G _I | V _O =5V, I _O =10mA V _O =5V, I _O =5mA V _O =5V, I _O =5mA V _O =5V, I _O =5mA | 20 20 68 56 | - | - | |
| Input Resistor | R ₁ (R ₂) | | | 4.7 10 47 22 | | kΩ |
| Input Resistor (R ₁) Tolerance | ΔR ₁ | - | -30 | | +30 | % |
| Resistance Ratio | R ₂ /R ₁ | - | 0.8 | 1 | 1.2 | |
| Gain-Bandwidth Product | f _T | V _{CE} =10V, I _E =5mA, f=100MHz | - | 250 | - | MHz |

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Digital Transistor

DTC(R₁=R₂ SERIES)CA

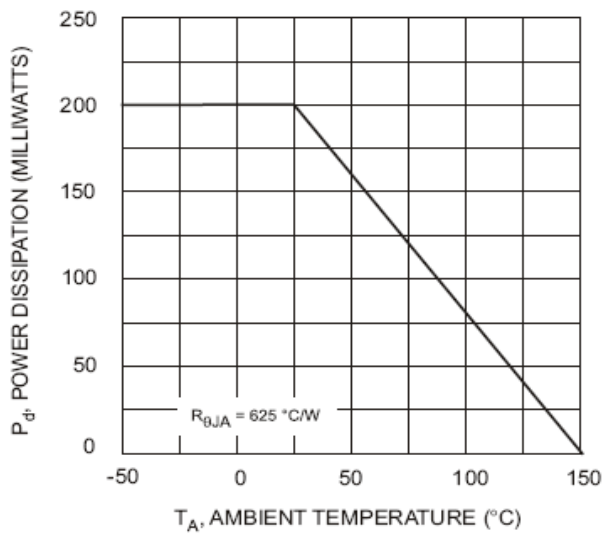


Fig. 1 Derating Curve

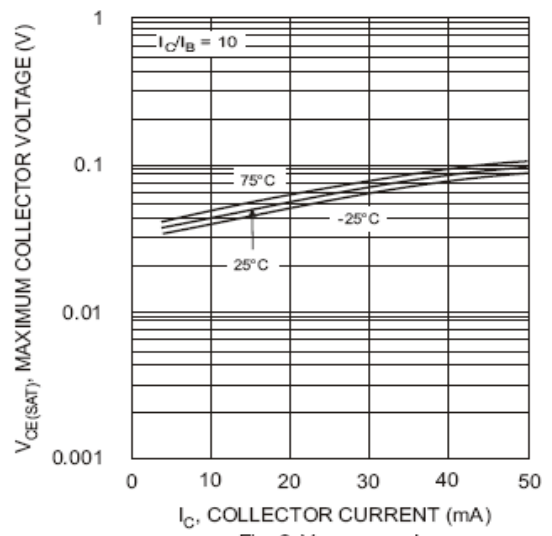


Fig. 2 $V_{CE(SAT)}$ vs. I_C

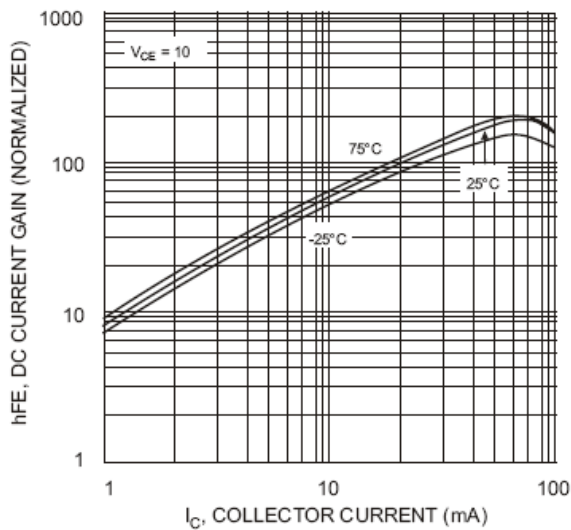


Fig. 3 DC CURRENT GAIN

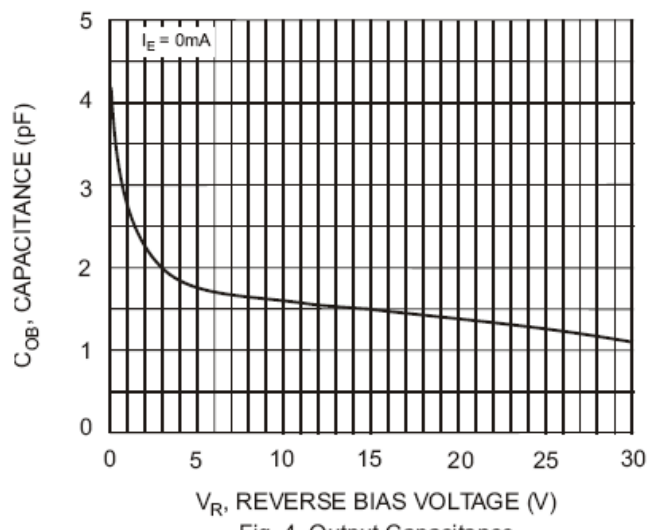


Fig. 4 Output Capacitance

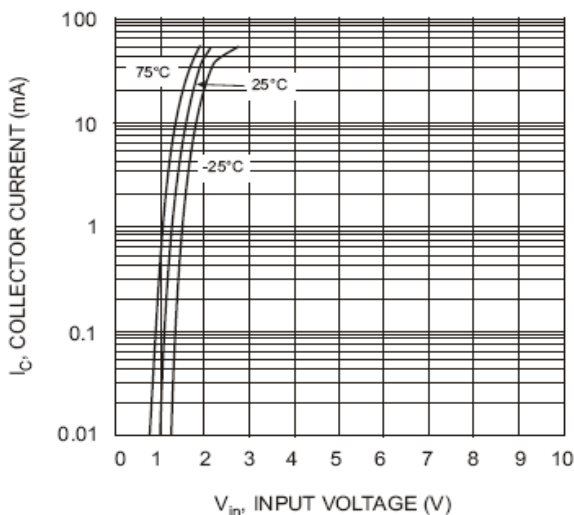


Fig. 5 Collector Current Vs. Input Voltage

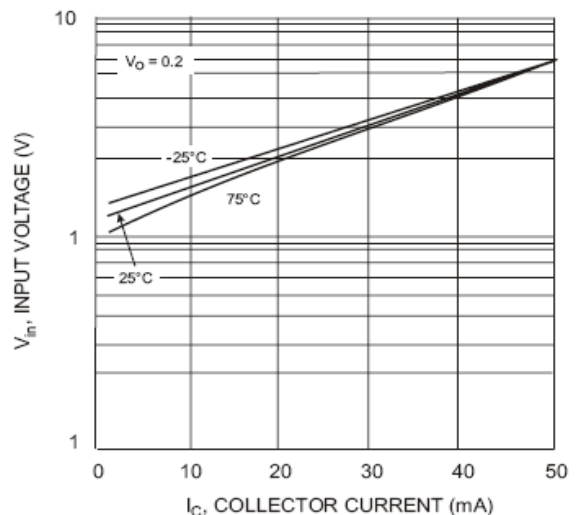


Fig. 6 Input Voltage vs. Collector Current

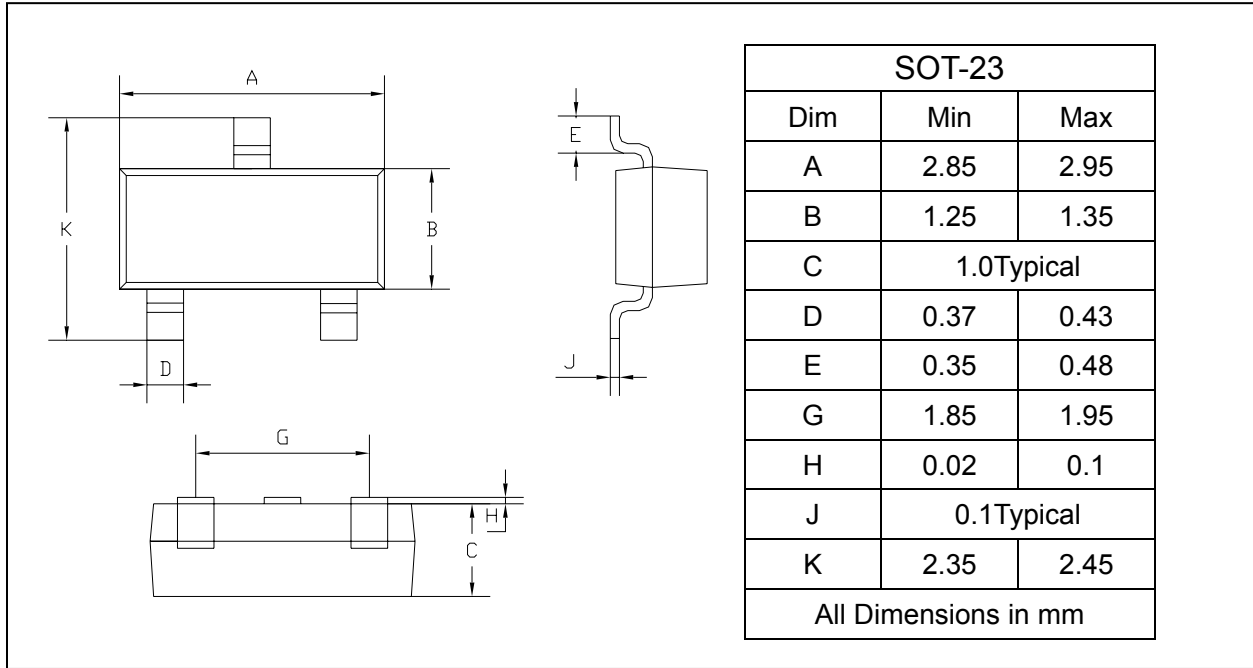
Digital Transistor

DTC(R₁=R₂ SERIES)CA

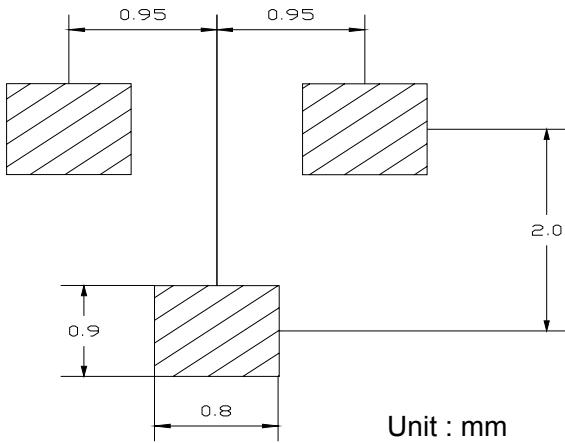
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

| Device | Package | Shipping |
|--------------------------------|---------|----------------|
| DTC114ECA/124ECA/143ECA/144ECA | SOT-23 | 3000/Tape&Reel |

www.s-manuals.com