

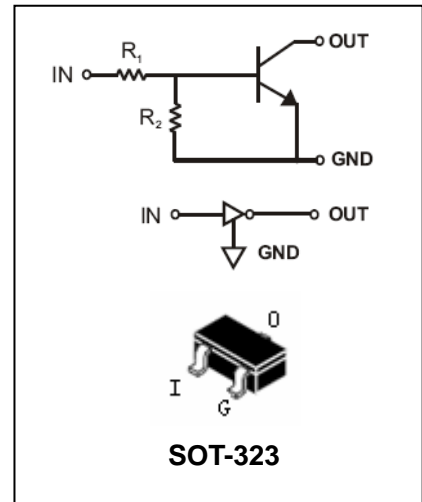


Digital Transistor

DTC(R₁≠R₂ SERIES)UA

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 |
|-----------|---------|--------------|
| DTC113ZUA | E21 | SOT-323 |
| DTC114WUA | 84 | SOT-323 |
| DTC114YUA | 64 | SOT-323 |
| DTC123JUA | E42 | SOT-323 |
| DTC123YUA | 62 | SOT-323 |
| DTC143XUA | 43• | SOT-323 |
| DTC143ZUA | E23 | SOT-323 |

MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Value | Units | |
|-----------------------|----------------|---|--|----|
| V _{CC} | Supply Voltage | 50 | V | |
| V _{IN} | Input Voltage | DTC113ZUA DTC114WUA DTC114YUA DTC123JUA DTC123YUA DTC143XUA DTC143ZUA | -5 to+10 -10 to+30 -6 to +40 -5 to+12 -5 to+12 -7 to+20 -5 to+30 | V |
| I _O | Output Current | DTC113ZUA DTC114WUA DTC114YUA DTC123JUA DTC123YUA DTC143XUA DTC143ZUA | 100 100 70 100 100 100 100 | mA |
| I _C (Max.) | Output current | ALL | 100 | mA |



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| Symbol | Parameter | Value | Units |
|-----------------------------------|---|-------------|-------|
| 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 |

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|-----------------|---|--|---|-----|---|------|
| Input Voltage | DTC113ZUA DTC114WUA DTC114YUA DTC123JUA DTC123YUA DTC143XUA DTC143ZUA | V _{I(off)} V _{CC} =5V, I _O =100μA | 0.3 0.8 0.3 0.5 0.3 0.3 0.5 | - | - | V |
| Input Voltage | DTC113ZUA DTC114WUA DTC114YUA DTC123JUA DTC123YUA DTC143XUA DTC143ZUA | V _{I(on)} V _O =0.3V, I _O =20mA V _O =0.3V, I _O =2mA V _O =0.3V, I _O =1mA V _O =0.3V, I _O =5mA V _O =0.3V, I _O =20mA V _O =0.3V, I _O =20mA V _O =0.3V, I _O =5mA | - | - | 3.0 3.0 1.4 1.1 3.0 2.5 1.3 | V |
| Output Voltage | DTC123JUA DTC143ZUA DTC114YUA ALL Others | V _{O(on)} I _O /I _I =5mA/0.25mA I _O /I _I =10mA/0.5mA | - | 0.1 | 0.3 | V |
| Input Current | DTC113ZUA DTC114WUA DTC114YUA DTC123JUA DTC123YUA DTC143XUA DTC143ZUA | I _I V _I =5V | - | - | 7.2 0.88 0.88 3.6 3.8 1.8 1.8 | mA |
| Output Current | | I _{O(off)} V _{CC} =50V, V _I =0V | - | - | 0.5 | μA |
| DC Current Gain | DTC113ZUA DTC114WUA DTC114YUA DTC123JUA DTC123YUA | G _I V _O =5V, I _O =10mA | 33 24 68 80 33 | - | - | |

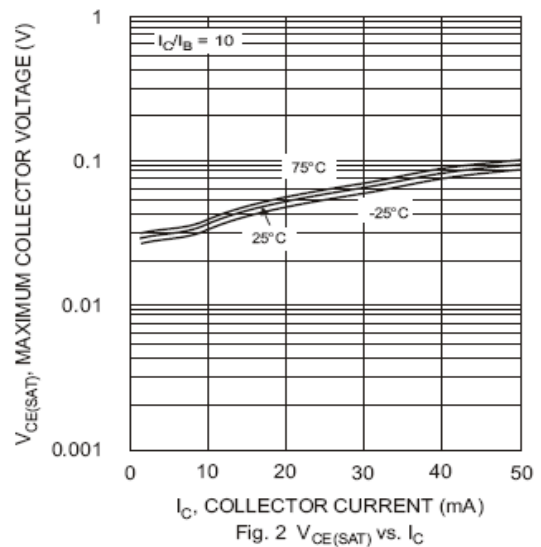
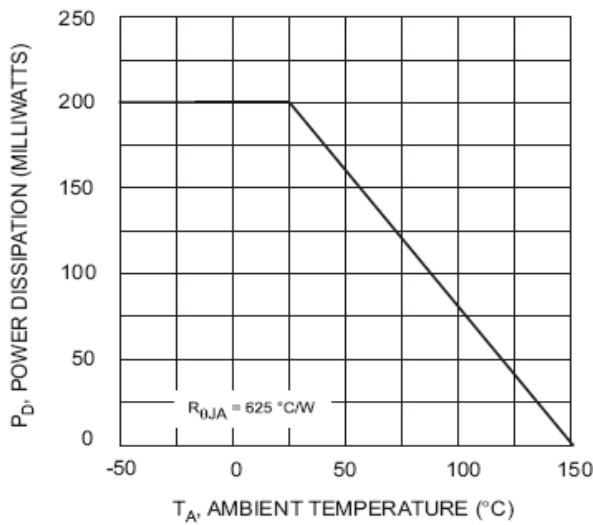


Digital Transistor

DTC(R₁≠R₂ SERIES)UA

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|--|---|--|--|--|-----|------|
| | DTC143XUA DTC143ZUA | G _I | V _O =5V, I _O =10mA | 30 80 | | |
| Input Resistor | DTC113ZUA DTC114WUA DTC114YUA DTC123JUA DTC123YUA DTC143XUA DTC143ZUA | R ₁ (R ₂) | | 1(10) 10(4.7) 10(47) 2.2(47) 2.2(10) 4.7(10) 4.7(47) | | kΩ |
| Input Resistor (R ₁) Tolerance | ΔR ₁ | - | -30 | | +30 | % |
| Resistance Ratio Tolerance | ΔR ₂ /R ₁ | - | -20 | | +20 | % |
| 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)UA

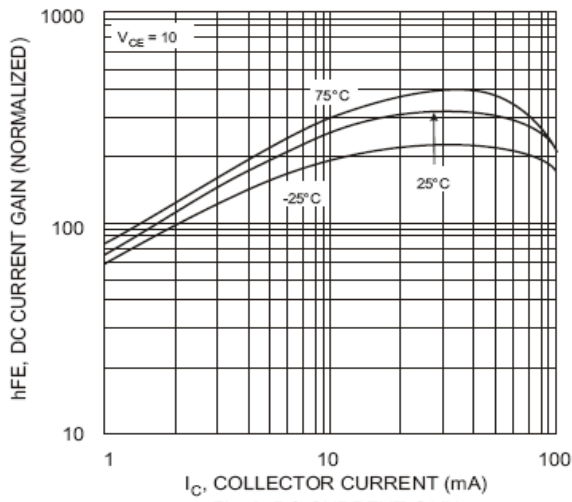


Fig. 3 DC Current Gain

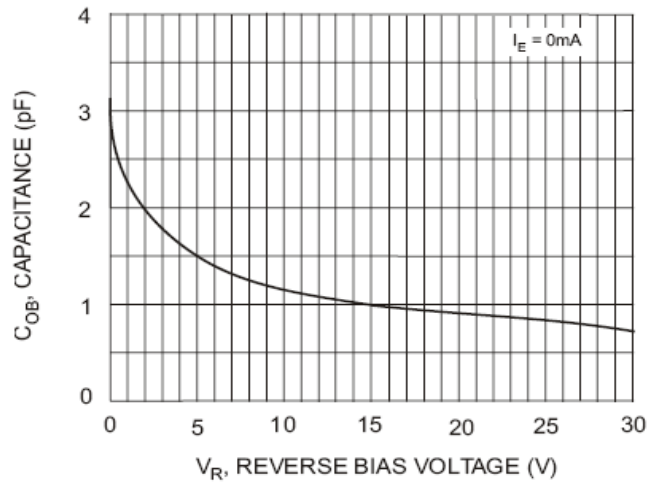


Fig. 4 Output Capacitance

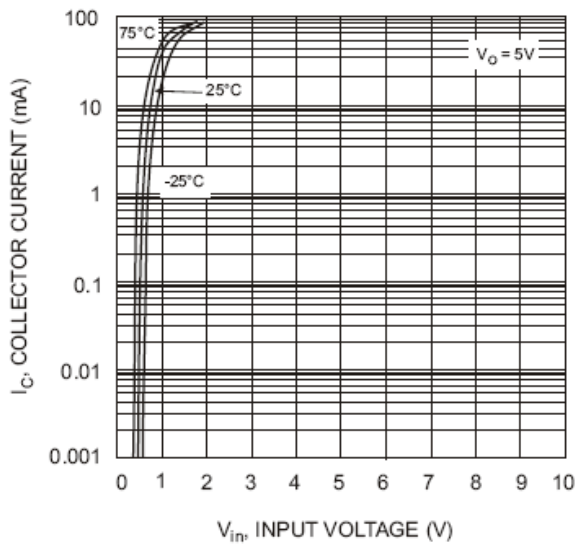


Fig. 5 Collector Current Vs. Input Voltage

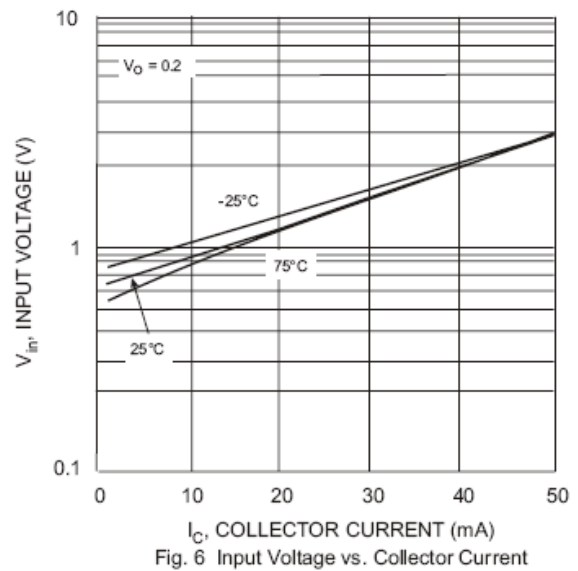


Fig. 6 Input Voltage vs. Collector Current

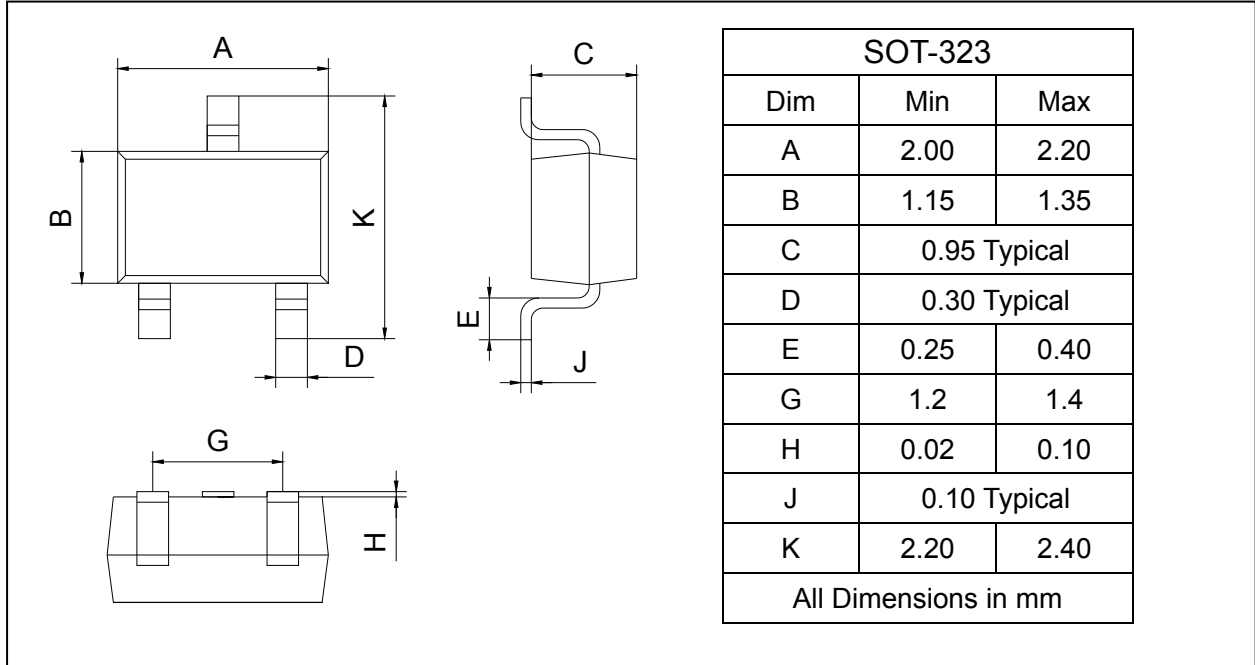
Digital Transistor

DTC(R₁≠R₂ SERIES)UA

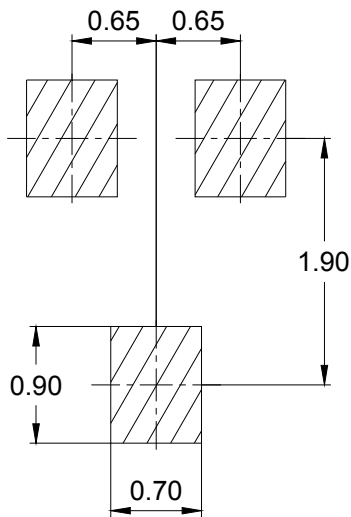
PACKAGE OUTLINE

Plastic surface mounted package

SOT-323



SOLDERING FOOTPRINT



PACKAGE INFORMATION

| Device | Package | Shipping |
|----------|---------|----------------|
| DTCXXXUA | SOT-323 | 3000/Tape&Reel |