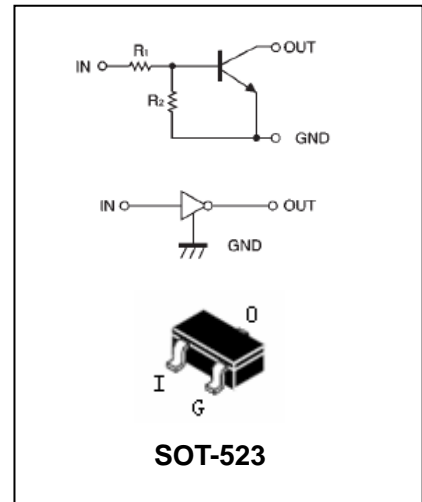


Digital Transistor

DTC(R₁=R₂ SERIES)E

FEATURES

- Epitaxial planar die construction.
- Complementary NPN types available(DTC).
- 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 |
|----------|---------|--------------|
| DTC114EE | 24 | SOT-523 |
| DTC124EE | 25 | SOT-523 |
| DTC143EE | 23 | SOT-523 |
| DTC144EE | 26 | SOT-523 |

MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Value | Units | |
|-----------------------------------|---|-------------|------------|----|
| V _{CC} | Supply Voltage | 50 | V | |
| V _{IN} | Input Voltage | DTC114EE | -10 to +40 | |
| | | DTC124EE | -10 to +40 | |
| | | DTC143EE | -10 to +30 | |
| | | DTC144EE | -10 to +40 | |
| I _o | Output Current | DTC114EE | 50 | |
| | | DTC124EE | 30 | |
| | | DTC143EE | 100 | |
| | | DTC144EE | 30 | |
| I _C (Max.) | Output current | ALL | 100 | mA |
| P _D | Power Dissipation | 150 | mW | |
| R _{θJA} | Thermal Resistance, Junction to Ambient Air | 833 | °C/W | |
| T _j , T _{stg} | Operating and Storage and Temperature Range | -55 to +150 | °C | |

Digital Transistor

DTC(R₁=R₂ SERIES)E

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 | DTC114EE DTC124EE DTC143EE DTC144EE | V _O =0.3V, I _O =10mA V _O =0.2V, I _O =5mA V _O =0.3V, I _O =20mA V _O =0.3V, I _O =2mA | - | 1.9 | 3 | | |
| Output Voltage | DTC114EE DTC124EE DTC143EE DTC144EE | I _O /I _I =10mA/0.5mA, | - | 0.1 | 0.3 | | V |
| Output Voltage | V _{O(on)} | | | | | | |
| Input Current | DTC114EE DTC124EE DTC143EE DTC144EE | I _I | V _I =5V | - | - | 0.88 0.36 1.8 0.18 | mA |
| Output Current | I _{O(off)} | V _{CC} =50V, V _I =0V | - | - | 0.5 | μA | |
| DC Current Gain | DTC114 EE DTC124EE DTC143EE DTC144EE | G _I | V _O =5V, I _O =5mA V _O =5V, I _O =5mA V _O =5V, I _O =10mA V _O =5V, I _O =5mA | 30 56 20 68 | - - - - | | |
| Input Resistor | DTC114EE DTC124EE DTC143EE DTC144EE | R ₁ (R ₂) | | 7 15.4 3.29 32.9 | 10 22 4.7 47 | 13 28.6 6.11 61.1 | |
| 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

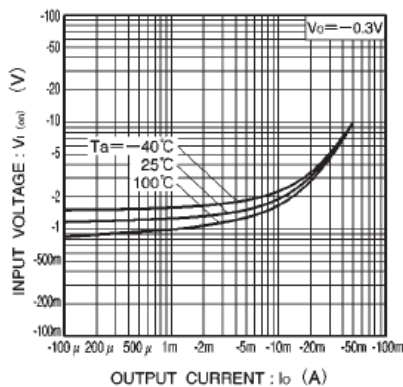


Fig.1 Input voltage vs. output current (ON characteristics)

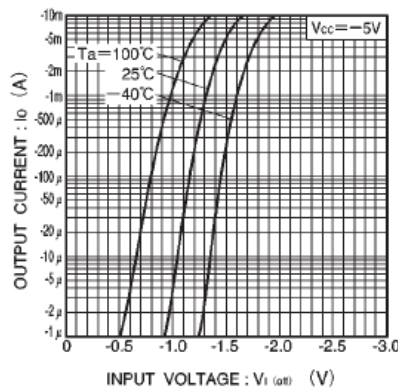


Fig.2 Output current vs. input voltage (OFF characteristics)

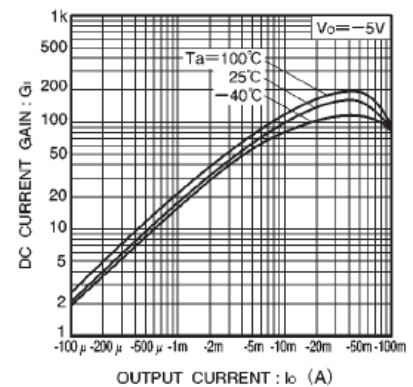


Fig.3 DC current gain vs. output current

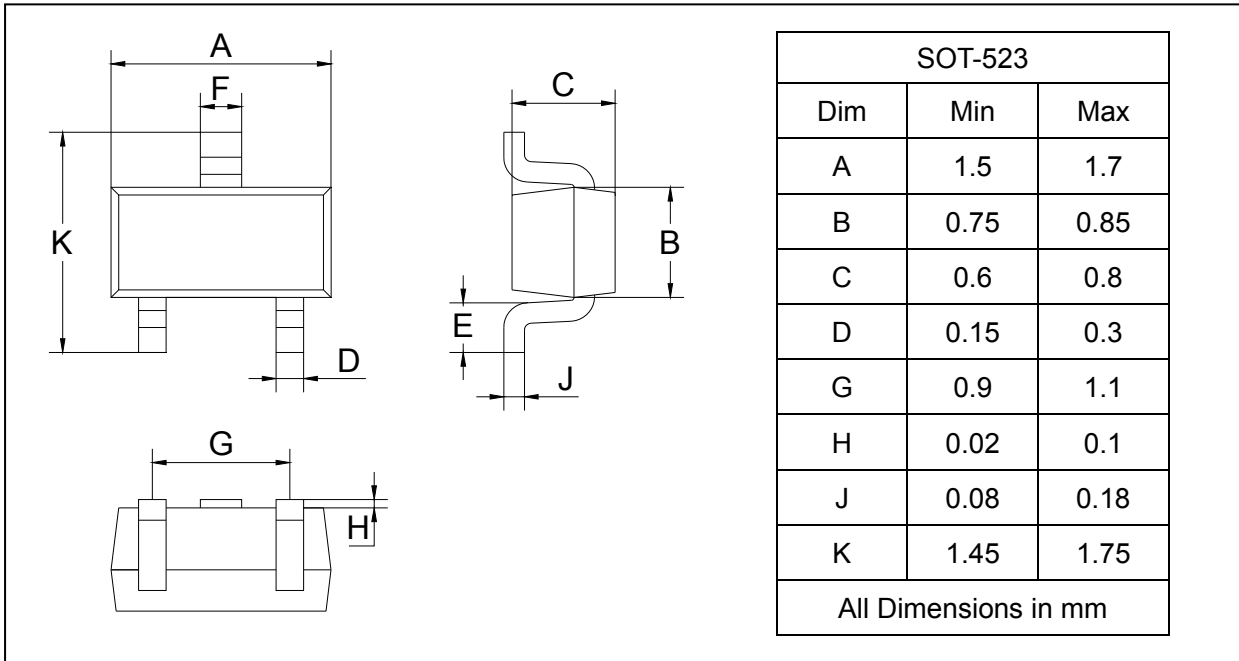
Digital Transistor

DTC(R₁=R₂ SERIES)E

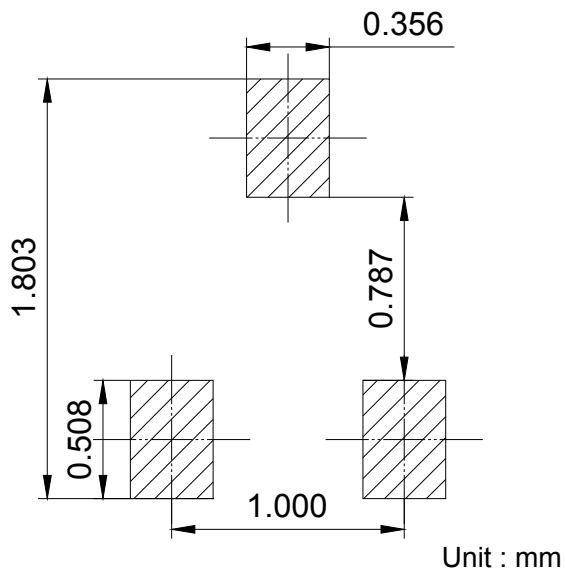
PACKAGE OUTLINE

Plastic surface mounted package

SOT-523



SOLDERING FOOTPRINT



PACKAGE INFORMATION

| Device | Package | Shipping |
|----------------------------|---------|----------------|
| DTC114EE/124EE/143EE/144EE | SOT-523 | 3000/Tape&Reel |