

Digital Transistors (Built-in Resistors)

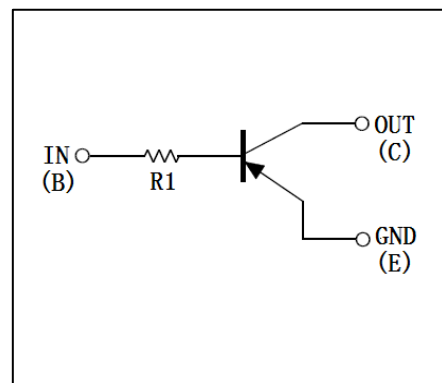
DTA143TM/DTA143TE/DTA143TUA DTA143TKA /DTA143TCA/DTA143TSA

DIGITAL TRANSISTOR (PNP)

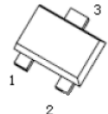
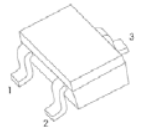
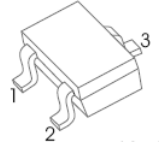
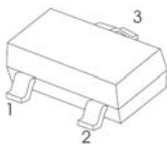
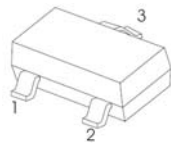

FEATURES

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation, making device design easy

• Equivalent Circuit



PIN CONNENCTIONS and MARKING

| | |
|---|---|
| <p>DTA143TM</p>  <p>SOT-723</p> <p>1. IN 2. GND 3. OUT</p> <p>MARKING:93</p> | <p>DTA143TE</p>  <p>SOT-523</p> <p>1. IN 2. GND 3. OUT</p> <p>MARKING:93</p> |
| <p>DTA143TUA</p>  <p>SOT-323</p> <p>1. IN 2. GND 3. OUT</p> <p>MARKING:93</p> | <p>DTA143TKA</p>  <p>SOT-23-3L</p> <p>1. IN 2. GND 3. OUT</p> <p>MARKING:93</p> |
| <p>DTA143TCA</p>  <p>SOT-23</p> <p>1.IN 2.GND 3.OUT</p> <p>MARKING:93</p> | <p>DTA143TSA</p>  <p>TO-92S</p> <p>1. GND 2. OUT 3. IN</p> |

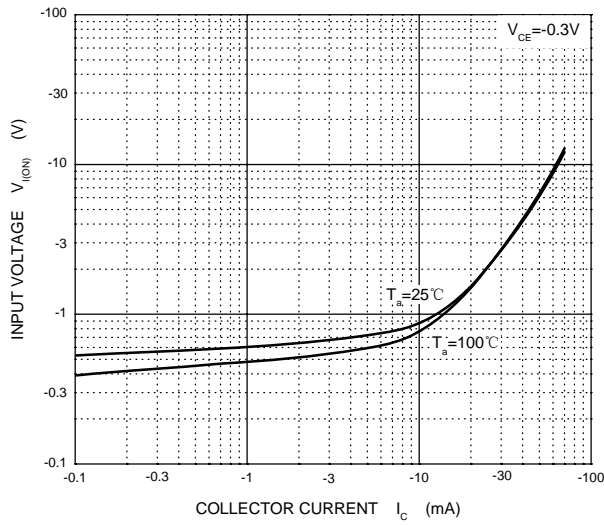
MAXIMUM RATINGS(Ta=25°C unless otherwise noted)

| Symbol | Parameter | Limits(DTA143T□) | | | | | | Unit |
|------------------|---------------------------|------------------|-----|-----|-----|-----|-----|------|
| | | M | E | UA | KA | CA | SA | |
| V _{CBO} | Collector-Base Voltage | -50 | | | | | | V |
| V _{CEO} | Collector-Emitter Voltage | -50 | | | | | | V |
| V _{EBO} | Emitter-Base Voltage | -5 | | | | | | V |
| I _C | Collector Current | -100 | | | | | | mA |
| P _D | Power Dissipation | 100 | 150 | 200 | 200 | 200 | 300 | mW |
| T _J | Junction Temperature | 150 | | | | | | °C |
| T _{stg} | Storage Temperature | -55~+150 | | | | | | °C |

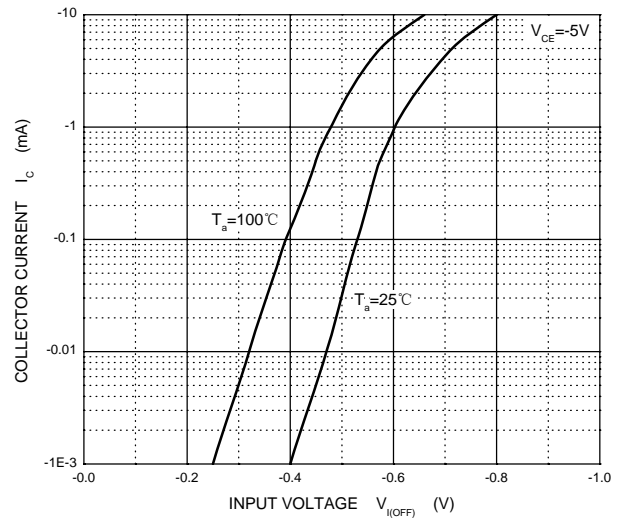
ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--------------------------------------|----------------------|--|------|-----|------|------|
| Collector-base breakdown voltage | V _{(BR)CBO} | I _C =-50μA, I _E =0 | -50 | | | V |
| Collector-emitter breakdown voltage | V _{(BR)CEO} | I _C =-1mA, I _B =0 | -50 | | | V |
| Emitter-base breakdown voltage | V _{(BR)EBO} | I _E =-50μA, I _C =0 | -5 | | | V |
| Collector cut-off current | I _{CBO} | V _{CB} =-50V, I _E =0 | | | -0.5 | μA |
| Emitter cut-off current | I _{EBO} | V _{EB} =-4V, I _C =0 | | | -0.5 | μA |
| Collector-emitter saturation voltage | V _{CE(sat)} | I _C =-5mA, I _B =-0.25mA | | | -0.3 | V |
| DC current gain | h _{FE} | V _{CE} =-5V, I _C =-1mA | 100 | | 600 | |
| Input resistor | R ₁ | | 3.29 | 4.7 | 6.11 | kΩ |
| Transition frequency | f _T | V _{CE} =-10V, I _E =5mA, f=100MHz | | 250 | | MHz |

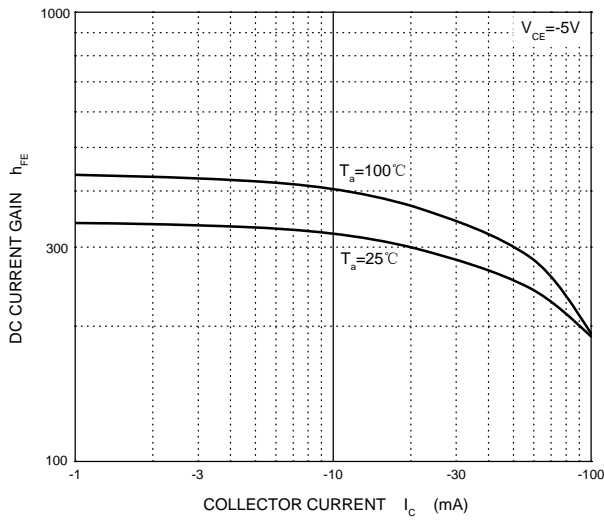
ON Characteristics



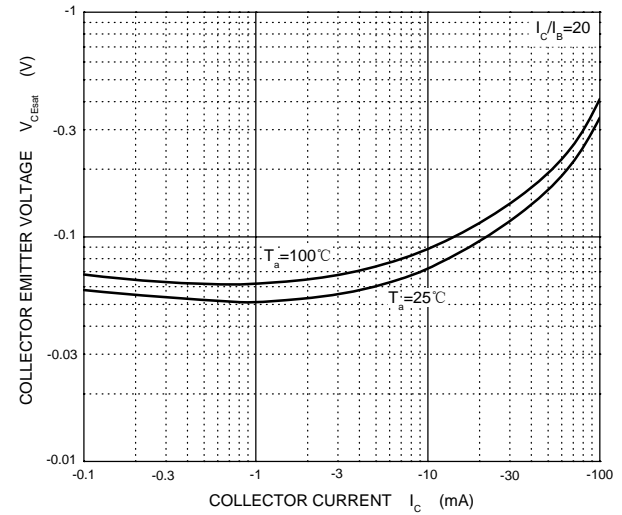
OFF Characteristics



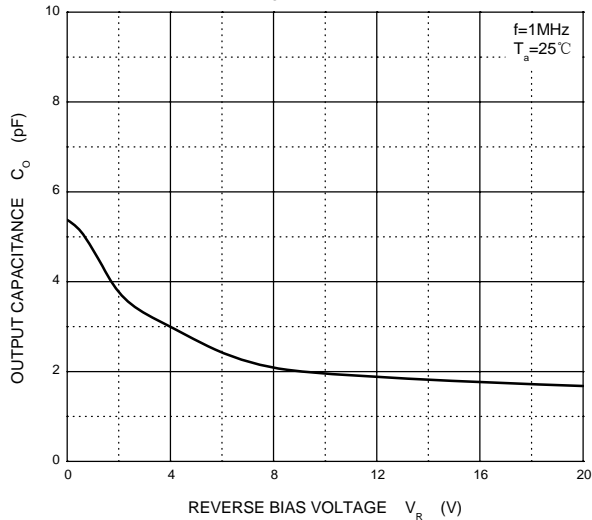
h_{FE} — I_c



V_{CEsat} — I_c



C_o — V_R



P_D — T_a

