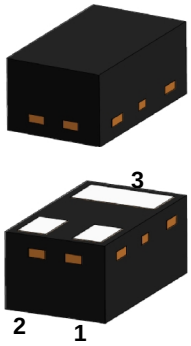
DTA114EN3 to DTA123JN3 Series

# SOT-883
# Digital Transistor (Built-in Resistors)
## PNP Silicon Surface Mount Transistor

**Green Product**




**SOT-883 (DFN1006-3)**

1. **IN**
2. **GND**
3. **OUT**

### Absolute Maximum Ratings ($T_A$ = 25°C unless otherwise noted)

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CC}$ | Supply Voltage | -50 | V |
| $V_{IN}$ | Input Voltage<br>DTA114EN3<br>DTA114YN3<br>DTA143ZN3<br>DTA144EN3<br>DTA124EN3<br>DTA124XN3<br>DTA123EN3<br>DTA143EN3<br>DTA123JN3 | <br>-40 ~ +10<br>-40 ~ +6<br>-30 ~ +5<br>-40 ~ +10<br>-40 ~ +10<br>-40 ~ +10<br>-12 ~ +10<br>-30 ~ +10<br>-12 ~ +5 | V |
| $I_O$ | Output Current<br>DTA114EN3<br>DTA114YN3<br>DTA143ZN3<br>DTA144EN3<br>DTA124EN3<br>DTA124XN3<br>DTA123EN3<br>DTA143EN3<br>DTA123JN3 | <br>-50<br>-70<br>-100<br>-30<br>-30<br>-50<br>-100<br>-100<br>-100 | mA |
| $I_{CM}$ | Peak Collector Current | -100 | mA |
| $P_D$ | Power Dissipation | 150 | mW |
| $T_J$ | Junction to Ambient | 150 | °C |
| $T_{STG}$ | Storage Temperature Range | -55 to +150 | °C |

These ratings are limiting values above which the serviceability of the device may be impaired.

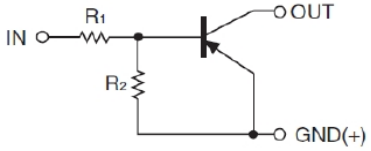
### DEVICE MARKING CODE:

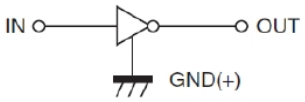
| Device Type | Device Marking |
|---|---|
| DTA114EN3 | 14 |
| DTA114YN3 | 54 |
| DTA143ZN3 | E13 |
| DTA144EN3 | 16 |
| DTA124EN3 | 15 |
| DTA124XN3 | 35 |
| DTA123EN3 | 12 |
| DTA143EN3 | 13 |
| DTA123JN3 | E32 |

### FEATURES:

- § Built-in resistors enable the configuration of an inverter circuit without connecting external input resistors.
- § 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.
- § DFN1006-3
- § RoHS Compliant
- § Green EMC
- § Matte Tin(Sn) Lead Finish
- § Weight: approx. 0.001g

### ELECTRICAL SYMBOL:



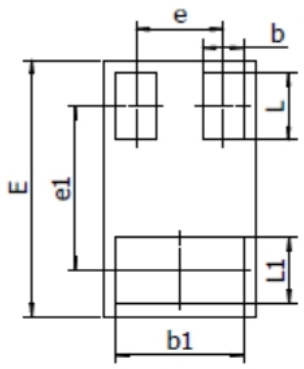



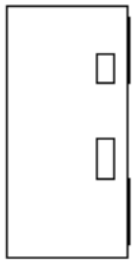
**Electrical Characteristics** ($T_A$ = 25°C unless otherwise noted)

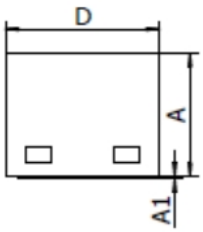
| Parameter | Symbol | Test Condition | Limits | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | |
| Input Voltage | $V_{I(off)}$ | | | | | V |
| | DTA114EN3 | $V_{CC}$= -5V, $I_O$= -100uA | -0.5 | | | |
| | DTA114YN3 | $V_{CC}$= -5V, $I_O$= -100uA | -0.3 | | | |
| | DTA143ZN3 | $V_{CC}$= -5V, $I_O$= -100uA | -0.5 | | | |
| | DTA144EN3 | $V_{CC}$= -5V, $I_O$= -100uA | -0.5 | | | |
| | DTA124EN3 | $V_{CC}$= -5V, $I_O$= -100uA | -0.5 | | | |
| | DTA124XN3 | $V_{CC}$= -5V, $I_O$= -100uA | -0.4 | | | |
| | DTA123EN3 | $V_{CC}$= -5V, $I_O$= -100uA | -0.5 | | | |
| | DTA143EN3 | $V_{CC}$= -5V, $I_O$= -100uA | -0.5 | | | |
| | DTA123JN3 | $V_{CC}$= -5V, $I_O$= -100uA | -0.5 | | | |
| | $V_{I(on)}$ | | | | | V |
| | DTA114EN3 | $V_O$= -0.3V, $I_O$=-10mA | | | -3 | |
| | DTA114YN3 | $V_O$= -0.3V, $I_O$=-1mA | | | -1.4 | |
| | DTA143ZN3 | $V_O$= -0.3V, $I_O$=-5mA | | | -1.3 | |
| | DTA144EN3 | $V_O$= -0.3V, $I_O$=-2mA | | | -3 | |
| | DTA124EN3 | $V_O$ = -0.2V, $I_O$ =-5mA | | | -3 | |
| | DTA124XN3 | $V_O$ = -0.3V, $I_O$ =-2mA | | | -2.5 | |
| | DTA123EN3 | $V_O$ = -0.3V, $I_O$ =-10mA | | | -3 | |
| | DTA143EN3 | $V_O$ = -0.3V, $I_O$ =-20mA | | | -3 | |
| | DTA123JN3 | $V_O$ = -0.3V, $I_O$ =-5mA | | | -1.1 | |
| Output Voltage | $V_{O(on)}$ | | | | | V |
| | DTA114EN3 | $I_O$ / $I_I$ = -10mA/-0.5mA | | | -0.3 | |
| | DTA114YN3 | $I_O$ / $I_I$ = -5mA/-0.25mA | | | -0.3 | |
| | DTA143ZN3 | $I_O$ / $I_I$ = -5mA/-0.25mA | | | -0.3 | |
| | DTA144EN3 | $I_O$ / $I_I$ = -10mA/-0.5mA | | | -0.3 | |
| | DTA124EN3 | $I_O$ / $I_I$ = -10mA/-0.5mA | | | -0.3 | |
| | DTA124XN3 | $I_O$ / $I_I$ = -10mA/-0.5mA | | | -0.3 | |
| | DTA123EN3 | $I_O$ / $I_I$ = -10mA/-0.5mA | | | -0.3 | |
| | DTA143EN3 | $I_O$ / $I_I$ = -10mA/-0.5mA | | | -0.3 | |
| | DTA123JN3 | $I_O$ / $I_I$ = -5mA/-0.25mA | | | -0.3 | |
| Input Current | $I_I$ | | | | | mA |
| | DTA114EN3 | $V_I$ = -5V | | | -0.88 | |
| | DTA114YN3 | $V_I$ = -5V | | | -0.88 | |
| | DTA143ZN3 | $V_I$ = -5V | | | -1.8 | |
| | DTA144EN3 | $V_I$ = -5V | | | 0.18 | |
| | DTA124EN3 | $V_I$ = -5V | | | -0.36 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | DTA124XN3 | $V_I$ = -5V | | | -0.36 | |
| | DTA123EN3 | $V_I$ = -5V | | | -0.38 | |
| | DTA143EN3 | $V_I$ = -5V | | | -1.8 | |
| | DTA123JN3 | $V_I$ = -5V | | | -3.6 | |
| Output Current | $I_{O(off)}$ | $V_{CC}$ = -50V, $V_I$ = 0V | | | -0.5 | uA |
| DC Current Gain | $G_I$ | | | | | |
| | DTA114EN3 | $V_O$ = -5V, $I_O$ = -5mA | 30 | | | |
| | DTA114YN3 | $V_O$ = -5V, $I_O$ = -5mA | 68 | | | |
| | DTA143ZN3 | $V_O$ = -5V, $I_O$ = -10mA | 80 | | | |
| | DTA144EN3 | $V_O$ = -5V, $I_O$ = -5mA | 68 | | | |
| | DTA124EN3 | $V_O$ = -5V, $I_O$ = -5mA | 56 | | | |
| | DTA124XN3 | $V_O$ = -5V, $I_O$ = -5mA | 68 | | | |
| | DTA123EN3 | $V_O$ = -10V, $I_O$ = -5mA | 8 | 15 | | |
| | DTA143EN3 | $V_O$ = -5V, $I_O$ = -10mA | 30 | | | |
| | DTA123JN3 | $V_O$ = -5V, $I_O$ = -10mA | 80 | | | |
| Input Resistance | $R_1$ | | | | | KΩ |
| | DTA114EN3 | | 7 | 10 | 13 | |
| | DTA114YN3 | | 7 | 10 | 13 | |
| | DTA143ZN3 | | 3.29 | 4.7 | 6.11 | |
| | DTA144EN3 | | 32.9 | 47 | 61.1 | |
| | DTA124EN3 | | 15.4 | 22 | 28.6 | |
| | DTA124XN3 | | 15.4 | 22 | 28.6 | |
| | DTA123EN3 | | 1.54 | 2.2 | 2.86 | |
| | DTA143EN3 | | 3.29 | 4.7 | 6.11 | |
| | DTA123JN3 | | 1.54 | 2.2 | 2.86 | |
| Resistance Ratio | $R_2$ /$R_1$ | | | | | |
| | DTA114EN3 | | 0.8 | 1 | 1.2 | |
| | DTA114YN3 | | 3.7 | 4.7 | 5.7 | |
| | DTA143ZN3 | | 8 | 10 | 12 | |
| | DTA144EN3 | | 0.8 | 1 | 1.2 | |
| | DTA124EN3 | | 0.8 | 1 | 1.2 | |
| | DTA124XN3 | | 1.7 | 2.1 | 2.6 | |
| | DTA123EN3 | | 0.8 | 1 | 1.2 | |
| | DTA143EN3 | | 0.8 | 1 | 1.2 | |
| | DTA123JN3 | | 17 | 21 | 26 | |
| Transition Frequency | $f_T$ | $V_O$ = -10V, $I_O$ = -5mA<br>f=100MHz | | 250 | | MHz |

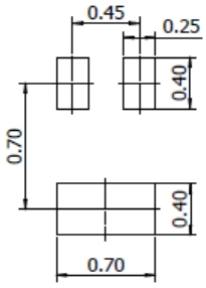
## SOT-883 Package Outline






**Typical Soldering Pattern(mm):**




| DIM | MILLIMETERS | | INCHES | |
|---|---|---|---|---|
| | MIN | MAX | MIN | MAX |
| A | 0.46 | 0.50 | 0.018 | 0.020 |
| A1 | --- | 0.03 | --- | 0.001 |
| D | 0.55 | 0.65 | 0.022 | 0.026 |
| E | 0.95 | 1.05 | 0.037 | 0.041 |
| b | 0.12 | 0.22 | 0.005 | 0.008 |
| b1 | 0.45 | 0.55 | 0.018 | 0.022 |
| L | 0.22 | 0.32 | 0.008 | 0.013 |
| L1 | 0.22 | 0.32 | 0.008 | 0.013 |
| e | Typ. 0.34 | | Typ. 0.013 | |
| e1 | Typ. 0.65 | | Typ. 0.026 | |

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