## Absolute Maximum Ratings (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | | Symbol | Value | Unit |
|---|---|---|---|---|
| Supply Voltage <Pin: (3) to (2)> | | $V_{CC}$ | -50 | V |
| Input Voltage <Pin: (1) to (2)> | DDTA123ECA<br>DDTA143ECA<br>DDTA114ECA<br>DDTA124ECA<br>DDTA144ECA<br>DDTA115ECA | $V_{IN}$ | +10 to –12<br>+10 to –30<br>+10 to –40<br>+10 to –40<br>+10 to –40<br>+10 to –40 | V |
| Output Current | DDTA123ECA<br>DDTA143ECA<br>DDTA114ECA<br>DDTA124ECA<br>DDTA144ECA<br>DDTA115ECA | $I_O$ | -100<br>-100<br>-50<br>-30<br>-30<br>-20 | mA |
| Output Current | | $I_C$ (Max) | -100 | mA |

## Thermal Characteristics (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Power Dissipation (Note 7) | $P_D$ | 200 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 7) | $R_{\theta JA}$ | 625 | °C/W |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to +150 | °C |

Notes: 7. Mounted on FR-4 PC Board with minimum recommended pad layout.

## Electrical Characteristics (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|---|
| Input Voltage | | $V_{I(off)}$ | -0.5 | -1.1 | — | V | $V_{CC}$ = -5V, $I_O$ = -100μA |
| | | $V_{I(on)}$ | — | -1.9 | -3 | | $V_O$ = -0.3V, $I_O$ = -20mA, DDTA123ECA<br>$V_O$ = -0.3V, $I_O$ = -20mA, DDTA143ECA<br>$V_O$ = -0.3V, $I_O$ = -10mA, DDTA114ECA<br>$V_O$ = -0.3V, $I_O$ = -5mA, DDTA124ECA<br>$V_O$ = -0.3V, $I_O$ = -2mA, DDTA144ECA<br>$V_O$ = -0.3V, $I_O$ = -1mA, DDTA115ECA |
| Output Voltage | | $V_{O(on)}$ | — | -0.1 | -0.3 | V | $I_O/I_I$ = -10mA/-0.5mA, DDTA123ECA<br>$I_O/I_I$ = -10mA/-0.5mA, DDTA143ECA<br>$I_O/I_I$ = -10mA/-0.5mA, DDTA114ECA<br>$I_O/I_I$ = -10mA/-0.5mA, DDTA124ECA<br>$I_O/I_I$ = -10mA/-0.5mA, DDTA144ECA<br>$I_O/I_I$ = -5mA/-0.25mA, DDTA115ECA |
| Input Current | DDTA123ECA<br>DDTA143ECA<br>DDTA114ECA<br>DDTA124ECA<br>DDTA144ECA<br>DDTA115ECA | $I_I$ | — | — | -3.8<br>-1.8<br>-0.88<br>-0.36<br>-0.18<br>-0.15 | mA | $V_I$ = -5V |
| Output Current | | $I_{O(off)}$ | — | — | -0.5 | μA | $V_{CC}$ = -50V, $V_I$ = 0V |
| DC Current Gain | DDTA123ECA<br>DDTA143ECA<br>DDTA114ECA<br>DDTA124ECA<br>DDTA144ECA<br>DDTA115ECA | $G_I$ | 20<br>20<br>30<br>56<br>68<br>82 | — | — | — | $V_O$ = -5V, $I_O$ = -20mA<br>$V_O$ = -5V, $I_O$ = -10mA<br>$V_O$ = -5V, $I_O$ = -5mA<br>$V_O$ = -5V, $I_O$ = -5mA<br>$V_O$ = -5V, $I_O$ = -5mA<br>$V_O$ = -5V, $I_O$ = -5mA |
| Input Resistor Tolerance | | $\Delta R_1$ | -30 | — | +30 | % | — |
| Resistance Ratio Tolerance | | $\Delta R_2/R_1$ | 0.8 | 1 | 1.2 | % | — |
| Gain-Bandwidth Product (Note 8) | | $f_T$ | — | 250 | — | MHz | $V_{CE}$ = -10V, $I_E$ = -5mA, f = 100MHz |

Note: 8. Transistor - For Reference Only

## Typical Characteristics – DDTA143ECA (@$T_A$ = +25°C, unless otherwise specified.)

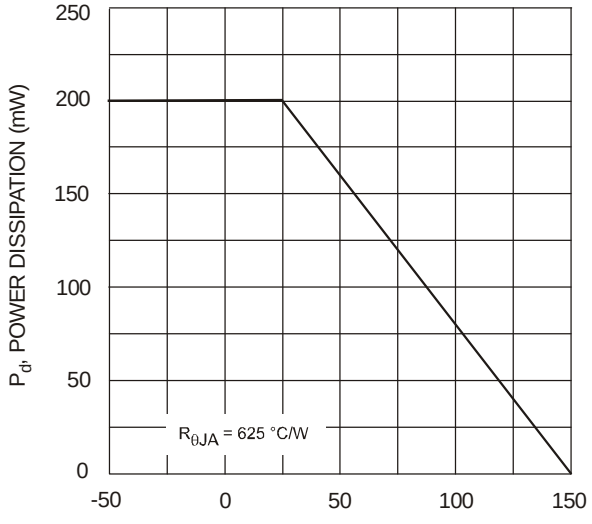



Fig. 1 Derating Curve

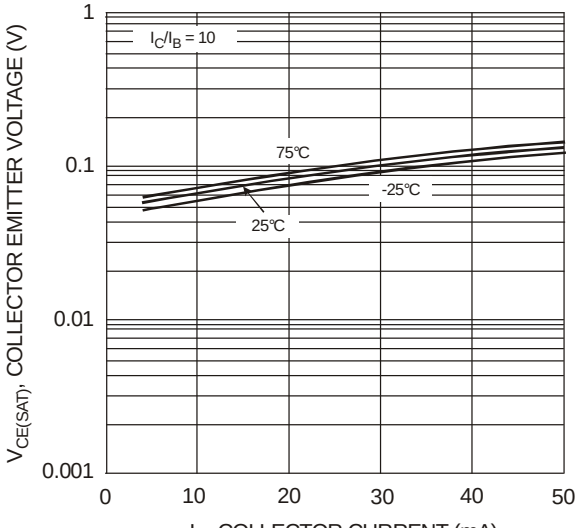



Fig. 2 $V_{CE(SAT)}$ vs. $I_C$

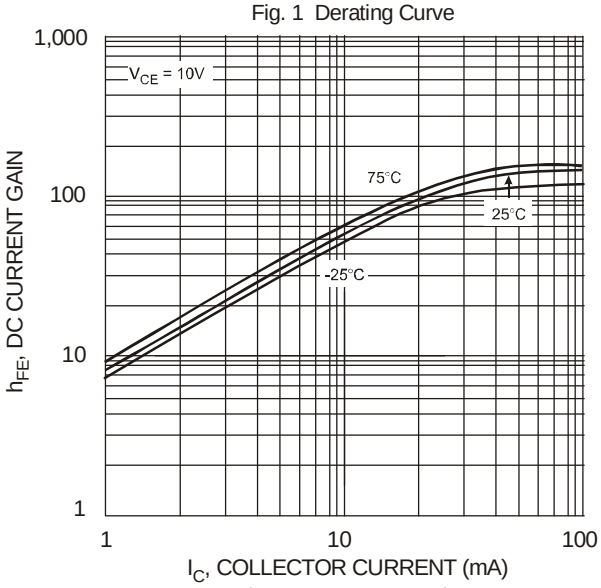



Fig. 3 DC Current Gain

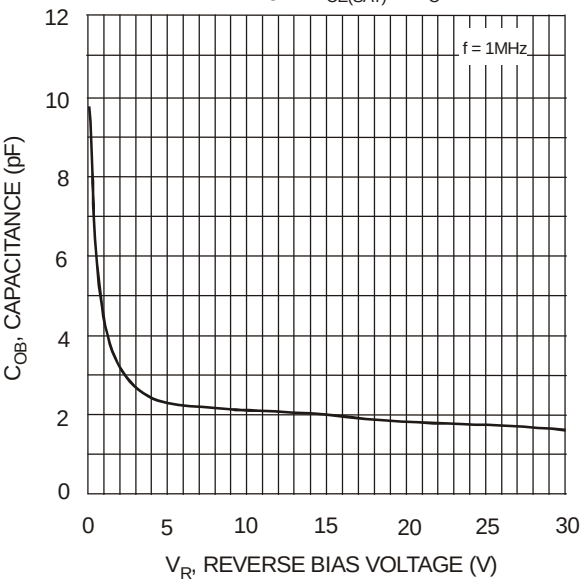



Fig. 4 Output Capacitance

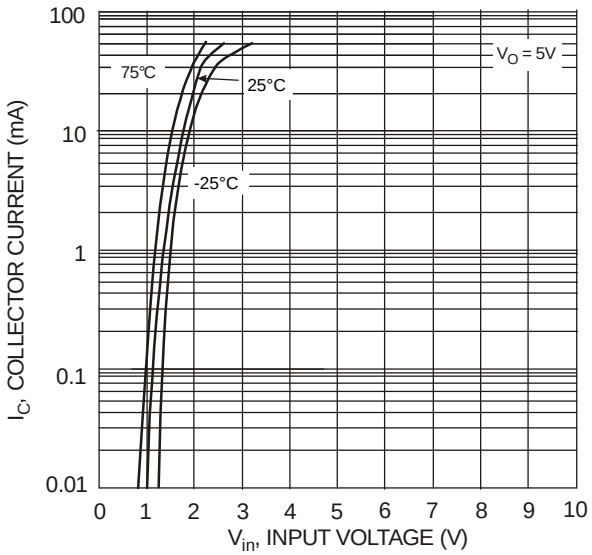



Fig. 5 Collector Current vs. Input Voltage

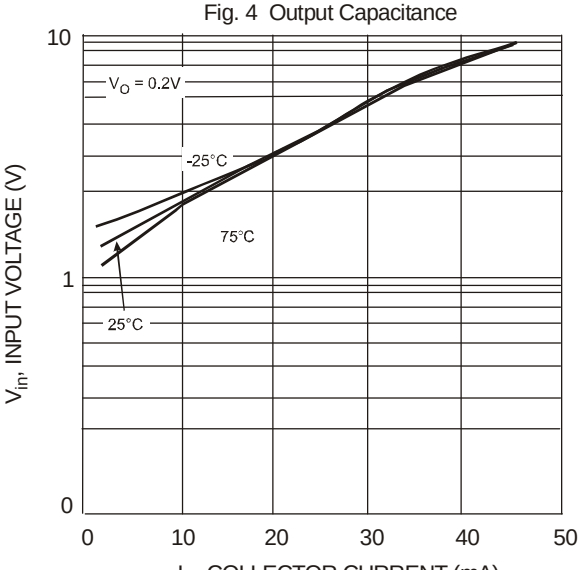
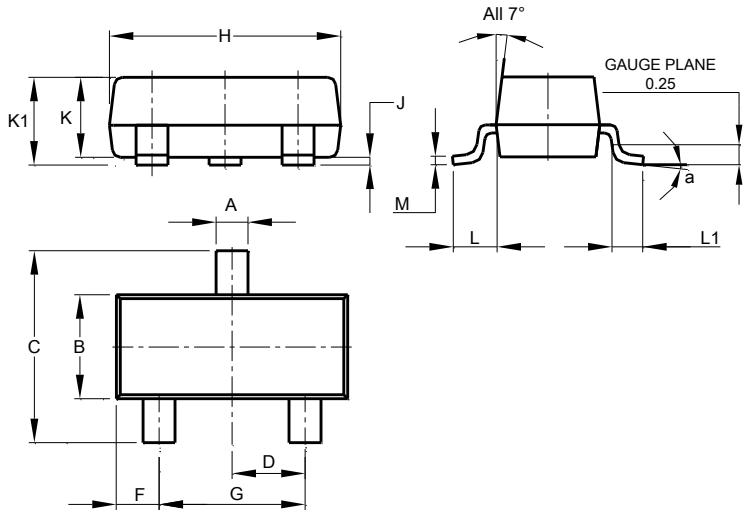



Fig. 6 Input Voltage vs. Collector Current

## Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

**SOT23**

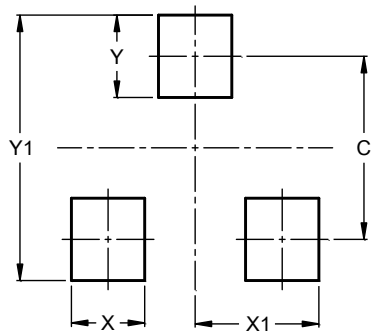



| SOT23 | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 0.37 | 0.51 | 0.40 |
| **B** | 1.20 | 1.40 | 1.30 |
| **C** | 2.30 | 2.50 | 2.40 |
| **D** | 0.89 | 1.03 | 0.915 |
| **F** | 0.45 | 0.60 | 0.535 |
| **G** | 1.78 | 2.05 | 1.83 |
| **H** | 2.80 | 3.00 | 2.90 |
| **J** | 0.013 | 0.10 | 0.05 |
| **K** | 0.890 | 1.00 | 0.975 |
| **K1** | 0.903 | 1.10 | 1.025 |
| **L** | 0.45 | 0.61 | 0.55 |
| **L1** | 0.25 | 0.55 | 0.40 |
| **M** | 0.085 | 0.150 | 0.110 |
| **a** | 0° | 8° | -- |
| **All Dimensions in mm** | | | |

## Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

**SOT23**




| Dimensions | Value (in mm) |
|---|---|
| **C** | 2.0 |
| **X** | 0.8 |
| **X1** | 1.35 |
| **Y** | 0.9 |
| **Y1** | 2.9 |

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