# BC372, BC373

## High Voltage Darlington Transistors

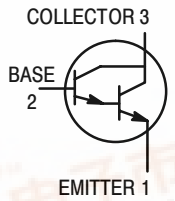
### NPN Silicon

**ON Semiconductor®**

**http://onsemi.com**

#### Features

- Pb−Free Packages are Available*




#### MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Collector−Emitter Voltage<br>BC372<br>BC373 | $V_{CEO}$ | <br>100<br>80 | Vdc |
| Collector−Base Voltage<br>BC372<br>BC373 | $V_{CES}$ | <br>100<br>80 | Vdc |
| Emitter−Base Voltage | $V_{EBO}$ | 12 | Vdc |
| Collector Current − Continuous | $I_C$ | 1.0 | Adc |
| Total Power Dissipation @ $T_A$ = 25°C<br>Derate above $T_A$ = 25°C | $P_D$ | 625<br>5.0 | mW<br>mW/°C |
| Total Power Dissipation @ $T_A$ = 25°C<br>Derate above $T_A$ = 25°C | $P_D$ | 1.5<br>12 | W<br>mW/°C |
| Operating and Storage Junction Temperature Range | $T_J$, $T_{stg}$ | −55 to +150 | °C |

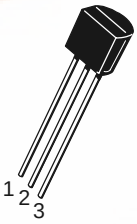
#### THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Thermal Resistance, Junction−to−Ambient | $R_{\theta JA}$ | 200 | °C/W |
| Thermal Resistance, Junction−to−Case | $R_{\theta JC}$ | 83.3 | °C/W |

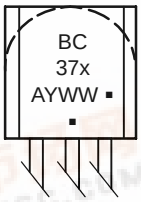
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

#### MARKING DIAGRAM




**TO−92**
**CASE 29**
**STYLE 1**




BC37x = Device Code
x = 2 or 3
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

#### ORDERING INFORMATION

| Device | Package | Shipping† |
|---|---|---|
| BC372 | TO−92 | 5000 Units / Bulk |
| BC372G | TO−92<br>(Pb−Free) | 5000 Units / Bulk |
| BC373 | TO−92 | 5000 Units / Bulk |
| BC373G | TO−92<br>(Pb−Free) | 5000 Units / Bulk |
| BC373RL1 | TO−92 | 2000 / Tape & Reel |
| BC373RL1G | TO−92<br>(Pb−Free) | 2000 / Tape & Reel |
| BC373ZL1 | TO−92 | 2000 / Ammo Pack |
| BC373ZL1G | TO−92<br>(Pb−Free) | 2000 / Ammo Pack |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.



Publication Order Number:

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted)

| Characteristic | | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | |
| Collector−Emitter Breakdown Voltage[1] ($I_C$ = 100 μAdc, $I_B$ = 0) | BC372<br>BC373 | $V_{(BR)CES}$ | <br>100<br>80 | <br>−<br>− | <br>−<br>− | Vdc |
| Collector−Base Breakdown Voltage ($I_C$ = 100 μAdc, $I_E$ = 0) | BC372<br>BC373 | $V_{(BR)CBO}$ | <br>100<br>80 | <br>−<br>− | <br>−<br>− | Vdc |
| Emitter−Base Breakdown Voltage ($I_E$ = 10 μAdc, $I_C$ = 0) | | $V_{(BR)EBO}$ | 12 | − | − | Vdc |
| Collector Cutoff Current<br>($V_{CB}$ = 80 Vdc, $I_E$ = 0)<br>($V_{CB}$ = 60 Vdc, $I_E$ = 0) | <br>BC372<br>BC373 | $I_{CBO}$ | <br>−<br>− | <br>−<br>− | <br>100<br>100 | nAdc |
| Emitter Cutoff Current ($V_{EB}$ = 10 V, $I_C$ = 0) | | $I_{EBO}$ | − | − | 100 | nAdc |
| **ON CHARACTERISTICS** (Note 1) | | | | | | |
| DC Current Gain<br>($I_C$ = 250 mAdc, $V_{CE}$ = 5.0 Vdc)<br>($I_C$ = 100 mAdc, $V_{CE}$ = 5.0 Vdc) | | $h_{FE}$ | <br>8.0<br>10 | <br>−<br>− | <br>−<br>160 | K |
| Collector−Emitter Saturation Voltage ($I_C$ = 250 mAdc, $I_B$ = 0.25 mAdc) | | $V_{CE(sat)}$ | − | 1.0 | 1.1 | Vdc |
| Base−Emitter Saturation Voltage ($I_C$ = 250 mAdc, $I_B$ = 0.25 mAdc) | | $V_{BE(sat)}$ | − | 1.4 | 2.0 | Vdc |
| **DYNAMIC CHARACTERISTICS** | | | | | | |
| Current−Gain Bandwidth Product ($I_C$ = 100 mAdc, $V_{CE}$ = 5.0 Vdc, f = 100 MHz) | | $f_T$ | 100 | 200 | − | MHz |
| Output Capacitance ($V_{CB}$ = 10 Vdc, $I_E$ = 0, f = 1.0 MHz) | | $C_{ob}$ | − | 10 | 25 | pF |
| Noise Figure ($I_C$ = 1.0 mAdc, $V_{CE}$ = 5.0 Vdc, $R_g$ = 100 kΩ, f = 1.0 kHz) | | NF | − | 2.0 | − | dB |

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle 2.0%.

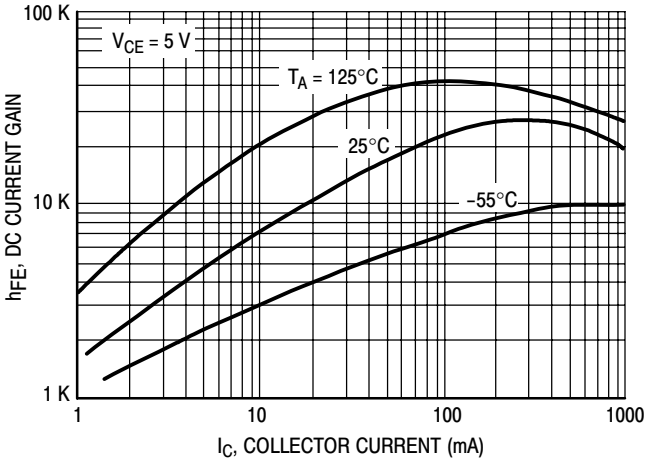



**Figure 1. DC Current Gain**

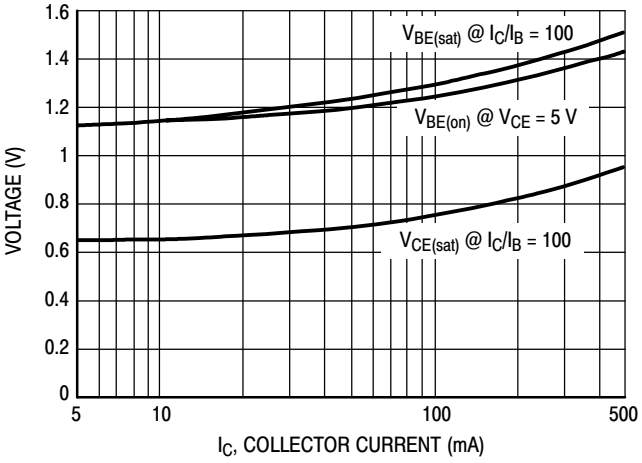



**Figure 2. “Saturation” and “On” Voltages**

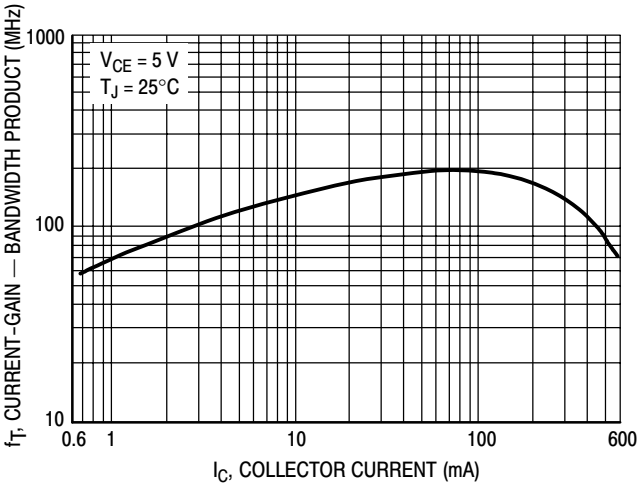



**Figure 3. Current−Gain — Bandwidth Product**

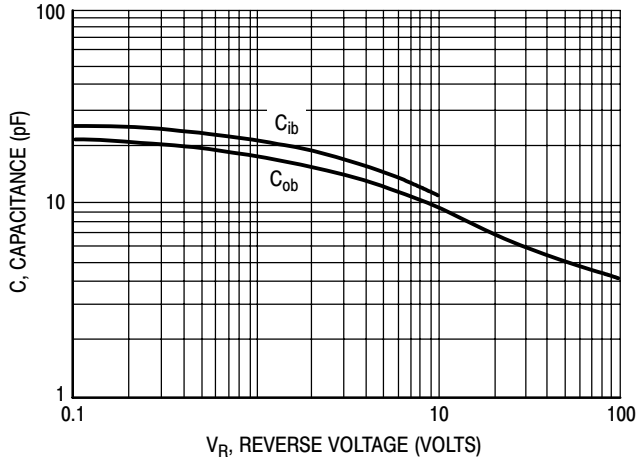
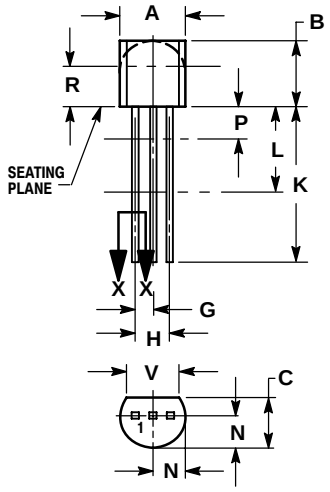


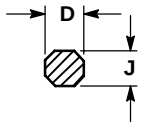

**Figure 4. Capacitances**

# BC372, BC373

## PACKAGE DIMENSIONS

**TO−92 (TO−226)**
CASE 29−11
ISSUE AL




**SECTION X−X**

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

| | INCHES | | MILLIMETERS | |
|---|---|---|---|---|
| DIM | MIN | MAX | MIN | MAX |
| A | 0.175 | 0.205 | 4.45 | 5.20 |
| B | 0.170 | 0.210 | 4.32 | 5.33 |
| C | 0.125 | 0.165 | 3.18 | 4.19 |
| D | 0.016 | 0.021 | 0.407 | 0.533 |
| G | 0.045 | 0.055 | 1.15 | 1.39 |
| H | 0.095 | 0.105 | 2.42 | 2.66 |
| J | 0.015 | 0.020 | 0.39 | 0.50 |
| K | 0.500 | --- | 12.70 | --- |
| L | 0.250 | --- | 6.35 | --- |
| N | 0.080 | 0.105 | 2.04 | 2.66 |
| P | --- | 0.100 | --- | 2.54 |
| R | 0.115 | --- | 2.93 | --- |
| V | 0.135 | --- | 3.43 | --- |

STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR



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