

# BC372, BC373

## High Voltage Darlington Transistors

### NPN Silicon

#### Features

- Pb-Free Packages are Available\*

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	$V_{CEO}$ BC372 BC373	100	Vdc
		80	
Collector–Base Voltage	$V_{CES}$ BC372 BC373	100	Vdc
		80	
Emitter–Base Voltage	$V_{EBO}$	12	Vdc
Collector Current – Continuous	$I_C$	1.0	Adc
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $T_A = 25^\circ\text{C}$	$P_D$	625	mW
		5.0	mW/°C
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $T_A = 25^\circ\text{C}$	$P_D$	1.5	W
		12	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

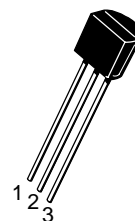
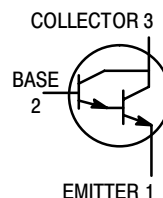
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur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



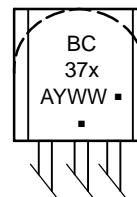
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TO-92  
CASE 29  
STYLE 1

#### MARKING DIAGRAM



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 (Pb-Free)	5000 Units / Bulk
BC373	TO-92	5000 Units / Bulk
BC373G	TO-92 (Pb-Free)	5000 Units / Bulk
BC373RL1	TO-92	2000 / Tape & Reel
BC373RL1G	TO-92 (Pb-Free)	2000 / Tape & Reel
BC373ZL1	TO-92	2000 / Ammo Pack
BC373ZL1G	TO-92 (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.

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## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector–Emitter Breakdown Voltage <sup>(1)</sup> ( $I_C = 100\ \mu\text{Adc}$ , $I_E = 0$ )	BC372 BC373 $V_{(BR)CES}$	100 80	– –	– –	Vdc
Collector–Base Breakdown Voltage ( $I_C = 100\ \mu\text{Adc}$ , $I_E = 0$ )	BC372 BC373 $V_{(BR)CBO}$	100 80	– –	– –	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 10\ \mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	12	–	–	Vdc
Collector Cutoff Current ( $V_{CB} = 80\ \text{Vdc}$ , $I_E = 0$ ) ( $V_{CB} = 60\ \text{Vdc}$ , $I_E = 0$ )	BC372 BC373 $I_{CBO}$	– –	– –	100 100	nAdc
Emitter Cutoff Current ( $V_{EB} = 10\ \text{V}$ , $I_C = 0$ )	$I_{EBO}$	–	–	100	nAdc

## ON CHARACTERISTICS (Note 1)

DC Current Gain ( $I_C = 250\ \text{mAdc}$ , $V_{CE} = 5.0\ \text{Vdc}$ ) ( $I_C = 100\ \text{mAdc}$ , $V_{CE} = 5.0\ \text{Vdc}$ )	$h_{FE}$	8.0 10	– –	– 160	K
Collector–Emitter Saturation Voltage ( $I_C = 250\ \text{mAdc}$ , $I_B = 0.25\ \text{mAdc}$ )	$V_{CE(sat)}$	–	1.0	1.1	Vdc
Base–Emitter Saturation Voltage ( $I_C = 250\ \text{mAdc}$ , $I_B = 0.25\ \text{mAdc}$ )	$V_{BE(sat)}$	–	1.4	2.0	Vdc

## DYNAMIC CHARACTERISTICS

Current–Gain Bandwidth Product ( $I_C = 100\ \text{mAdc}$ , $V_{CE} = 5.0\ \text{Vdc}$ , $f = 100\ \text{MHz}$ )	$f_T$	100	200	–	MHz
Output Capacitance ( $V_{CB} = 10\ \text{Vdc}$ , $I_E = 0$ , $f = 1.0\ \text{MHz}$ )	$C_{ob}$	–	10	25	pF
Noise Figure ( $I_C = 1.0\ \text{mAdc}$ , $V_{CE} = 5.0\ \text{Vdc}$ , $R_g = 100\ \text{k}\Omega$ , $f = 1.0\ \text{kHz}$ )	NF	–	2.0	–	dB

1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle 2.0%.

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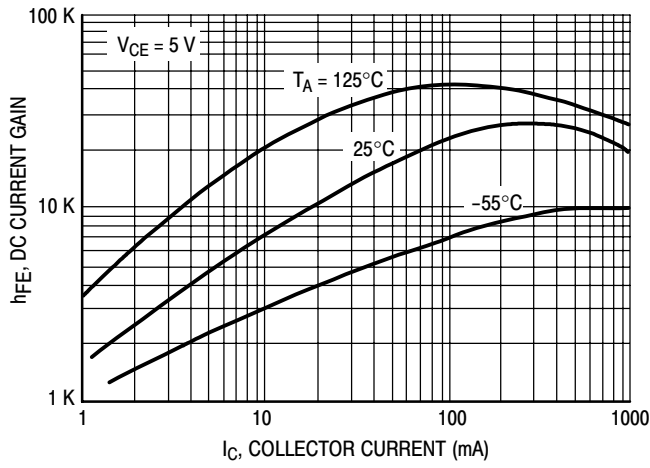


Figure 1. DC Current Gain

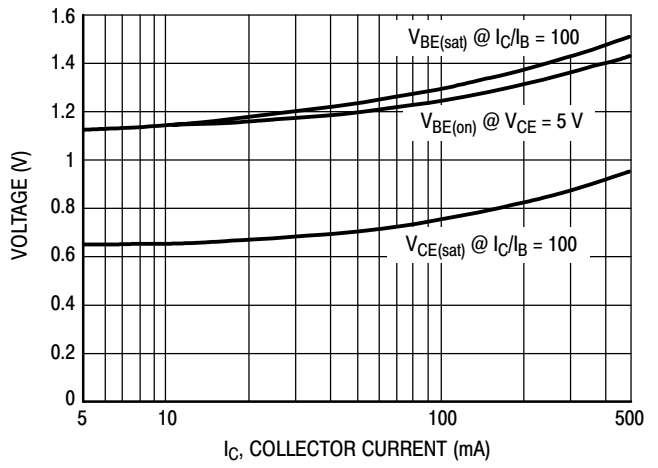


Figure 2. "Saturation" and "On" Voltages

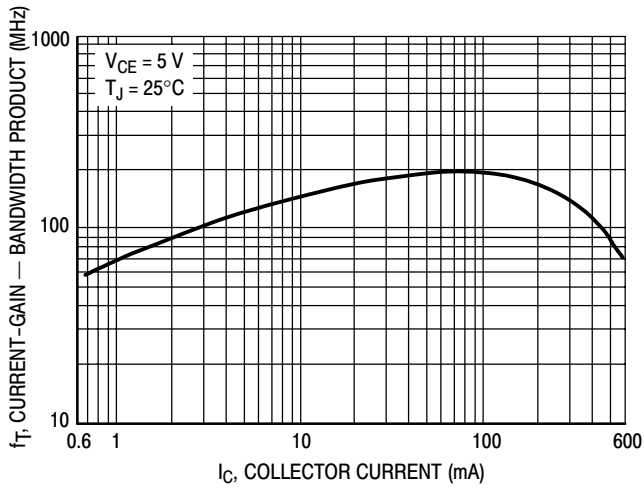


Figure 3. Current-Gain — Bandwidth Product

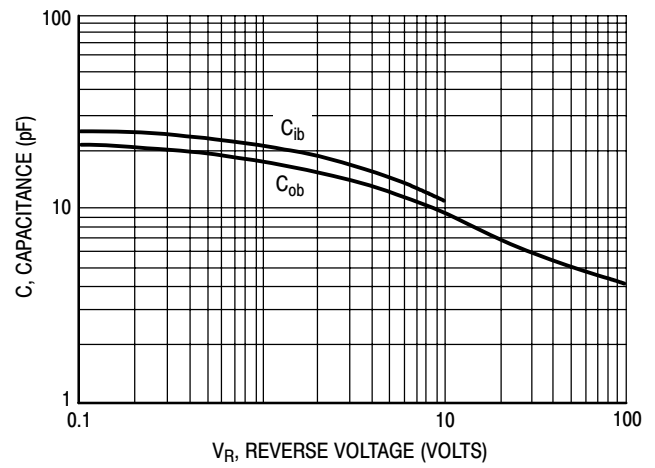
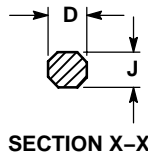
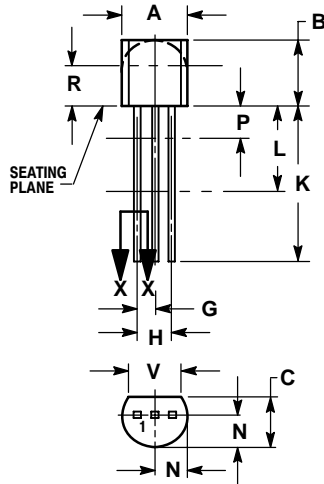


Figure 4. Capacitances

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## PACKAGE DIMENSIONS

TO-92 (TO-226)  
CASE 29-11  
ISSUE AL




### 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.

DIM	INCHES		MILLIMETERS	
	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:

1. EMITTER
2. BASE
3. COLLECTOR

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