



# THE DATASHEET OF BC373



# BC372, BC373

## High Voltage Darlington Transistors

### NPN Silicon

#### Features

- Pb-Free Packages are Available\*

#### MAXIMUM RATINGS

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

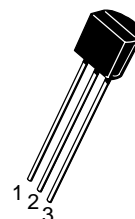
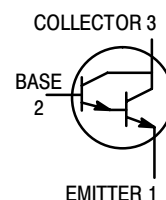
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur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



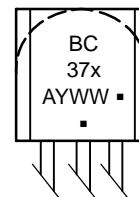
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TO-92  
CASE 29  
STYLE 1

#### 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<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	
<b>OFF CHARACTERISTICS</b>						
Collector–Emitter Breakdown Voltage <sup>(1)</sup> (I <sub>C</sub> = 100 μA <sub>dc</sub> , I <sub>B</sub> = 0)	BC372 BC373	V <sub>(BR)CES</sub>	100 80	– –	– –	V <sub>dc</sub>
Collector–Base Breakdown Voltage (I <sub>C</sub> = 100 μA <sub>dc</sub> , I <sub>E</sub> = 0)	BC372 BC373	V <sub>(BR)CBO</sub>	100 80	– –	– –	V <sub>dc</sub>
Emitter–Base Breakdown Voltage (I <sub>E</sub> = 10 μA <sub>dc</sub> , I <sub>C</sub> = 0)		V <sub>(BR)EBO</sub>	12	–	–	V <sub>dc</sub>
Collector Cutoff Current (V <sub>CB</sub> = 80 V <sub>dc</sub> , I <sub>E</sub> = 0) (V <sub>CB</sub> = 60 V <sub>dc</sub> , I <sub>E</sub> = 0)	BC372 BC373	I <sub>CBO</sub>	– –	– –	100 100	nA <sub>dc</sub>
Emitter Cutoff Current (V <sub>EB</sub> = 10 V, I <sub>C</sub> = 0)		I <sub>EBO</sub>	–	–	100	nA <sub>dc</sub>

## ON CHARACTERISTICS (Note 1)

DC Current Gain (I <sub>C</sub> = 250 mA <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> ) (I <sub>C</sub> = 100 mA <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> )		h <sub>FE</sub>	8.0 10	– –	– 160	K
Collector–Emitter Saturation Voltage (I <sub>C</sub> = 250 mA <sub>dc</sub> , I <sub>B</sub> = 0.25 mA <sub>dc</sub> )		V <sub>CE(sat)</sub>	–	1.0	1.1	V <sub>dc</sub>
Base–Emitter Saturation Voltage (I <sub>C</sub> = 250 mA <sub>dc</sub> , I <sub>B</sub> = 0.25 mA <sub>dc</sub> )		V <sub>BE(sat)</sub>	–	1.4	2.0	V <sub>dc</sub>

## DYNAMIC CHARACTERISTICS

Current–Gain Bandwidth Product (I <sub>C</sub> = 100 mA <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> , f = 100 MHz)		f <sub>T</sub>	100	200	–	MHz
Output Capacitance (V <sub>CB</sub> = 10 V <sub>dc</sub> , I <sub>E</sub> = 0, f = 1.0 MHz)		C <sub>ob</sub>	–	10	25	pF
Noise Figure (I <sub>C</sub> = 1.0 mA <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> , R <sub>g</sub> = 100 kΩ, f = 1.0 kHz)		NF	–	2.0	–	dB

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

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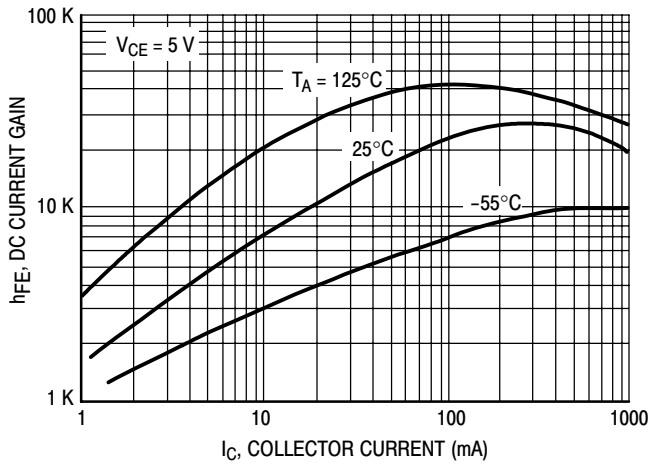


Figure 1. DC Current Gain

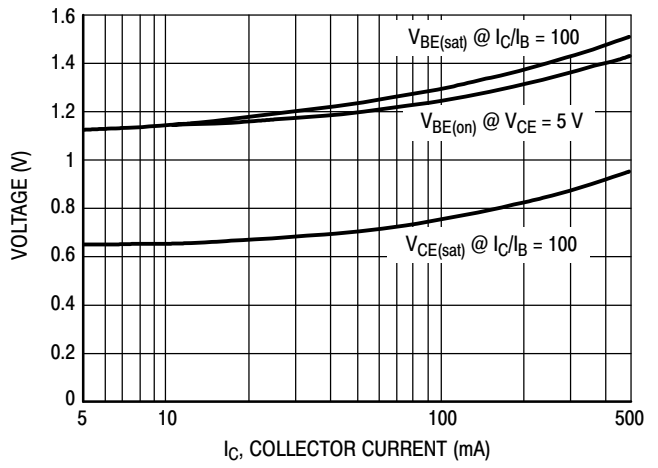


Figure 2. "Saturation" and "On" Voltages

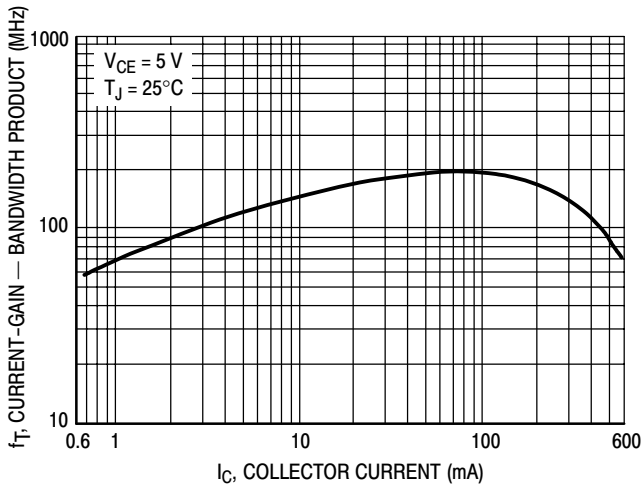


Figure 3. Current-Gain — Bandwidth Product

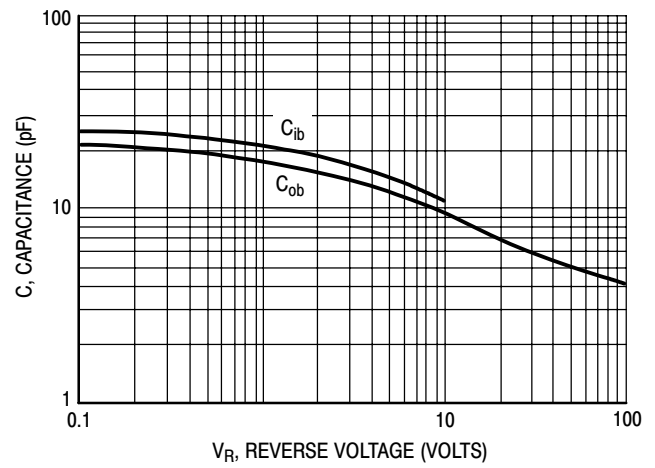
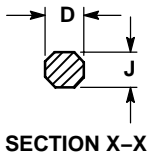
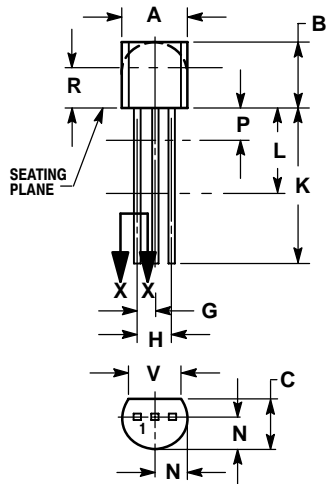


Figure 4. Capacitances

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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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