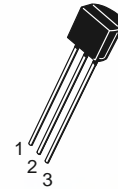
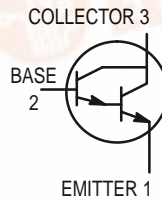


# High Voltage Darlington Transistors

## NPN Silicon

**BC372**  
**BC373**



CASE 29-04, STYLE 1  
 TO-92 (TO-226AA)

### MAXIMUM RATINGS

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage <sup>(1)</sup> ( $I_C = 100 \mu\text{Adc}, I_B = 0$ )	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

<sup>(1)</sup> Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle 2.0%.



# BC372 BC373

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>ON CHARACTERISTICS(1)</b>					
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
<b>DYNAMIC CHARACTERISTICS</b>					
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 ( $I_C = 1.0\text{ mAdc}$ , $V_{CE} = 5.0\text{ Vdc}$ , $R_G = 100\text{ k ohm}$ , $f = 1.0\text{ kHz}$ )	NF	—	2.0	—	dB

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

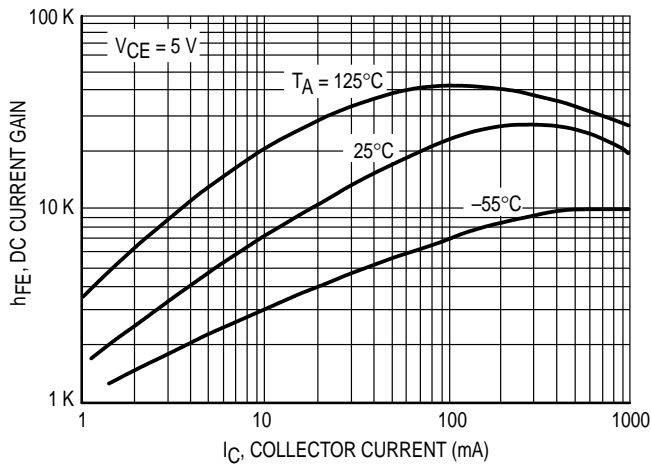


Figure 1. DC Current Gain

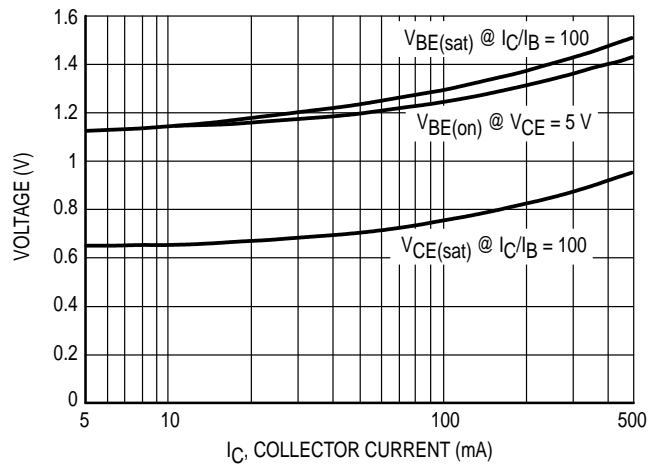


Figure 2. "Saturation" and "On" Voltages

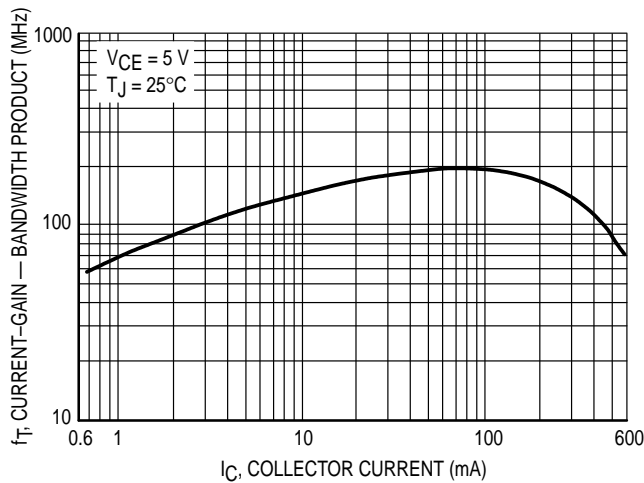


Figure 3. Current–Gain — Bandwidth Product

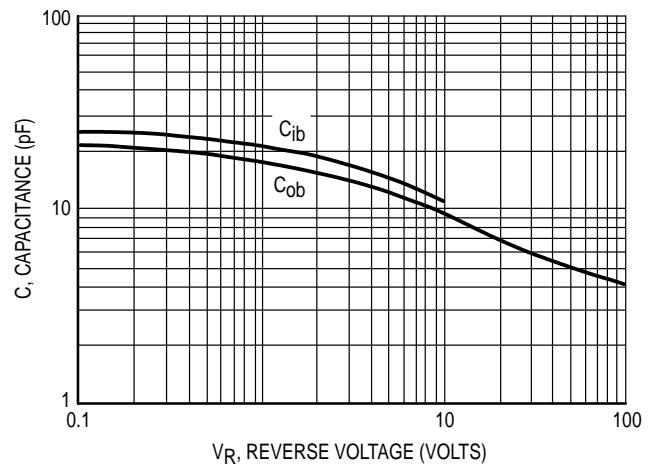
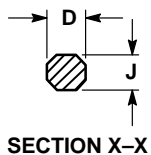
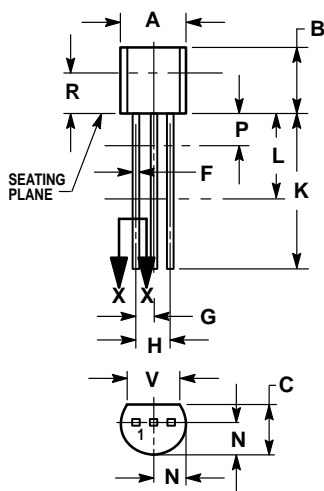


Figure 4. Capacitances

PACKAGE DIMENSIONS



CASE 029-04  
(TO-226AA)  
ISSUE AD

NOTES:


1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K MINIMUM. 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	0.022	0.41	0.55
F	0.016	0.019	0.41	0.48
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

## BC372 BC373

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### How to reach us:

**USA/EUROPE:** Motorola Literature Distribution;  
P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447

**JAPAN:** Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, Toshikatsu Otsuki,  
6F Seibu-Butsuryu-Center, 3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-3521-8315

**MFAX:** RMFAX0@email.sps.mot.com – TOUCHTONE (602) 244-6609  
**INTERNET:** <http://Design-NET.com>

**HONG KONG:** Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,  
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

