

# LA733P, LA733Q

## Amplifier Transistors

### PNP Silicon



ON Semiconductor™

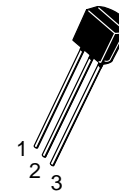
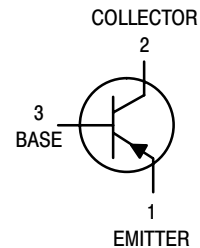
<http://onsemi.com>

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	-48	Vdc
Collector-Base Voltage	$V_{CBO}$	-60	Vdc
Emitter-Base Voltage	$V_{EBO}$	-5.0	Vdc
Collector Current – Continuous	$I_C$	-100	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.5 12	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

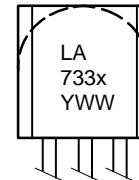
#### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C/W}$



TO-92  
CASE 29  
STYLE 14

#### MARKING DIAGRAMS



LA733x = Specific Device Code  
x = P or Q  
Y = Year  
WW = Work Week

#### ORDERING INFORMATION

Device	Package	Shipping
LA733P	TO-92	5000 Units/Box
LA733Q	TO-92	5000 Units/Box

# LA733P, LA733Q

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage (I <sub>C</sub> = –1.0 mA <sub>dc</sub> , I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	–48	–	–	V <sub>dc</sub>
Collector–Base Breakdown Voltage (I <sub>C</sub> = –10 μA <sub>dc</sub> , I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	–60	–	–	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>	–5.0	–	–	V <sub>dc</sub>
Collector–Base Leakage Current (V <sub>CB</sub> = –60 V)	I <sub>CBO</sub>	–	–	–100	nA <sub>dc</sub>
Emitter–Base Leakage Current (V <sub>EB</sub> = –5.0 V, I <sub>C</sub> = 0)	I <sub>EBO</sub>	–	–	–100	nA <sub>dc</sub>
Collector–Emitter Leakage Current (V <sub>CE</sub> = –50 V)	I <sub>CEO</sub>	–	–	–1.0	μA

## ON CHARACTERISTICS

DC Current Gain (I <sub>C</sub> = –1.0 mA <sub>dc</sub> , V <sub>CE</sub> = –6.0 V <sub>dc</sub> )	LA733P LA733Q	h <sub>FE</sub>	200 135	– –	400 270	–
Collector–Emitter Saturation Voltage (I <sub>C</sub> = –10 mA <sub>dc</sub> , I <sub>B</sub> = –1.0 mA <sub>dc</sub> )		V <sub>CE(sat)</sub>	–	–	–0.3	V <sub>dc</sub>
Base–Emitter Saturation Voltage (I <sub>C</sub> = –10 mA <sub>dc</sub> , I <sub>B</sub> = –1.0 mA <sub>dc</sub> )		V <sub>BE(sat)</sub>	–	–	–0.9	V <sub>dc</sub>
Base–Emitter On Voltage (I <sub>C</sub> = –1.0 mA <sub>dc</sub> , V <sub>CE</sub> = –6.0 V <sub>dc</sub> )		V <sub>BE(on)</sub>	–0.55	–	–0.68	V <sub>dc</sub>

## DYNAMIC CHARACTERISTICS

Current–Gain – Bandwidth Product (I <sub>C</sub> = –10 mA <sub>dc</sub> , V <sub>CE</sub> = –6.0 V <sub>dc</sub> , f = 20 MHz)		f <sub>T</sub>	100	–	450	MHz
Common–Base Output Capacitance (V <sub>CB</sub> = –60 V <sub>dc</sub> , I <sub>C</sub> = 0, f = 1.0 MHz)		C <sub>ob</sub>	–	–	7.0	pF
Noise Figure (I <sub>C</sub> = –0.3 mA <sub>dc</sub> , V <sub>CE</sub> = –6.0 V <sub>dc</sub> , R <sub>G</sub> = 10 kΩ, f = 100 MHz)		NF	–	–	18	dB

# LA733P, LA733Q

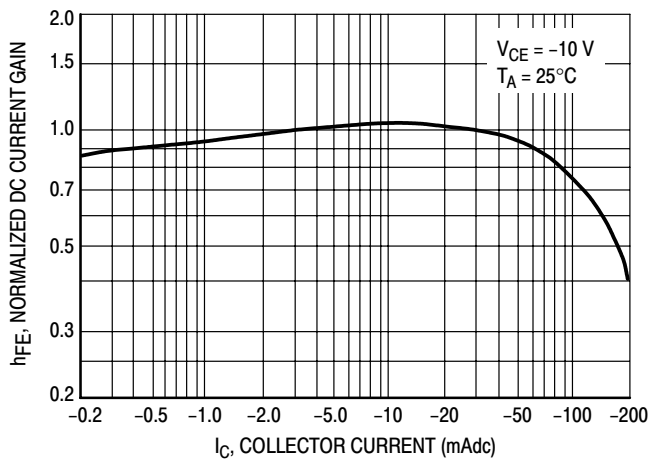


Figure 1. Normalized DC Current Gain

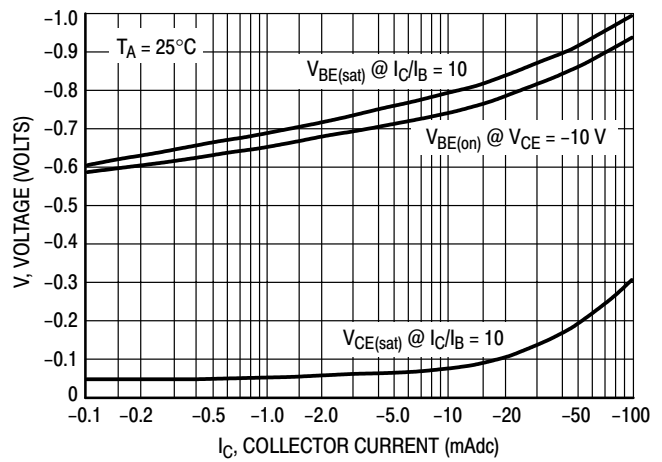


Figure 2. "Saturation" and "On" Voltages

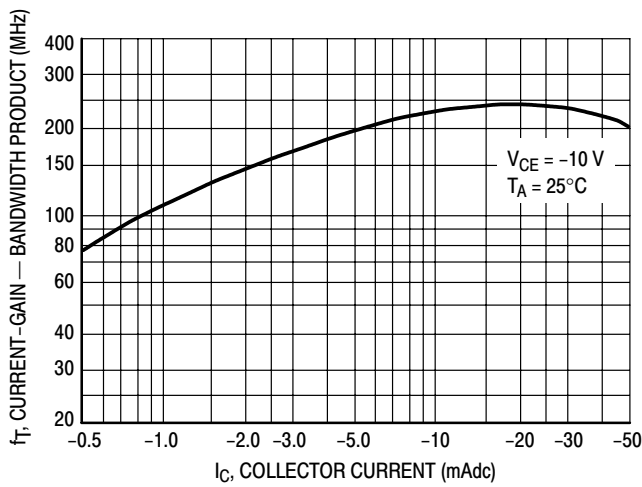


Figure 3. Current-Gain — Bandwidth Product

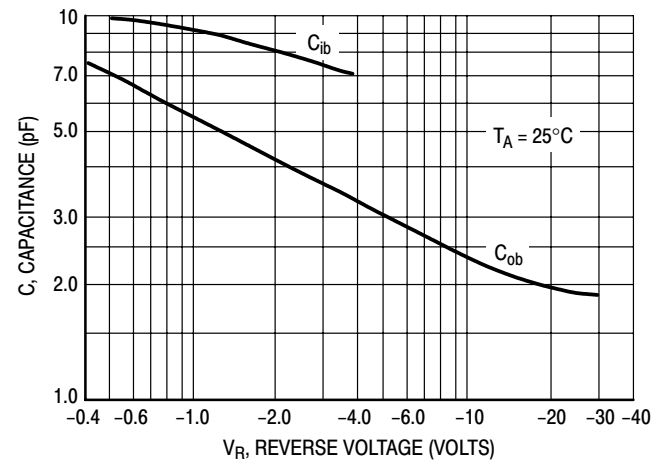


Figure 4. Capacitances

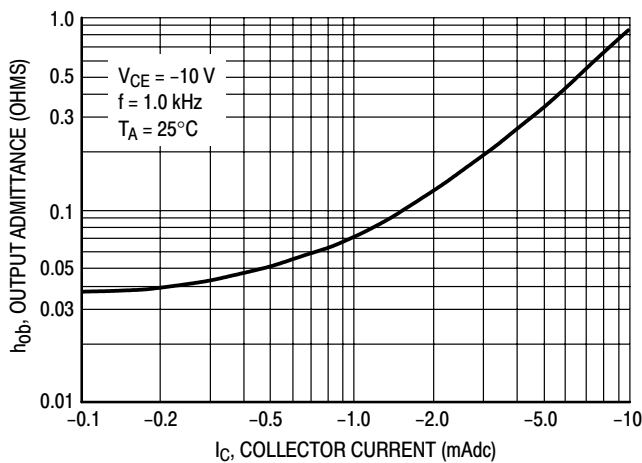


Figure 5. Output Admittance

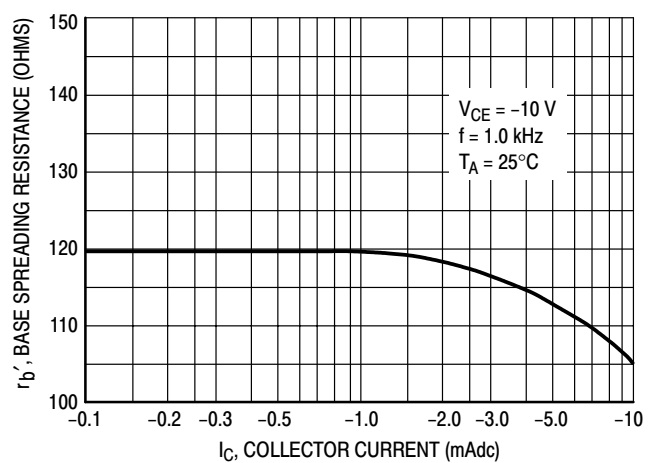
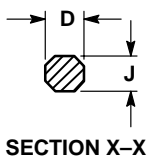
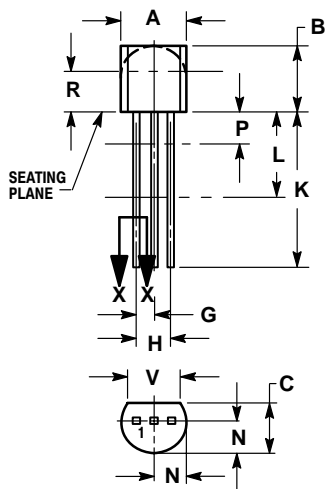


Figure 6. Base Spreading Resistance

# LA733P, LA733Q

## 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 14:

1. EMITTER
2. COLLECTOR
3. BASE

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