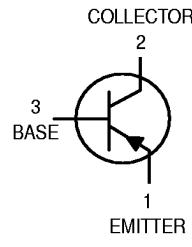


# Amplifier Transistors

## PNP Silicon

**LA733P**



CASE 29-11, STYLE 14  
TO-92 (TO-226AA)

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	-50	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 $25^\circ\text{C}$	$P_D$	350 2.8	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.0 8.0	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	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	$^\circ\text{C}/\text{W}$

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

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage ( $I_C = -1.0$ mAdc, $I_B = 0$ )	$V_{(BR)CEO}$	-50	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = -10$ $\mu$ Adc, $I_E = 0$ )	$V_{(BR)CBO}$	-60	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = -10$ $\mu$ Adc, $I_C = 0$ )	$V_{(BR)EBO}$	-5.0	—	Vdc
Collector-Emitter Leakage Current ( $V_{CB} = -60$ Vdc)	$I_{CBO}$	—	-100	nAdc
Emitter-Base Leakage Current ( $V_{EB} = -5.0$ Vdc, $I_C = 0$ )	$I_{EBO}$	—	-100	nAdc

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

Characteristic	Symbol	Min	Max	Unit
<b>ON CHARACTERISTICS</b>				
DC Current Gain ( $I_C = -1.0 \text{ mA}_\text{dc}$ , $V_{CE} = -6.0 \text{ V}_\text{dc}$ )	$h_{FE}$	200	400	—
Collector-Emitter Saturation Voltage ( $I_C = -10 \text{ mA}_\text{dc}$ , $I_B = -1.0 \text{ mA}_\text{dc}$ )	$V_{CE(\text{sat})}$	—	-0.3	$\text{V}_\text{dc}$
Base-Emitter Saturation Voltage ( $I_C = -10 \text{ mA}_\text{dc}$ , $I_B = -1.0 \text{ mA}_\text{dc}$ )	$V_{BE(\text{sat})}$	—	-0.9	$\text{V}_\text{dc}$
Base-Emitter On Voltage ( $I_C = -1.0 \text{ mA}_\text{dc}$ , $V_{CE} = -6.0 \text{ V}_\text{dc}$ )	$V_{BE(\text{on})}$	-0.55	-0.68	$\text{V}_\text{dc}$

**DYNAMIC CHARACTERISTICS**

Current-Gain — Bandwidth Product ( $I_C = -10 \text{ mA}_\text{dc}$ , $V_{CE} = -6.0 \text{ V}_\text{dc}$ , $f = 20 \text{ MHz}$ )	$f_T$	100	450	MHz
Common-Base Output Capacitance ( $V_{CB} = -60 \text{ V}_\text{dc}$ , $I_C = 0$ , $f = 1.0 \text{ MHz}$ )	$C_{ob}$	—	7.0	pF
Noise Figure ( $I_C = -0.3 \text{ mA}_\text{dc}$ , $V_{CE} = -6.0 \text{ V}_\text{dc}$ , $R_G = 10 \text{ k}\Omega$ , $f = 100 \text{ Hz}$ )	NF	—	18	dB
Small-Signal Current Gain ( $I_C = -2.0 \text{ mA}_\text{dc}$ , $V_{CE} = -5.0 \text{ V}_\text{dc}$ , $f = 1.0 \text{ kHz}$ )	$h_{fe}$	60	—	—

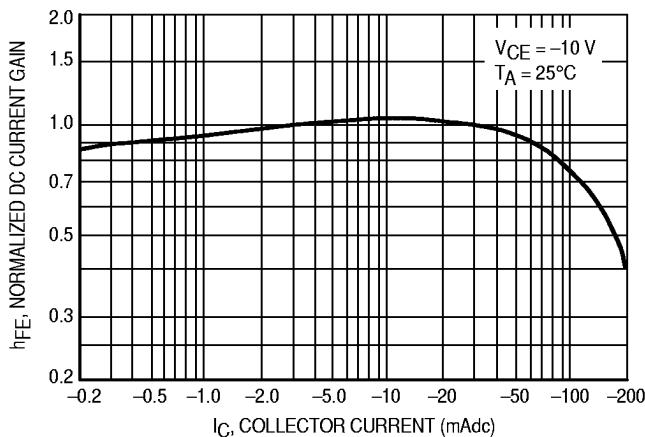


Figure 1. Normalized DC Current Gain

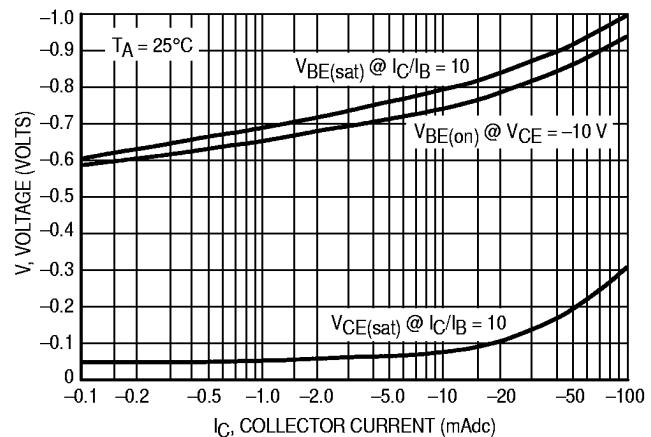


Figure 2. "Saturation" and "On" Voltages

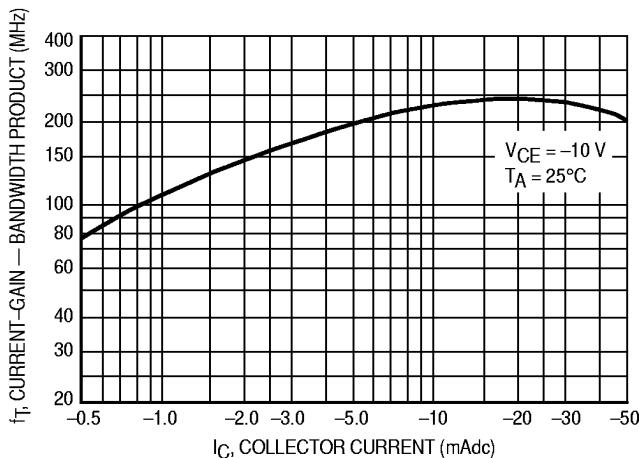


Figure 3. Current-Gain — Bandwidth Product

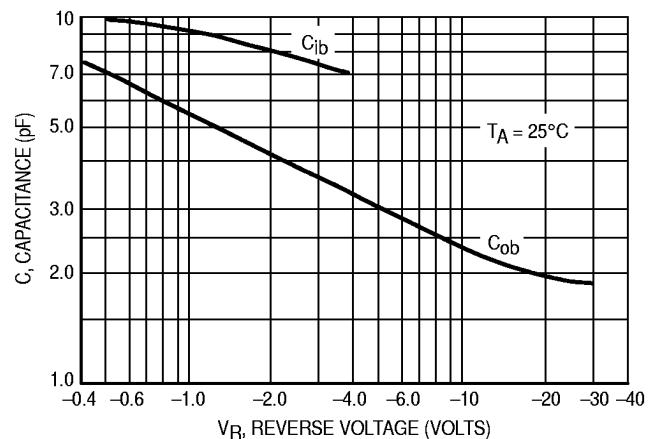


Figure 4. Capacitances

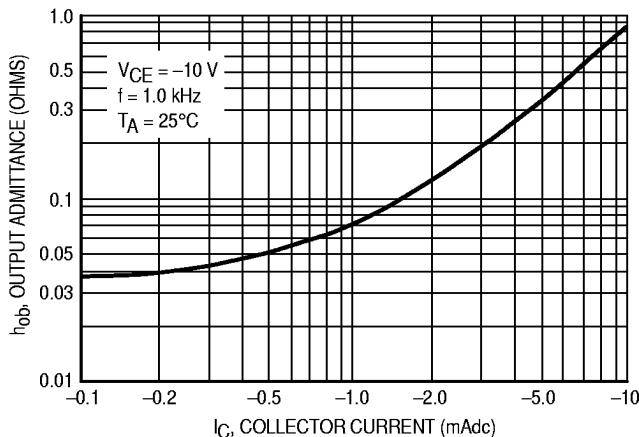


Figure 5. Output Admittance

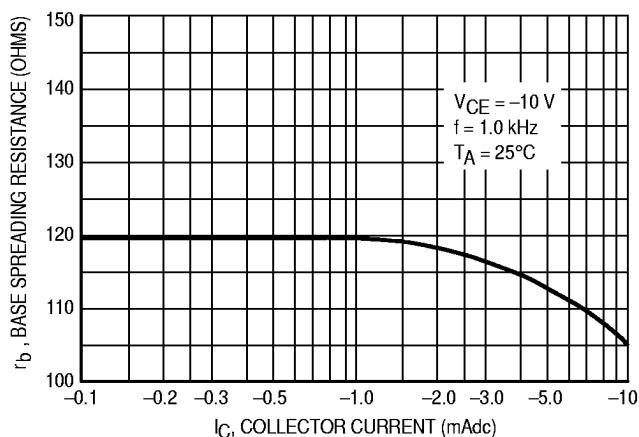
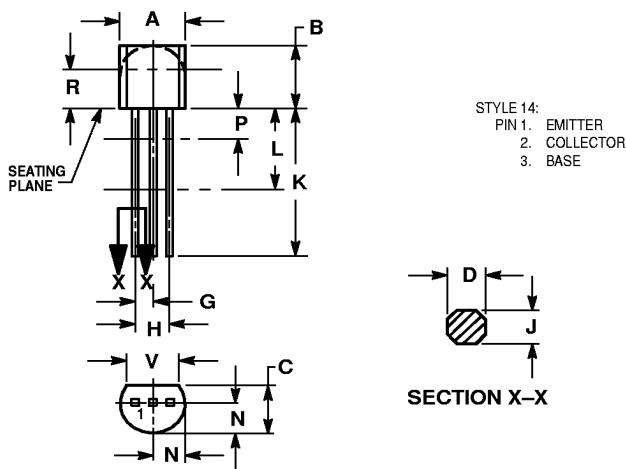


Figure 6. Base Spreading Resistance

## PACKAGE DIMENSIONS



## 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	—

CASE 029-11  
(TO-226AA)  
ISSUE AJ

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LA733P/D