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# 2SA733

## PNP General Purpose Amplifier

### Features

- This device is designed for general purpose amplifier applications at collector currents to 300 mA.
- Sourced from Process 68.



### Absolute Maximum Ratings\* $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	-60	V
$V_{CEO}$	Collector-Emitter Voltage	-50	V
$V_{EBO}$	Emitter-Base Voltage	-5.0	V
$I_C$	Collector current - Continuous	-500	mA
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 to +150	°C

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max	Units
$P_D$	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

**Electrical Characteristics**  $T_A=25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristics</b>						
$V_{CBO}$	Collector-Base Breakdown Voltage	$I_C = -10\mu\text{A}$ , $I_E = 0$	-60			V
$V_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = -1\text{mA}$ , $I_B = 0$	-50			V
$V_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = -10\mu\text{A}$ , $I_C = 0$	-5.0			V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = -60\text{V}$ , $I_E = 0$			-100	nA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = -5\text{V}$ , $I_C = 0$			-100	nA
<b>On Characteristics</b>						
$h_{FE}$	DC Current Gain	$V_{CE} = -6\text{V}$ , $I_C = -1\text{mA}$	90		600	
$V_{CE(\text{sat})}$	Collector-Emitter Saturation Voltage	$I_C = -100\text{mA}$ , $I_B = -10\text{mA}$	-15		-300	mV
$V_{BE(\text{on})}$	Base-Emitter On Voltage	$V_{CE} = -6\text{V}$ , $I_C = -1\text{mA}$	-580		-680	mV
<b>Small Signal Characteristics</b>						
$f_T$	Current Gain Bandwidth Product	$V_{CE} = -6\text{V}$ , $I_C = -10\text{mA}$	50			MHz
$C_{ob}$	Output Capacitance	$V_{CB} = -10\text{V}$ , $I_E = 0$ $f = 1.0\text{MHz}$			6	pF
NF	Noise Figure	$V_{CE} = -6\text{V}$ , $I_C = -0.3\text{mA}$ $R_G = 10\text{k}\Omega$ , $f = 100\text{Hz}$			20	dB

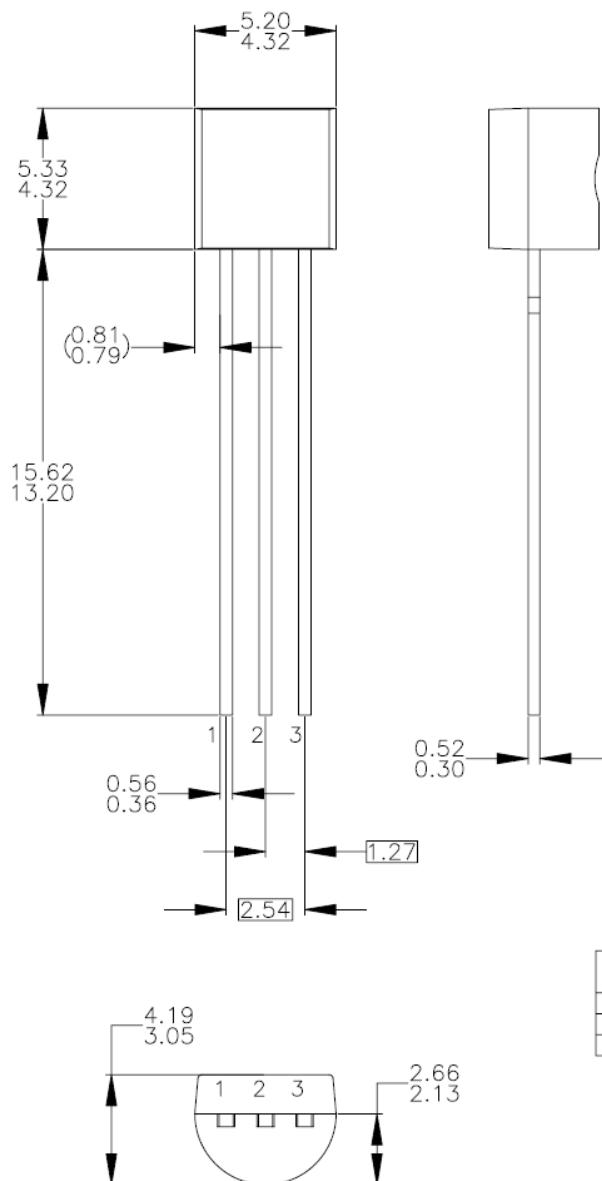
\* Pulse Test: Pulse Width  $\leq 300\ \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

 **$h_{FE}$  Classification**

Classification	R	Q	P	K
$h_{FE}$	90 ~ 180	135 ~ 270	200 ~ 400	300 ~ 600

## Physical Dimension

TO-92



NOTES: UNLESS OTHERWISE SPECIFIED

- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DRAWING CONFORMS TO ASME Y14.5M-1994.
- D) TO-92 (92,94,96,97,98) PIN CONFIGURATION:

Nbr	92			94			96			97			98		
	P	F	M	P	F	M	P	F	M	P	F	M	P	F	M
1	E	S	S	E	S	S	B	D	G	C	G	D	C	G	D
2	B	D	G	C	G	D	E	S	S	B	D	G	E	S	S
3	C	G	D	B	D	G	C	G	D	E	S	S	B	D	G

## LEGEND:

P — BIPOLAR      E — Emitter      D — Drain  
 F — JFET      B — Base      S — Source  
 M — DMOS      C — Collector      G — Gate

- E) FOR PACKAGE 92, 94, 96, 97 AND 98:  
 PIN CONFIGURATION DRAIN "D" AND SOURCE "S"  
 ARE INTERCHANGEABLE AT JFET "F" OPTION.
- F) DRAWING FILENAME: MKT-ZA03DREV3.

Dimensions in Millimeters



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No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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