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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

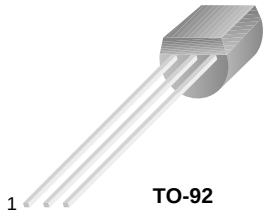
FAIRCHILD SEMICONDUCTOR®

September 2009

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.



TO-92

1. Emitter 2. Collector 3.Base

Absolute Maximum Ratings* T_A=25°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°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°C unless otherwise noted

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

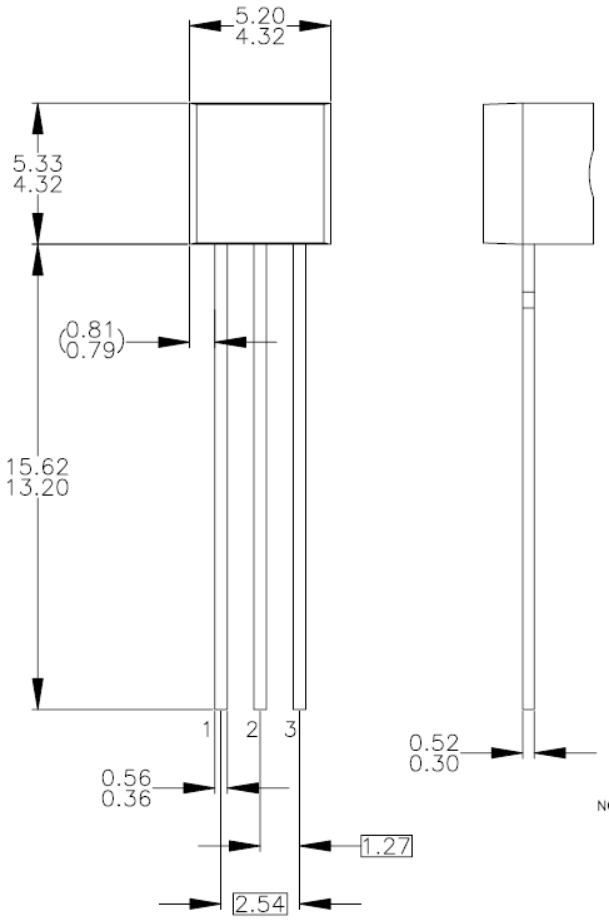
***** Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%

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:

PIN	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
F – JFET
M – DMOS
E – EMITTER
B – BASE
C – COLLECTOR
D – DRAIN
S – SOURCE
G – GATE

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

Dimensions in Millimeters

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Datasheet Identification	Product Status	Definition
Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
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.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

Rev. I41

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