

PNP General-Purpose Transistor

PN2907

Description

This device is designed for use with general-purpose amplifiers and switches requiring collector currents to 500 mA.

These devices are Pb-Free, Halogen Free/BFR Free, Beryllium Free and are RoHS compliant.

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Note 1, 2)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{CBO}	Collector-Base Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-5.0	V
I_C	Collector Current – Continuous	-800	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

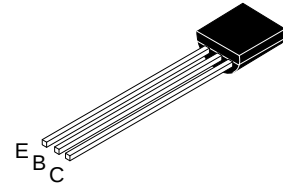
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

- These ratings are based on a maximum junction temperature of 150°C .
- These are steady-state limits. **onsemi** should be consulted on applications involving pulsed or low-duty cycle operations.

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

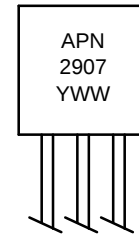
Symbol	Parameter	Max (Note 3)	Unit
P_D	Total Device Dissipation	625	mW
	Derate Above 25°C	5.0	mW/ $^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	$^\circ\text{C}/\text{W}$

- PCB size: FR-4 $76 \times 114 \times 1.57 \text{ mm}^3$ (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.



TO-92 3 4.825x4.76
CASE 135AN

MARKING DIAGRAM



PN2907 = Specific Device Code
A = Assembly Site
Y = Year of Production
WW = Work Week Number

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

PN2907

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

Symbol	Parameter	Conditions	Min	Max	Unit
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OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (Note 4)	$I_C = -10\text{ mA}, I_B = 0$	-40	-	V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = -10\text{ }\mu\text{A}, I_E = 0$	-60	-	V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = -10\text{ }\mu\text{A}, I_C = 0$	-5.0	-	V
I_{CEX}	Collector Cut-Off Current	$V_{CE} = -30\text{ V}, V_{EB} = -0.5\text{ V}$	-	-50	nA
I_{BL}	Base Cut-Off Current	$V_{CE} = -30\text{ V}, V_{EB} = -0.5\text{ V}$	-	-50	nA
I_{CBO}	Collector Cut-Off Current	$V_{CB} = -50\text{ V}, I_E = 0$	-	-20	nA
		$V_{CB} = -50\text{ V}, I_E = 0, T_A = 150^\circ\text{C}$	-	-20	μA

ON CHARACTERISTICS (Note 4)

h_{FE}	DC Current Gain	$V_{CE} = -10\text{ V}, I_C = -0.1\text{ mA}$	35	-	
		$V_{CE} = -10\text{ V}, I_C = -1.0\text{ mA}$	50	-	
		$V_{CE} = -10\text{ V}, I_C = -10\text{ mA}$	70	-	
		$V_{CE} = -10\text{ V}, I_C = -150\text{ mA}$	100	300	
		$V_{CE} = -10\text{ V}, I_C = -500\text{ mA}$	30	-	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -150\text{ mA}, I_B = -15\text{ mA}$	-	-0.4	V
		$I_C = -500\text{ mA}, I_B = -50\text{ mA}$	-	-1.6	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -150\text{ mA}, I_B = -15\text{ mA}$	-	-1.3	V
		$I_C = -500\text{ mA}, I_B = -50\text{ mA}$	-	-2.6	

SMALL SIGNAL CHARACTERISTICS

C_{ob}	Output Capacitance	$V_{CB} = -10\text{ V}, f = 1.0\text{ MHz}$	-	8	pF
C_{ib}	Input Capacitance	$V_{EB} = -2.0\text{ V}, f = 1.0\text{ MHz}$	-	30	pF
h_{fe}	Small-Signal Current Gain	$I_C = -50\text{ mA}, V_{CE} = -20\text{ V}, f = 100\text{ MHz}$	2	-	

SWITCHING CHARACTERISTICS

t_{on}	Turn-On Time	$V_{CC} = -30\text{ V}, I_C = -150\text{ mA}, I_{B1} = -15\text{ mA}$	-	45	ns
t_d	Delay Time		-	10	ns
t_r	Rise Time		-	40	ns
t_{off}	Turn-Off Time	$V_{CC} = -6.0\text{ V}, I_C = -150\text{ mA}, I_{B1} = I_{B2} = -15\text{ mA}$	-	100	ns
t_s	Storage Time		-	80	ns
t_f	Fall Time		-	30	ns

4. Pulse test: pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2.0\%$.

ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping
PN2907BU	PN2907	TO-92 3 4.825x4.76 (Pb-Free)	10000 Units / Bulk

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MECHANICAL CASE OUTLINE

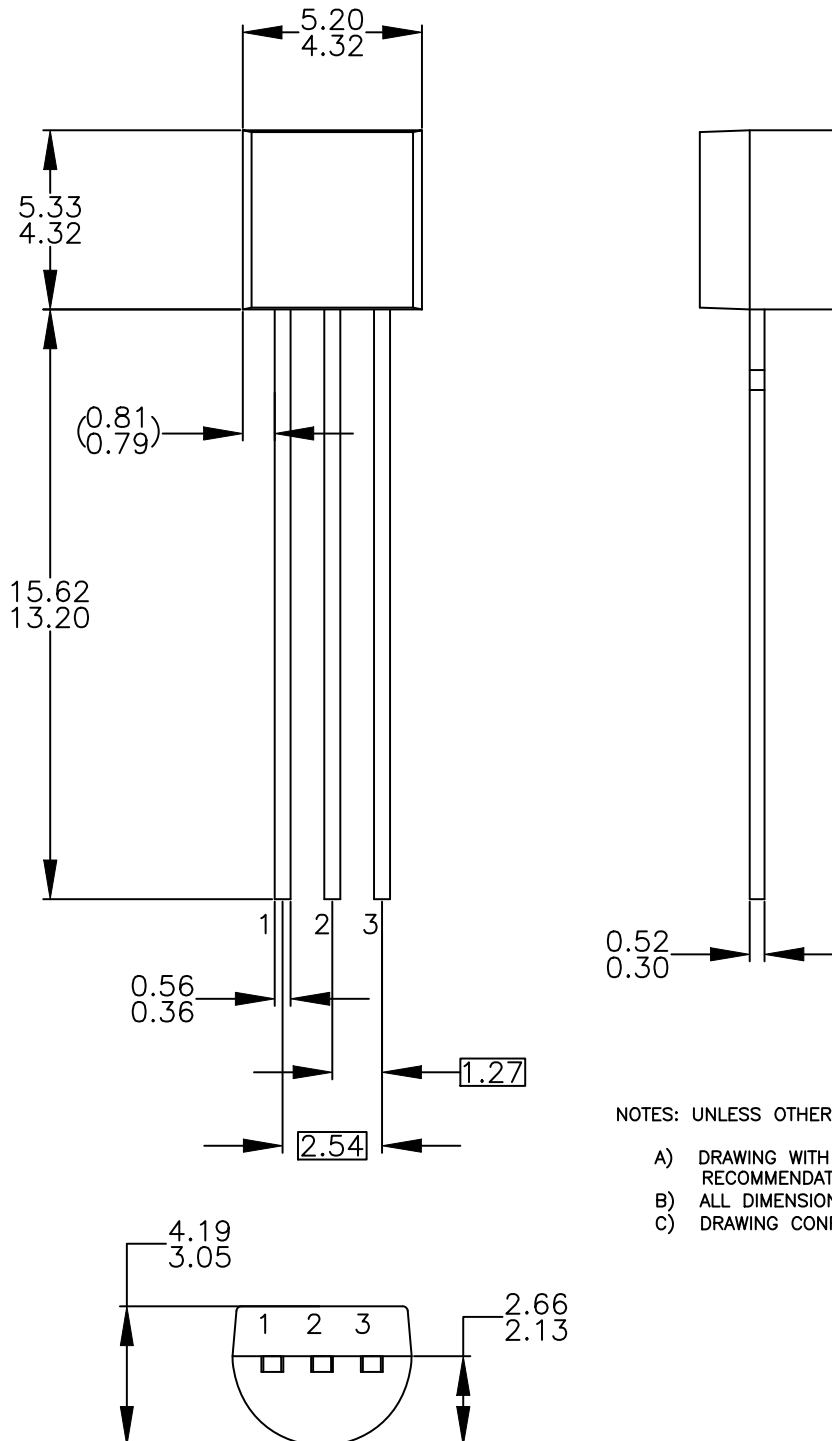
PACKAGE DIMENSIONS

ON Semiconductor®

ON

TO-92 3 4.825x4.76
CASE 135AN
ISSUE O

DATE 31 JUL 2016



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-2009.

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