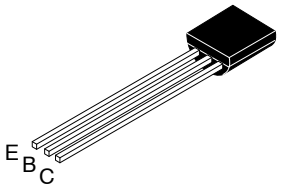
PNP General-Purpose Transistor

PN2907



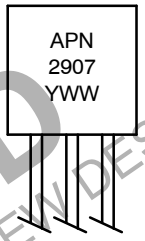
TO−92 3 4.825x4.76
CASE 135AN

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.

MARKING DIAGRAM



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

ABSOLUTE MAXIMUM RATINGS (T_A = 25°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	°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.

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

THERMAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Max (Note 3)	Unit
P_D	Total Device Dissipation	625	mW
	Derate Above 25°C	5.0	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

3. PCB size: FR−4 76 x 114 x 1.57 mm^3 (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

ORDERING INFORMATION

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

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Max	Unit
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector−Emitter Breakdown Voltage (Note 4)	I_C = −10 mA, I_B = 0	−40	–	V
$V_{(BR)CBO}$	Collector−Base Breakdown Voltage	I_C = −10 μA, I_E = 0	−60	–	V
$V_{(BR)EBO}$	Emitter−Base Breakdown Voltage	I_E = −10 μA, I_C = 0	−5.0	–	V
I_{CEX}	Collector Cut−Off Current	V_{CE} = −30 V, V_{EB} = −0.5 V	–	−50	nA
I_{BL}	Base Cut−Off Current	V_{CE} = −30 V, V_{EB} = −0.5 V	–	−50	nA
I_{CBO}	Collector Cut−Off Current	V_{CB} = −50 V, I_E = 0	–	−20	nA
		V_{CB} = −50 V, I_E = 0, T_A = 150°C	–	−20	μA
ON CHARACTERISTICS (Note 4)					
h_{FE}	DC Current Gain	V_{CE} = −10 V, I_C = −0.1 mA	35	–	
		V_{CE} = −10 V, I_C = −1.0 mA	50	–	
		V_{CE} = −10 V, I_C = −10 mA	70		
		V_{CE} = −10 V, I_C = −150 mA	100	300	
		V_{CE} = −10 V, I_C = −500 mA	30	–	
V_{CE}(sat)	Collector−Emitter Saturation Voltage	I_C = −150 mA, I_B = −15 mA	–	−0.4	V
		I_C = −500 mA, I_B = −50 mA	–	−1.6	
V_{BE}(sat)	Base−Emitter Saturation Voltage	I_C = −150 mA, I_B = −15 mA	–	−1.3	V
		I_C = −500 mA, I_B = −50 mA	–	−2.6	
SMALL SIGNAL CHARACTERISTICS					
C_{ob}	Output Capacitance	V_{CB} = −10 V, f = 1.0 MHz	–	8	pF
C_{ib}	Input Capacitance	V_{EB} = −2.0 V, f = 1.0 MHz	–	30	pF
h_{fe}	Small−Signal Current Gain	I_C = −50 mA, V_{CE} = −20 V, f = 100 MHz	2	–	
SWITCHING CHARACTERISTICS					
t_{on}	Turn−On Time	V_{CC} = −30 V, I_C = −150 mA, I_{B1} = −15 mA	–	45	ns
t_d	Delay Time		–	10	ns
t_r	Rise Time		–	40	ns
t_{off}	Turn−Off Time	V_{CC} = −6.0 V, I_C = −150 mA, I_{B1} = I_{B2} = −15 mA	–	100	ns
t_s	Storage Time		–	80	ns
t_f	Fall Time		–	30	ns

4. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2.0%.

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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.

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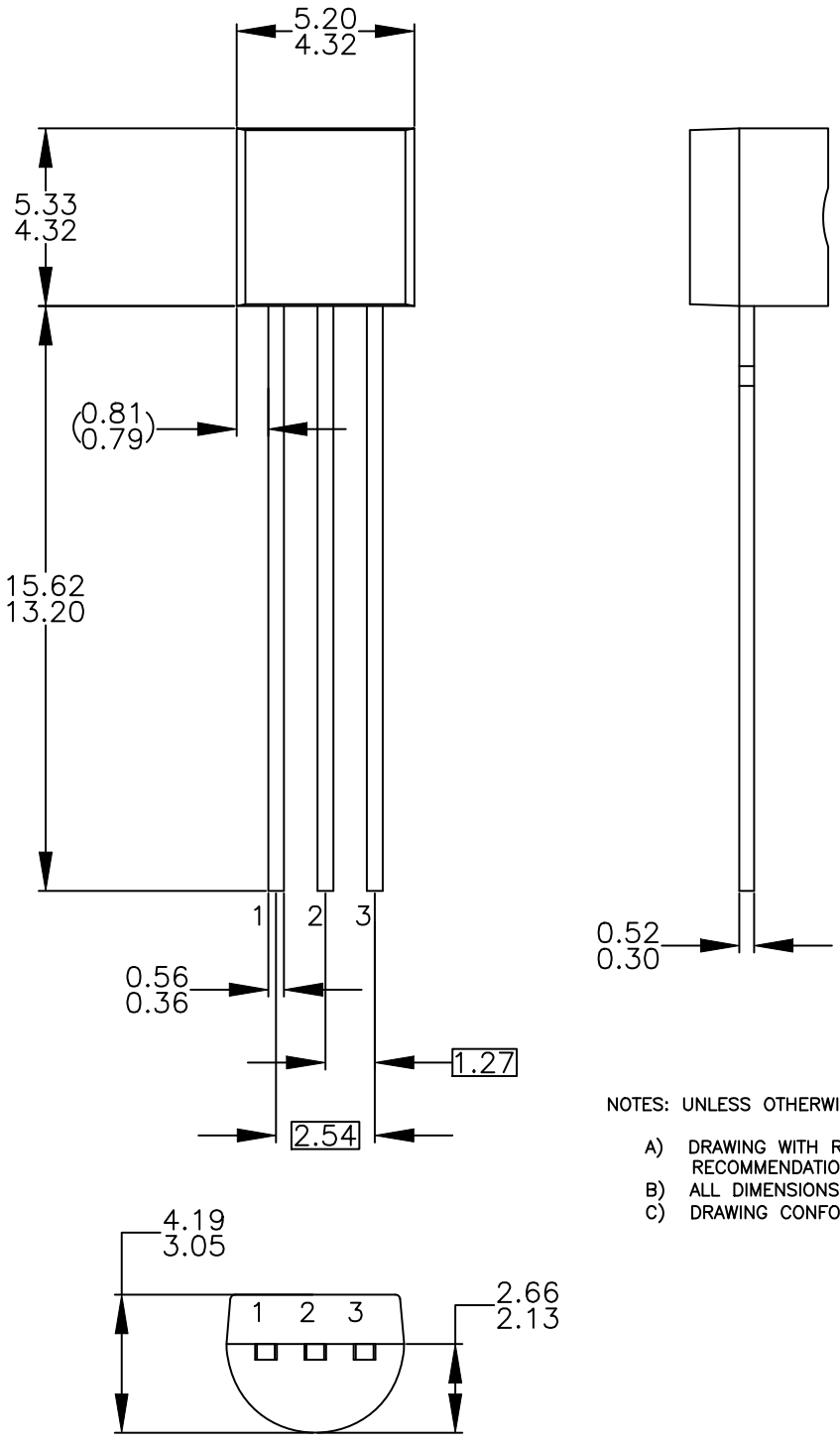
DATE 31 JUL 2016



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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