2N4921, 2N4922, 2N4923

2N4923 is a Preferred Device

Medium-Power Plastic NPN Silicon Transistors

These high-performance plastic devices are designed for driver circuits, switching, and amplifier applications.

Features

- Low Saturation Voltage $V_{CE(sat)} = 0.6 \text{ Vdc (Max)} @ I_C = 1.0 \text{ A}$
- Excellent Power Dissipation Due to Thermopad Construction $P_D = 30 \text{ W } @ T_C = 25 ^{\circ}\text{C}$
- Excellent Safe Operating Area
- Gain Specified to $I_C = 1.0 A$
- Complement to PNP 2N4918, 2N4919, 2N4920
- Pb-Free Packages are Available*

MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Collector–Emitter Voltage	2N4921 2N4922 2N4923	V _{CEO}	40 60 80	Vdc
Collector–Emitter Voltage 2N4921 2N4922 2N4923		V _{CB}	40 60 80	Vdc
Emitter Base Voltage		V _{EB}	5.0	Vdc
Collector Current - Continuous	I _C	1.0 3.0	Adc	
Base Current – Continuous	Ι _Β	1.0	Adc	
Total Power Dissipation @ T _C = 25°C Derate above 25°C		P _D	30 0.24	W mW/°C
Operating and Storage Junction Temperature Range		T _J , T _{stg}	-65 to +150	°C

THERMAL CHARACTERISTICS (Note 2)

Characteristic		Symbol	Max	Unit
ſ	Thermal Resistance, Junction-to-Case	θ_{JC}	4.16	°C/W

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

- The 1.0 A maximum I_C value is based upon JEDEC current gain requirements. The 3.0 A maximum value is based upon actual current handling capability of the device (see Figures 5 and 6).
- 2. Recommend use of thermal compound for lowest thermal resistance.

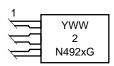


ON Semiconductor®

1.0 AMPERE GENERAL PURPOSE POWER TRANSISTORS 40-80 VOLTS, 30 WATTS



MARKING DIAGRAM



ORDERING INFORMATION

Device	Package	Shipping			
2N4921	TO-225	500 Units / Box			
2N4921G	TO-225 (Pb-Free)	500 Units / Box			
2N4922	TO-225	500 Units / Box			
2N4922G	TO-225 (Pb-Free)	500 Units / Box			
2N4923	TO-225	500 Units / Box			
2N4923G	TO-225 (Pb-Free)	500 Units / Box			

Preferred devices are recommended choices for future use and best overall value.

^{*}Indicates JEDEC Registered Data.

^{*}For additional information on our Pb–Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

2N4921, 2N4922, 2N4923

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS	<u>.</u>				
Collector–Emitter Sustaining Voltage (Note 3) $(I_C = 0.1 \text{ Adc}, I_B = 0)$	2N4921 2N4922 2N4923	V _{CEO(sus)}	40 60 80	- - -	Vdc
Collector Cutoff Current	2N4921 2N4922 2N4923	ICEO	- - -	0.5 0.5 0.5	mAdc
Collector Cutoff Current $(V_{CE} = Rated \ V_{CEO}, \ V_{EB(off)} = 1.5 \ Vdc)$ $(V_{CE} = Rated \ V_{CEO}, \ V_{EB(off)} = 1.5 \ Vdc, \ T_C = 125^{\circ}C$		I _{CEX}	_ _	0.1 0.5	mAdc
Collector Cutoff Current $(V_{CB} = Rated V_{CB}, I_E = 0)$		I _{CBO}	-	0.1	mAdc
Emitter Cutoff Current (V _{EB} = 5.0 Vdc, I _C = 0)		I _{EBO}	-	1.0	mAdc
ON CHARACTERISTICS	<u>.</u>				
DC Current Gain (Note 3) $ \begin{aligned} &(I_C=50 \text{ mAdc, } V_{CE}=1.0 \text{ Vdc)} \\ &(I_C=500 \text{ mAdc, } V_{CE}=1.0 \text{ Vdc)} \\ &(I_C=1.0 \text{ Adc, } V_{CE}=1.0 \text{ Vdc)} \end{aligned} $		h _{FE}	40 30 10	- 150 -	_
Collector–Emitter Saturation Voltage (Note 3) (I _C = 1.0 Adc, I _B = 0.1 Adc)		V _{CE(sat)}	-	0.6	Vdc
Base–Emitter Saturation Voltage (Note 3) (I _C = 1.0 Adc, I _B = 0.1 Adc)		V _{BE(sat)}	-	1.3	Vdc
Base–Emitter On Voltage (Note 3) (I _C = 1.0 Adc, V _{CE} = 1.0 Vdc)		V _{BE(on)}	-	1.3	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain - Bandwidth Product ($I_C = 250 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ MHz}$)		f _T	3.0	_	MHz
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 100 kHz)		C _{ob}	-	100	pF
Small–Signal Current Gain ($I_C = 250$ mAdc, $V_{CE} = 10$ Vdc, $f = 1.0$ kHz)		h _{fe}	25	-	_

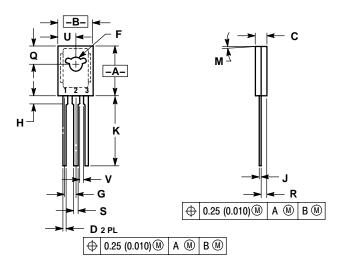
^{3.} Pulse Test: PW ≈ 300 μs, Duty Cycle ≈ 2.0%.

^{*}Indicates JEDEC Registered Data.

2N4921, 2N4922, 2N4923

PACKAGE DIMENSIONS

TO-225 CASE 77-09 ISSUE Z



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. 077-01 THRU -08 OBSOLETE, NEW STANDARD 077-09.

	INC	HES	MILLIMETERS		
DIM	MIN	MAX	MIN	MAX	
Α	0.425	0.435	10.80	11.04	
В	0.295	0.305	7.50	7.74	
С	0.095	0.105	2.42	2.66	
D	0.020	0.026	0.51	0.66	
F	0.115	0.130	2.93	3.30	
G	0.094 BSC		2.39 BSC		
Н	0.050	0.095	1.27	2.41	
J	0.015	0.025	0.39	0.63	
K	0.575	0.655	14.61	16.63	
M	5° TYP		5° TYP		
Q	0.148	0.158	3.76	4.01	
R	0.045	0.065	1.15	1.65	
S	0.025	0.035	0.64	0.88	
U	0.145	0.155	3.69	3.93	
٧	0.040		1.02		

- STYLE 1:
 PIN 1. EMITTER
 2. COLLECTOR
 3. BASE