

**NPN - 2N6515, 2N6517;
 PNP - 2N6520**

High Voltage Transistors

NPN and PNP

Features

- Voltage and Current are Negative for PNP Transistors
- These are Pb-Free Devices*

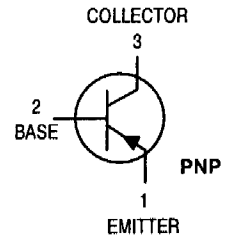
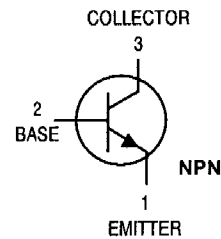
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage 2N6515 2N6517, 2N6520	V_{CEO}	250 350	Vdc
Collector - Base Voltage 2N6515 2N6517, 2N6520	V_{CBO}	250 350	Vdc
Emitter - Base Voltage 2N6515, 2N6517 2N6520	V_{EBO}	6.0 5.0	Vdc
Base Current	I_B	250	mAdc
Collector Current - Continuous	I_C	500	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

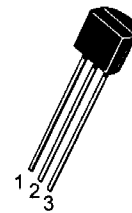
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

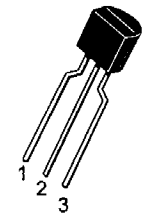
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



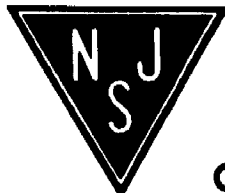
TO-92
 CASE 29
 STYLE 1



STRAIGHT LEAD
 BULK PACK



BENT LEAD
 TAPE & REEL
 AMMO PACK



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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (Note 1) ($I_C = 1.0 \text{ mAdc}$, $I_B = 0$)	2N6515 2N6517, 2N6520 $V_{(BR)CEO}$	250 350	- -	Vdc
Collector-Base Breakdown Voltage ($I_C = 100 \mu\text{Adc}$, $I_E = 0$)	2N6515 2N6517, 2N6520 $V_{(BR)CBO}$	250 350	- -	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10 \mu\text{Adc}$, $I_C = 0$)	2N6515, 2N6517 2N6520 $V_{(BR)EBO}$	6.0 5.0	- -	Vdc
Collector Cutoff Current ($V_{CB} = 150 \text{ Vdc}$, $I_E = 0$) ($V_{CB} = 250 \text{ Vdc}$, $I_E = 0$)	2N6515 2N6517, 2N6520 I_{CBO}	- -	50 50	nAdc
Emitter Cutoff Current ($V_{EB} = 5.0 \text{ Vdc}$, $I_C = 0$) ($V_{EB} = 4.0 \text{ Vdc}$, $I_C = 0$)	2N6515, 2N6517 2N6520 I_{EBO}	- -	50 50	nAdc

ON CHARACTERISTICS (Note 1)

DC Current Gain ($I_C = 1.0 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	2N6515 2N6517, 2N6520 h_{FE}	35 20	- -	-
($I_C = 10 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	2N6515 2N6517, 2N6520	50 30	- -	
($I_C = 30 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	2N6515 2N6517, 2N6520	50 30	300 200	
($I_C = 50 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	2N6515 2N6517, 2N6520	45 20	220 200	
($I_C = 100 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	2N6515 2N6517, 2N6520	25 15	- -	
Collector-Emitter Saturation Voltage ($I_C = 10 \text{ mAdc}$, $I_B = 1.0 \text{ mAdc}$) ($I_C = 20 \text{ mAdc}$, $I_B = 2.0 \text{ mAdc}$) ($I_C = 30 \text{ mAdc}$, $I_B = 3.0 \text{ mAdc}$) ($I_C = 50 \text{ mAdc}$, $I_B = 5.0 \text{ mAdc}$)	$V_{CE(sat)}$	- - - -	0.30 0.35 0.50 1.0	Vdc
Base-Emitter Saturation Voltage ($I_C = 10 \text{ mAdc}$, $I_B = 1.0 \text{ mAdc}$) ($I_C = 20 \text{ mAdc}$, $I_B = 2.0 \text{ mAdc}$) ($I_C = 30 \text{ mAdc}$, $I_B = 3.0 \text{ mAdc}$)	$V_{BE(sat)}$	- - -	0.75 0.85 0.90	Vdc
Base-Emitter On Voltage ($I_C = 100 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	$V_{BE(on)}$	-	2.0	Vdc

SMALL-SIGNAL CHARACTERISTICS

Current-Gain - Bandwidth Product (Note 1) ($I_C = 10 \text{ mAdc}$, $V_{CE} = 20 \text{ Vdc}$, $f = 20 \text{ MHz}$)	f_T	40	200	MHz
Collector-Base Capacitance ($V_{CB} = 20 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$)	C_{cb}	-	6.0	pF
Emitter-Base Capacitance ($V_{EB} = 0.5 \text{ Vdc}$, $I_C = 0$, $f = 1.0 \text{ MHz}$)	2N6515, 2N6517 2N6520 C_{eb}	- -	80 100	pF

SWITCHING CHARACTERISTICS

Turn-On Time ($V_{CC} = 100 \text{ Vdc}$, $V_{BE(off)} = 2.0 \text{ Vdc}$, $I_C = 50 \text{ mAdc}$, $I_{B1} = 10 \text{ mAdc}$)	t_{on}	-	200	μs
Turn-Off Time ($V_{CC} = 100 \text{ Vdc}$, $I_C = 50 \text{ mAdc}$, $I_{B1} = I_{B2} = 10 \text{ mAdc}$)	t_{off}	-	3.5	μs

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