

**2N6211**  
**2N6212**  
**2N6213**

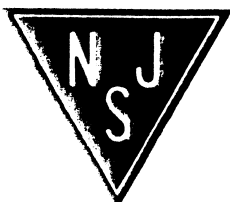
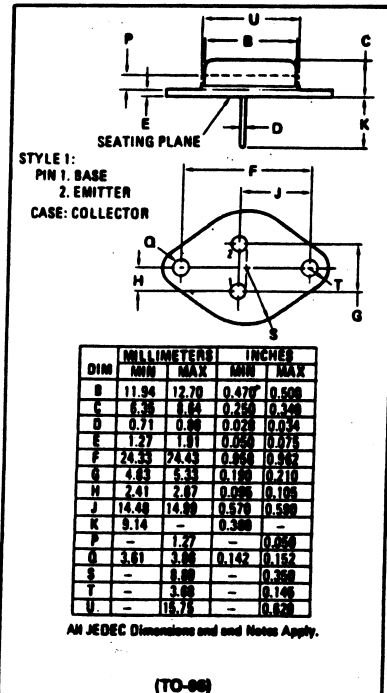
**MEDIUM-POWER HIGH-VOLTAGE  
 PNP POWER TRANSISTORS**

... designed for high-speed switching and linear amplifier applications for high-voltage operational amplifiers, switching regulators, converters, inverters, deflection stages and high fidelity amplifiers.

- Collector-Emitter Sustaining Voltage –  
 $V_{CE(sus)} = 225 \text{ to } 350 \text{ Vdc} @ I_C = 200 \text{ mAdc}$
- Second Breakdown Collector Current –  
 $I_{s/b} = 875 \text{ mAdc} @ V_{CE} = 40 \text{ Vdc}$
- $t_f = 0.6 \mu\text{s}$  Resistive Fall Time
- Usable DC Current Gain to 2.0 Adc

**2 AMPERE**  
**POWER TRANSISTORS**  
**PNP SILICON**  
**225-350 VOLTS**  
**36 WATTS**

*MAXIMUM RATINGS					
Rating	Symbol	2N6211	2N6212	2N6213	Unit
Collector-Emitter Voltage	$V_{CEO}$	225	300	350	Vdc
Collector-Base Voltage	$V_{CB}$	275	350	400	Vdc
Emitter-Base Voltage	$V_{EB}$	← 5 →			Vdc
Collector Current – Continuous	$I_C$	← 2 →			A dc
Peak		← 5 →			
Base Current	$I_B$	← 1 →			A dc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$	$P_D$	← 35 →			Watts
Derate above $25^\circ\text{C}$		← 0.2 →			W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200			$^\circ\text{C}$
THERMAL CHARACTERISTICS					
Characteristic	Symbol	Max	Unit		
Thermal Resistance, Junction to Case	$\theta_{JC}$	5.0	$^\circ\text{C/W}$		



## 2N6211, 2N6212, 2N6213

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

Characteristic	Symbol	Min	Max	Unit	
<b>OFF CHARACTERISTICS</b>					
*Collector-Emitter Sustaining Voltage (1) ( $I_C = 200 \text{ mAdc}$ , $I_B = 0$ )	2N6211 2N6212 2N6213	$V_{CE0(sus)}$	225 300 350	— — —	Vdc
*Collector-Emitter Sustaining Voltage ( $I_C = 200 \text{ mA}$ , $V_{BE} = -1.5 \text{ V}$ , $L = 10 \text{ mH}$ )	2N6211 2N6212 2N6213	$V_{CEX(sus)}$	275 350 400	— — —	Vdc
*Collector-Emitter Sustaining Voltage (1) ( $I_C = 200 \text{ mA}$ , $I_B = 0$ , $R_{BE} = 50 \Omega$ )	2N6211 2N6212 2N6213	$V_{CER(sus)}$	250 325 375	— — —	Vdc
*Emitter-Base Breakdown Voltage (1) ( $I_E = 0.5 \text{ mAdc}$ , $I_C = 0$ ) ( $I_E = 1.0 \text{ mAdc}$ , $I_C = 0$ )	2N6212/13 2N6211	$V_{EBO}$	6.0 6.0	— —	Vdc
*Collector Cutoff Current ( $V_{CE} = 250 \text{ Vdc}$ , $V_{BE(off)} = 1.5 \text{ Vdc}$ , $T_C = 25^\circ\text{C}$ ) ( $T_C = 100^\circ\text{C}$ ) ( $V_{CE} = 315 \text{ Vdc}$ , $V_{BE(off)} = 1.5 \text{ Vdc}$ , $T_C = 25^\circ\text{C}$ ) ( $T_C = 100^\circ\text{C}$ ) ( $V_{CE} = 360 \text{ Vdc}$ , $V_{BE(off)} = 1.5 \text{ Vdc}$ , $T_C = 25^\circ\text{C}$ ) ( $T_C = 100^\circ\text{C}$ )		$I_{CEV}$	— — — — —	0.5 5.0 0.5 5.0 0.5 5.0	mA <sub>dc</sub>
Collector Cutoff Current ( $V_{CE} = 150 \text{ Vdc}$ , $I_B = 0$ )	All Types	$I_{CEO}$	—	5.0	mA <sub>dc</sub>
*Emitter Cutoff Current ( $V_{EB} = 6.0 \text{ Vdc}$ , $I_C = 0$ )	2N6211 2N6212 2N6213	$I_{EBO}$	— — —	1.0 0.5 0.5	mA <sub>dc</sub>
<b>*ON CHARACTERISTICS (1)</b>					
DC Current Gain ( $I_C = 1.0 \text{ Adc}$ , $V_{CE} = 2.8 \text{ Vdc}$ ) ( $I_C = 1.0 \text{ Adc}$ , $V_{CE} = 3.2 \text{ Vdc}$ ) ( $I_C = 1.0 \text{ Adc}$ , $V_{CE} = 4.0 \text{ Vdc}$ )	2N6211 2N6212 2N6213	$h_{FE}$	10 10 10	100 100 100	—
Collector-Emitter Saturation Voltage ( $I_C = 1.0 \text{ Adc}$ , $I_B = 125 \text{ mAdc}$ )	2N6211 2N6212 2N6213	$V_{CE(sat)}$	— — —	1.4 1.6 2.0	Vdc
Base-Emitter Saturation Voltage ( $I_C = 1.0 \text{ Adc}$ , $I_B = 125 \text{ mAdc}$ )	All Types	$V_{BE(sat)}$	—	1.4	Vdc
<b>DYNAMIC CHARACTERISTICS</b>					
*Current Gain-Bandwidth Product (2) ( $I_C = 200 \text{ mAdc}$ , $V_{CE} = 10 \text{ Vdc}$ , $f_{rest} = 5.0 \text{ MHz}$ )		$f_T$	20	—	MHz
Output Capacitance ( $V_{CB} = 10 \text{ Vdc}$ , $I_E = 0$ , $f = 1.0 \text{ MHz}$ )		$C_{ob}$	—	220	pF
<b>*SECOND BREAKDOWN</b>					
*Second Breakdown Collector Current with Base Forward Biased $t = 1.0 \text{ s}$ (non-repetitive) ( $V_{CE} = 40 \text{ Vdc}$ )		$I_{S/b}$	0.875	—	A <sub>dc</sub>
<b>*SWITCHING CHARACTERISTICS</b>					
Rise Time	$V_{CC} = 200 \text{ Vdc}$ , $I_C = 1.0 \text{ Adc}$ , $I_{B1} = I_{B2} = 0.125 \text{ Adc}$	$t_r$	—	0.6	$\mu\text{s}$
Storage Time		$t_s$	—	2.5	$\mu\text{s}$
Fall Time		$t_f$	—	0.6	$\mu\text{s}$

\*Indicates JEDEC Registered Data.

(1) Pulse Test: Pulse Width < 300  $\mu\text{s}$ , Duty Cycle < 2.0%

