

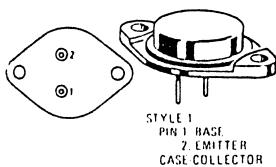
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2N3713 thru 2N3716 (SILICON)

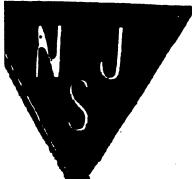
NPN silicon power transistors for medium-speed switching and amplifier applications. Complement to PNP types 2N3789 thru 2N3792.



Collector connected to case

MAXIMUM RATINGS

| Rating | Symbol | 2N3713 2N3715 | 2N3714 2N3716 | Unit |
|--|---------------------|------------------|------------------|-----------------------------|
| Collector-Base Voltage | V_{CB} | 80 | 100 | Volts |
| Collector-Emitter Voltage | V_{CEO} | 60 | 80 | Volts |
| Emitter-Base Voltage | V_{EB} | 7.0 | 7.0 | Volts |
| Collector Current | I_C | 10 | 10 | Amp |
| Base Current | I_B | 4.0 | 4.0 | Amp |
| Power Dissipation | P_D | 150 | 150 | Watts |
| Thermal Resistance | θ_{JC} | 1.17 | 1.17 | $^{\circ}\text{C}/\text{W}$ |
| Operating Junction and Storage Temperature Range | T_J and T_{stg} | -65 to +200 | | $^{\circ}\text{C}$ |



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

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

| Characteristic | Types | Symbol | Min | Max | Unit |
|---|--|------------------|----------------------|------------------------|---------------|
| Emitter-Base Cutoff Current ($V_{EB} = 7 \text{ Vdc}$) | | I_{EBO} | — | 5.0 | mAdc |
| Collector-Emitter Cutoff Current ($V_{CE} = 80 \text{ Vdc}, V_{BE} = -1.5 \text{ Vdc}$) ($V_{CE} = 100 \text{ Vdc}, V_{BE} = -1.5 \text{ Vdc}$) ($V_{CE} = 60 \text{ Vdc}, V_{BE} = -1.5 \text{ Vdc}, T_C = 150^\circ\text{C}$) ($V_{CE} = 80 \text{ Vdc}, V_{BE} = -1.5 \text{ Vdc}, T_C = 150^\circ\text{C}$) | 2N3713, 2N3715 2N3714, 2N3716 2N3713, 2N3715 2N3714, 2N3716 | I_{CEX} | — — — — | 1.0 1.0 10 10 | mAdc |
| Collector-Emitter Sustaining Voltage* ($I_C = 200 \text{ mAdc}, I_B = 0$) | 2N3713, 2N3715 2N3714, 2N3716 | $V_{CEO(sus)}$ * | 60 80 | — — | Vdc |
| DC Current Gain* ($I_C = 1 \text{ Adc}, V_{CE} = 2 \text{ Vdc}$) ($I_C = 3 \text{ Adc}, V_{CE} = 2 \text{ Vdc}$) | 2N3713, 2N3714 2N3715, 2N3716 2N3713, 2N3714 2N3715, 2N3716 | h_{FE} * | 25 50 15 30 | 90 150 — — | — |
| Collector-Emitter Saturation Voltage* ($I_C = 5 \text{ Adc}, I_B = 0.5 \text{ Adc}$) | 2N3713, 2N3714 2N3715, 2N3716 | $V_{CE(sat)}$ * | — — | 1.0 0.8 | Vdc |
| Base-Emitter Saturation Voltage* ($I_C = 5 \text{ Adc}, I_B = 0.5 \text{ Adc}$) | 2N3713, 2N3714 2N3715, 2N3716 | $V_{BE(sat)}$ * | — — | 2.0 1.5 | Vdc |
| Base-Emitter Voltage* ($I_C = 3 \text{ Adc}, V_{CE} = 2 \text{ Vdc}$) | | V_{BE} * | — | 1.5 | Vdc |
| Small Signal Current Gain ($V_{CE} = 10 \text{ Vdc}, I_C = 0.5 \text{ Adc}, f = 1 \text{ MHz}$) | | h_{fe} | 4.0 | — | — |
| Switching Times ($I_C = 5 \text{ A}, I_{B1} = I_{B2} = 0.5 \text{ A}$) Rise Time Storage Time Fall Time | | | Typ | | μs |
| | | | t_r | 0.45 | |
| | | | t_s | 0.3 | |
| | | | t_f | 0.4 | |

*Use sweep test to prevent overheating