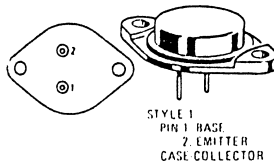


2N3713 thru **2N3716** (SILICON)

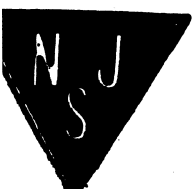
NPN silicon power transistors for medium-speed switching and amplifier applications. Complement to PNP types 2N3789 thru 2N3792.



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	$^{\circ}C/W$
Operating Junction and Storage Temperature Range	T_J and T_{stg}	-65 to +200		$^{\circ}C$



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		t_r t_s t_f	Typ		μs
				0.45 0.3 0.4	

*Use sweep test to prevent overheating