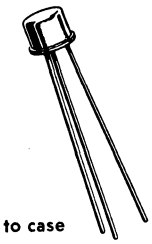
2N3719 (SILICON)
2N3720



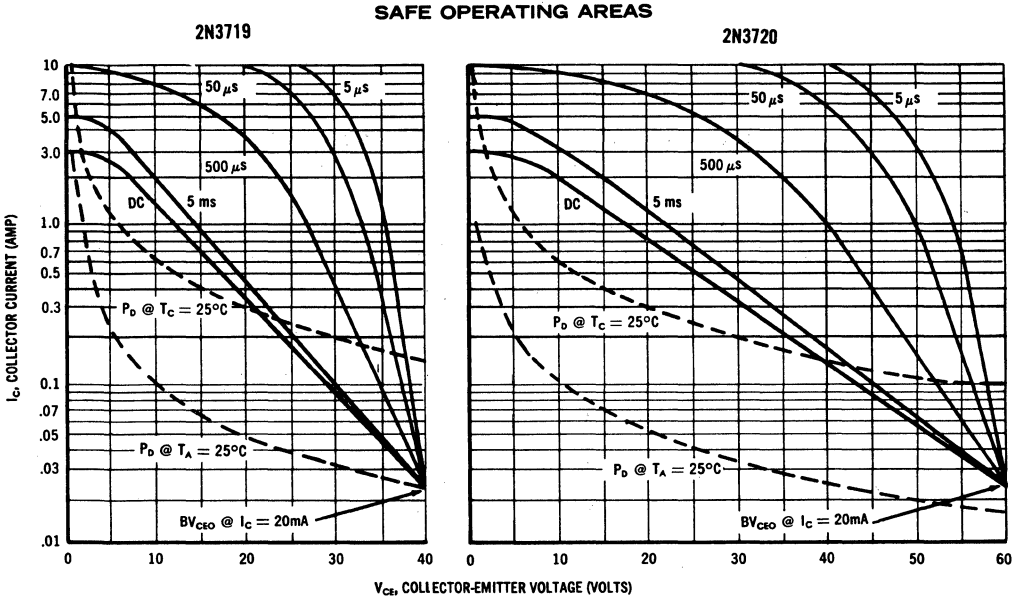
CASE 31
(TO-5)
Collector
connected to case

PNP silicon annular power transistors for high-speed, high-current switching in core, driver and Class C power applications.

MAXIMUM RATINGS

Rating	Symbol	2N3719	2N3720	Unit
Collector-Base Voltage	V_{CB}	40	60	Volts
Collector-Emitter Voltage	V_{CEO}	40	60	Volts
Emitter-Base Voltage	V_{EB}	4.0	4.0	Volts
Collector Current—Continuous Collector Current—Peak	I_C	3.0 10	3.0 10	Amp Amp
Base Current	I_B	0.5	0.5	Amp
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	1.0 5.72		Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	6.0 34.3		Watts mW/°C
Operating Junction and Storage Temperature Range	T_J and T_{stg}	-65 to +200		°C

SAFE OPERATING AREAS

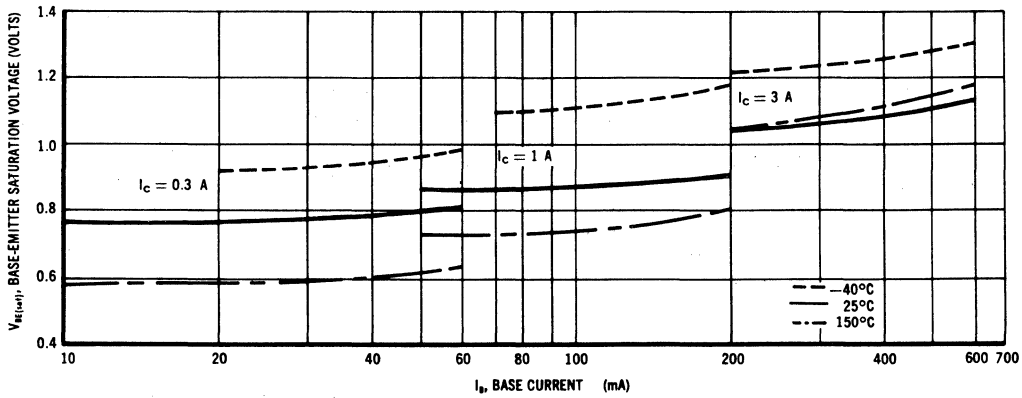


ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

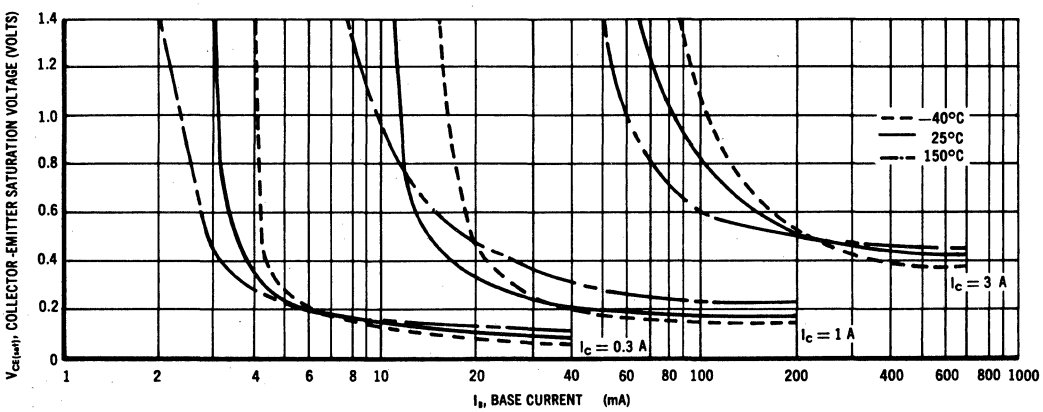
Characteristic		Symbol	Min	Max	Unit
Collector Leakage Current		I_{CEX}			μAdc
(V_{CE} = 40 Vdc, V_{BE} = 2 Vdc)	2N3719		—	10	
(V_{CE} = 60 Vdc, V_{BE} = 2 Vdc)	2N3720		—	10	
Collector-Base Cutoff Current		I_{CBO}			mAdc
(V_{CB} = 40 Vdc, I_E = 0, T_A = 25°C)	2N3719		—	0.010	
(V_{CB} = 40 Vdc, I_E = 0, T_A = 150°C)	2N3719		—	1.0	
(V_{CB} = 60 Vdc, I_E = 0, T_A = 25°C)	2N3720		—	0.010	
(V_{CB} = 60 Vdc, I_E = 0, T_A = 150°C)	2N3720		—	1.0	
Emitter-Base Cutoff Current		I_{EBO}			mAdc
(V_{BE} = 4 Vdc, I_C = 0)			—	1.0	
DC Current Gain [1]		h_{FE}			—
(I_C = 500 mA, V_{CE} = 1.5 V, T_A = 25°C)			20	—	
(I_C = 1 A, V_{CE} = 1.5 V, T_A = 25°C)			25	180	
(I_C = 1 A, V_{CE} = 1.5 V, T_A = -40°C)			15	—	
Collector-Emitter Saturation Voltage [1]		$V_{CE(sat)}$			Volts
(I_C = 1 A, I_B = 100 mA, T_A = -40 to +100°C			—	0.75	
(I_C = 3 A, I_B = 300 mA, T_A = 25°C)			—	1.5	
Base-Emitter Saturation Voltage [1]		$V_{BE(sat)}$			Volts
(I_C = 1 A, I_B = 100 mA)			—	1.5	
(I_C = 3 A, I_B = 300 mA)			—	2.3	
Collector-Emitter Breakdown Voltage [1]		BV_{CEO}			Volts
(I_C = 20 mA, I_B = 0)	2N3719		40	—	
	2N3720		60	—	
Collector Output Capacitance		C_{ob}			pF
(V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)			—	120	
Input Capacitance		C_{ib}			pF
(V_{BE} = 0.5 Vdc, I_C = 0, f = 100 kHz)			—	1000	
Current-Gain — Bandwidth Product		f_T			MHz
(V_{CE} = 10 Vdc, I_C = 500 mAdc, f = 30 MHz)			60	—	
Turn-On Time		t_{on}			ns
(I_C = 1 Adc, I_{B1} = 100 mA)			—	100	
Turn-Off Time		t_{off}			ns
(I_C = 1 Adc, I_{B1} = I_{B2} = 100 mA)			—	400	

[1] Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

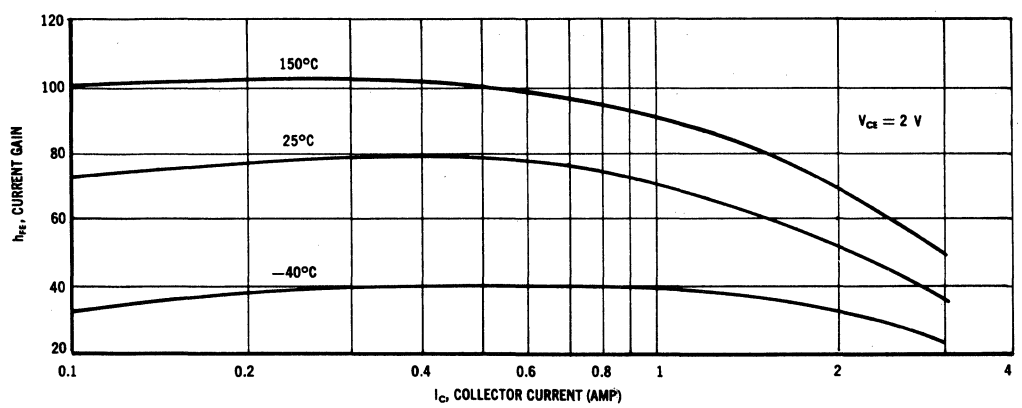
BASE EMITTER SATURATION VOLTAGE VARIATIONS



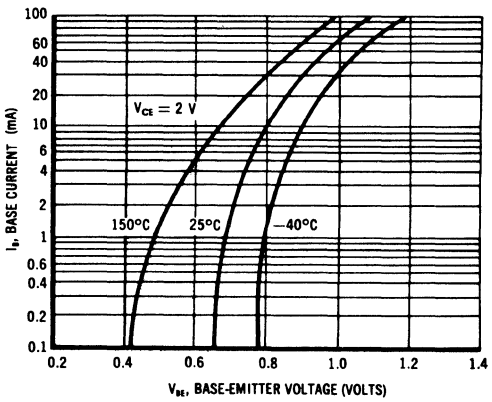
COLLECTOR-EMITTER SATURATION VOLTAGE VARIATIONS



CURRENT GAIN VARIATIONS



BASE CURRENT — VOLTAGE VARIATIONS



COLLECTOR CURRENT vs BASE-EMITTER VOLTAGE