2N720A (SILICON)

NPN silicon annular transistor designed for small-signal amplifier and general purpose switching applications.

CASE 22
(TO-18)
Collector connected to case

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Collector-Emitter Voltage	V_{CER}	100	Vdc
Collector-Base Voltage	V_{CB}	120	Vdc
Emitter-Base Voltage	V_{EB}	7.0	Vdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	0.5 2.86	Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.8 10.3	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	97	°C/W

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (1) (I_C = 30 mAdc, I_B = 0)	$BV_{CEO(sus)}$	80	-	Vdc
Collector-Emitter Sustaining Voltage (1) (I_C = 100 mAdc, R_{BE} = 10 ohms)	$BV_{CER(sus)}$	100	-	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	BV_{CBO}	120	-	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	BV_{EBO}	7.0	-	Vdc
Collector Cutoff Current (V_{CB} = 90 Vdc, I_E = 0)	I_{CBO}	-	.010	μAdc
(V_{CB} = 90 Vdc, I_E = 0, T_A = 150°C)		-	15	μAdc
Emitter Cutoff Current (V_{BE} = 5.0 Vdc, I_C = 0)	I_{EBO}	-	.010	μAdc
ON CHARACTERISTICS				
DC Current Gain (I_C = 0.1 mAdc, V_{CE} = 10 Vdc)	h_{FE}	20	-	-
(I_C = 10 mAdc, V_{CE} = 10 Vdc)*		35	-	
(I_C = 10 mAdc, V_{CE} = 10 Vdc, T_A = -55°C)		20	-	
(I_C = 150 mAdc, V_{CE} = 10 Vdc)*		40	120	
Collector-Emitter Saturation Voltage (1) (I_C = 50 mAdc, I_B = 5.0 mAdc)	$V_{CE(sat)}$	-	1.2	Vdc
(I_C = 150 mAdc, I_B = 15 mAdc)		-	5.0	
Base-Emitter Saturation Voltage (1) (I_C = 50 mAdc, I_B = 5.0 mAdc)	$V_{BE(sat)}$	-	0.9	Vdc
(I_C = 150 mAdc, I_B = 15 mAdc)		-	1.3	
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain–Bandwidth Product (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 20 MHz)	f_T	50	-	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)	C_{ob}	-	15	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 100 kHz)	C_{ib}	-	85	pF
Input Impedance (I_C = 1.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)	h_{ib}	20	30	Ohms
(I_C = 5.0 mAdc, V_{CB} = 10 Vdc, f = 1.0 kHz)		4.0	8.0	
Voltage Feedback Ratio (I_C = 1.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)	h_{rb}	-	1.25	X 10^{-4}
(I_C = 5.0 mAdc, V_{CB} = 10 Vdc, f = 1.0 kHz)		-	1.50	
Small-Signal Current Gain (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	h_{fe}	30	100	-
(I_C = 1.0 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)		45	-	
Output Admittance (I_C = 1.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)	h_{ob}	-	0.5	μmhos
(I_C = 5.0 mAdc, V_{CB} = 10 Vdc, f = 1.0 kHz)		-	0.5	

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.