2N722 (SILICON)

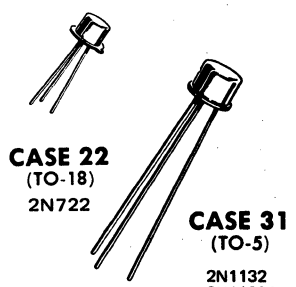
(2N1132 JAN AVAILABLE)

2N1132
2N1132A
2N2303

PNP SILICON SWITCHING TRANSISTORS

PNP SILICON ANNULAR TRANSISTORS

. . . designed for medium-current switching and amplifier applications.

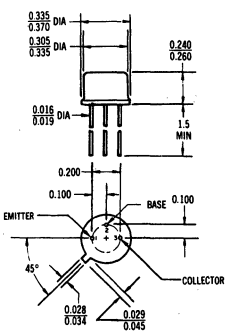


CASE 22
(TO-18)
2N722

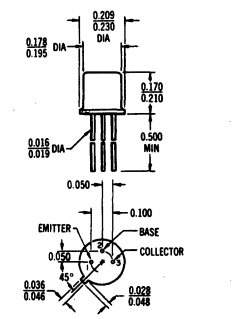
CASE 31
(TO-5)
2N1132
2N1132A
2N2303

MAXIMUM RATINGS

Rating	Symbol	2N722	2N1132	2N1132A	2N2303	Unit
Collector-Emitter Voltage	V_{CEO}	35	35	40	35	Vdc
Collector-Emitter Voltage ($R_{BE} \leq 10$ Ohms)	V_{CER}	50	50	50	50	Vdc
Collector-Base Voltage	V_{CB}	50	50	60	50	Vdc
Emitter-Base Voltage	V_{EB}	5.0	5.0	5.0	5.0	Vdc
Collector Current	I_C	-	-	600	500	mAdc
Total Device Dissipation @ $T_A = 25°C$ Derate above 25°C	P_D	400 2.67	600 4.0	600 4.0	600 4.0	mW mW/°C
Total Device Dissipation @ $T_C = 25°C$ Derate above 25°C	P_D	1.5 10	2.0 13.3	2.0 13.3	2.0 13.3	Watts mW/°C
Operating Junction Temperature Range	T_J	← -65 to +175 →				°C
Storage Temperature Range	T_{stg}	← -65 to +300 →				°C



TO-5 OUTLINE
(Collector internally connected to case)



TO-18 OUTLINE
(Collector internally connected to case)

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (1) (I_C = 100 mAdc, I_B = 0)	2N722, 2N1132, 2N2303	BV_{CEO}	35	-	Vdc
	2N1132A		40	-	
Collector-Emitter Breakdown Voltage (1) (I_C = 100 mAdc, R_{BE} ≤ 10 Ohms)		BV_{CER}	50	-	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	2N722, 2N1132, 2N2303	BV_{CBO}	50	-	Vdc
	2N1132A		60	-	
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	2N722, 2N1132, 2N2303	BV_{EBO}	5.0	-	Vdc
(I_E = 1.0 mAdc, I_C = 0)	2N1132A		5.0	-	
Collector Cutoff Current (V_{CB} = 30 Vdc, I_E = 0)	2N722, 2N1132, 2N2303	I_{CBO}	-	1.0	μAdc
(V_{CB} = 30 Vdc, I_E = 0, T_A = 150°C)	2N722, 2N1132, 2N2303		-	100	
(V_{CB} = 50 Vdc, I_E = 0)	2N1132A		-	0.5	
(V_{CB} = 50 Vdc, I_E = 0, T_A = 150°C)	2N1132A		-	50	
Emitter Cutoff Current (V_{BE} = 5.0 Vdc, I_C = 0)	2N1132A	I_{EBO}	-	100	μAdc
(V_{BE} = 2.0 Vdc, I_C = 0)	2N2303		-	100	
ON CHARACTERISTICS					
DC Current Gain (I_C = 5.0 mAdc, V_{CE} = 10 Vdc)	2N722, 2N1132, 2N1132A	h_{FE}	25	-	-
	2N2303		75	-	
(I_C = 150 mAdc, V_{CE} = 10 Vdc)	2N722, 2N1132, 2N1132A		30	90	
	2N2303		75	200	
Collector-Emitter Saturation Voltage (I_C = 150 mAdc, I_B = 15 mAdc)		$V_{CE(sat)}$	-	1.5	Vdc
Base-Emitter Saturation Voltage (I_C = 150 mAdc, I_B = 15 mAdc)		$V_{BE(sat)}$	-	1.3	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain–Bandwidth Product (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 20 MHz)		f_T	60	-	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)	2N722, 2N1132, 2N2303	C_{ob}	-	45	pF
(V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	2N1132A		-	30	
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 100 kHz)		C_{ib}	-	80	pF
Input Resistance (I_C = 1.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)		h_{ib}	25	35	Ohms
(I_C = 5.0 mAdc, V_{CB} = 10 Vdc, f = 1.0 kHz)			-	10	
Voltage Feedback Ratio (I_C = 1.0 Adc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)		h_{rb}	-	8.0	X 10^{-4}
(I_C = 5.0 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)			-	8.0	
Small-Signal Current Gain (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	2N722, 2N1132	h_{fe}	25	100	-
	2N1132A		25	75	
	2N2303		75	300	
(I_C = 5.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	2N722, 2N1132, 2N1132A		30	-	
	2N2303		75	-	
Output Admittance (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)		h_{ob}	-	1.0	μmhos
(I_C = 5.0 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)			-	5.0	

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