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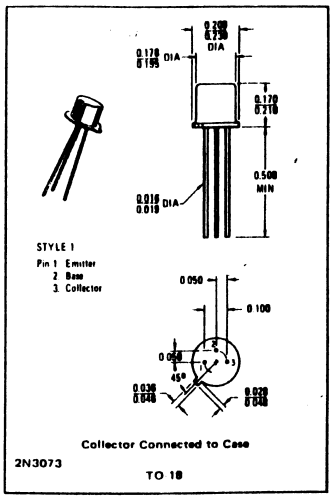
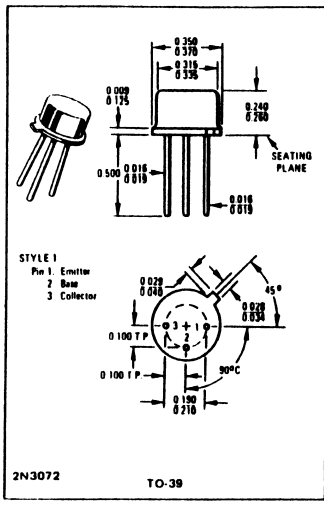
2N3072 (SILICON)

2N3073

NP SILICON ANNULAR TRANSISTORS





***MAXIMUM RATINGS**

Rating	Symbol	2N3072	2N3073	Unit
Collector-Emitter Voltage	V_{CEO}	60		Vdc
Collector-Base Voltage	V_{CB}	60		Vdc
Emitter-Base Voltage	V_{EB}	4.0		Vdc
Collector Current – Continuous	I_C	500		mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	800 4.56	360 2.06	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	3.0 17.1	1.2 6.85	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J,T_{stg}	-65 to +200		°C

*Indicates JEDEC Registered Data.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(1) (I_C = 30 mAdc, I_B = 0)	BV_{CEO}	60	–	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	BV_{CBO}	60	–	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	BV_{EBO}	4.0	–	Vdc
Collector Cutoff Current (V_{CE} = 30 Vdc, V_{BE} = 0) (V_{CE} = 30 Vdc, V_{BE} = 0, T_A = 125°C)	I_{CES}	– –	10 10	nAdc μAdc
Emitter Cutoff Current (V_{EB} = 4.0 Vdc, I_C = 0)	I_{EBO}	–	100	μAdc
Base Current (V_{CE} = 30 Vdc, V_{BE} = 0)	I_B	–	10	nAdc
ON CHARACTERISTICS				
DC Current Gain(1) (I_C = 50 mAdc, V_{CE} = 1.0 Vdc) (I_C = 50 mAdc, V_{CE} = 1.0 Vdc, T_A = -55°C) (I_C = 300 mAdc, V_{CE} = 2.0 Vdc)	h_{FE}	 30 12 15	 130 – –	–
Collector-Emitter Saturation Voltage (I_C = 50 mAdc, I_B = 2.5 mAdc) (I_C = 300 mAdc, I_B = 30 mAdc)	$V_{CE(sat)}$	 – –	 0.25 1.0	Vdc
Base-Emitter Saturation Voltage (I_C = 50 mAdc, I_B = 2.5 mAdc) (I_C = 300 mAdc, I_B = 30 mAdc)	$V_{BE(sat)}$	 – –	 1.2 2.0	Vdc
Base-Emitter On Voltage (I_C = 50 mAdc, V_{CE} = 1.0 Vdc)	$V_{BE(on)}$	–	1.2	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain–Bandwidth Product(2) (I_C = 50 mAdc, V_{CE} = 20 Vdc, f = 100 MHz)	f_T	130	–	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 140 kHz)	C_{ob}	–	10	pF
Input Impedance (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{ie}	–	1.5	k ohms
Voltage Feedback Ratio (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{re}	–	26	X 10^{-4}
Small-Signal Current Gain (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{fe}	25	180	–
Output Admittance (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{oe}	–	1200	μmhos
SWITCHING CHARACTERISTICS (Figure 1)				
Turn-On Time ($I_C \approx 300$ mAdc, $I_{B1} \approx 30$ mAdc)	t_{on}	–	40	ns
Turn-Off Time ($I_C \approx 300$ mAdc, $I_{B1} \approx I_{B2} \approx 30$ mAdc)	t_{off}	–	100	ns

*Indicates JEDEC Registered Data.
(1)Pulse Test: Pulse Width = 300 μs, Duty Cycle = 1.0%.
(2)f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.