

2N5357 (SILICON)

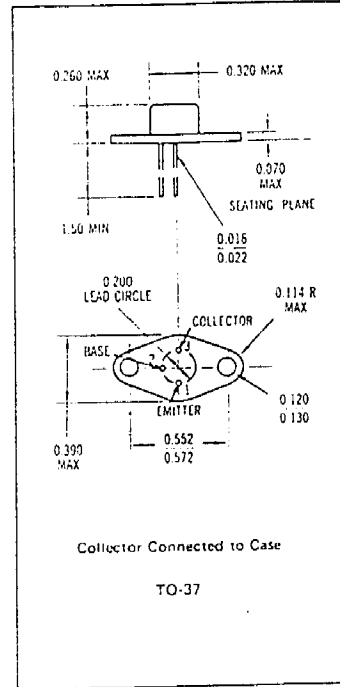
PNP SILICON
SWITCHING
TRANSISTOR

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	300	Vdc
Collector-Base Voltage	V_{CB}	300	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current - Continuous	I_C	3.0	Ade
Base Current - Continuous	I_B	1.0	Ade
Total Device Dissipation @ $T_C = 75^\circ C$ Derate above $75^\circ C$	P_D	30 240	Watts mW/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ C$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	4.16	$^\circ C/W$



ELECTRICAL CHARACTERISTICS ($f_T = 200$ cycles per second minimum)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage ($I_C = 10$ mAde, $I_B = 0$)	$V_{CEO(sus)}$	300	-	Vdc
Collector-Base Breakdown Voltage ($I_C = 100$ μ Ade, $I_E = 0$)	V_{CBO}	300	-	Vdc
Emitter-Base Breakdown Voltage ($I_E = 100$ mAde, $I_C = 0$)	V_{EB0}	5.0	-	Vdc
Collector Cutoff Current ($V_{CE} = 200$ Vdc, $V_{BE(off)} = 0.5$ Vdc, $T_A = 100^\circ C$) ($V_{CE} = 300$ Vdc, $V_{BE(off)} = 0.5$ Vdc)	I_{CEX}	-	100 10	μ Ade
Emitter Cutoff Current ($V_{EB} = 3.0$ Vdc, $I_C = 0$) ($V_{EB} = 5.0$ Vdc, $I_C = 0$)	I_{EB0}	-	100 100	nAde μ Ade
ON CHARACTERISTICS				
DC Current Gain ($I_C = 500$ μ Ade, $V_{CE} = 1.0$ Vdc) ($I_C = 10$ mAde, $V_{CE} = 1.0$ Vdc) ($I_C = 100$ mAde, $V_{CE} = 1.0$ Vdc) ($I_C = 100$ mAde, $V_{CE} = 1.0$ Vdc, $T_A = -55^\circ C$) ($I_C = 500$ mAde, $V_{CE} = 5.0$ Vdc) ($I_C = 1.0$ Ade, $V_{CE} = 5.0$ Vdc)	β_{FE}	45 50 40 20	- - - 100	-
Collector-Emitter Saturation Voltage ($I_C = 100$ mAde, $I_B = 10$ mAde) ($I_C = 500$ mAde, $I_B = 50$ mAde) ($I_C = 1.0$ Ade, $I_B = 100$ mAde)	$V_{CE(sat)}$	-	0.3 1.0 3.0	Vdc
Base-Emitter Saturation Voltage ($I_C = 100$ mAde, $I_B = 10$ mAde) ($I_C = 500$ mAde, $I_B = 50$ mAde) ($I_C = 1.0$ Ade, $I_B = 100$ mAde)	$V_{BE(sat)}$	-	1.0 1.3 1.5	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain-Bandwidth Product ($I_C = 10$ mAde, $V_{CE} = 20$ Vdc, $f = 20$ MHz)	f_T	50	-	MHz
Output Capacitance ($V_{CB} = 20$ Vdc, $I_E = 0$, $f = 100$ kHz)	C_{ob}	-	60	pF
Input Capacitance ($V_{EB} = 2.0$ Vdc, $I_C = 0$, $f = 100$ kHz)	C_{ib}	-	600	pF
SWITCHING CHARACTERISTICS				
Delay Time ($V_{CC} = 100$ Vdc, $I_C = 500$ mAde, $I_{B1} = 50$ mAde)	t_d	-	50	ns
Rise Time (See Figure 2)	t_r	-	100	ns
Storage Time ($V_{CC} = 100$ Vdc, $I_C = 500$ mAde)	t_s	-	600	ns
Fall Time ($I_{B1} = I_{B2} = 50$ mAde) (See Figure 2)	t_f	-	100	ns