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2N5771 Silicon PNP Transistor Switching Transistor TO-92 Type Package

Absolute Maximum Ratings: (Note 1, Note 2, $T_A = +25^\circ\text{C}$ unless otherwise specified)

Collector-Emitter Voltage, V_{CEO}	15V
Collector-Base Voltage, V_{CBO}	15V
Emitter-Base Voltage, V_{EBO}	4.5V
Continuous Collector Current, I_C	200mA
Total Device Dissipation ($T_A = +25^\circ\text{C}$), P_D	350mW
Derate Above 25°C	2.8mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-55° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	$+125^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	$+357^\circ\text{C/W}$

Note 1. These ratings are limiting values above which the serviceability of any semiconductor may be impaired.

Note 2. These are steady state limits and are based on a maximum junction temperature of $+150^\circ\text{C}$.

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 3\text{mA}, I_B = 0$, Note 3	15	-	-	V
	$V_{(BR)CES}$	$I_C = 100\mu\text{A}, V_{BE} = 0$	15	-	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	15	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	4.5	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 8\text{V}, I_E = 0$	-	-	10	nA
		$V_{CE} = 8\text{V}, V_{BE} = 0$	-	-	10	nA
	$V_{CE} = 8\text{V}, V_{BE} = 0, T_A = +125^\circ\text{C}$	-	-	5	μA	
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4.5\text{V}, I_C = 0$	-	-	1	μA

Note 3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 3)						
DC Current Gain	h_{FE}	$I_C = 1\text{mA}, V_{CE} = 500\text{mV}$	35	-	-	
		$I_C = 10\text{mA}, V_{CE} = 300\text{mV}$	50	-	120	
		$I_C = 10\text{mA}, V_{CE} = 300\text{mV}, T_A = -55^\circ\text{C}$	20	-	-	
		$I_C = 50\text{mA}, V_{CE} = 1\text{V}$	40	-	-	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 1\text{mA}, I_B = 0.1\text{mA}$	-	-	0.15	V
		$I_C = 10\text{mA}, I_B = 1\text{mA}$	-	-	0.18	V
		$I_C = 50\text{mA}, I_B = 5\text{mA}$	-	-	0.6	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 1\text{mA}, I_B = 0.1\text{mA}$	-	-	0.8	V
		$I_C = 10\text{mA}, I_B = 1\text{mA}$	0.75	-	0.95	V
		$I_C = 50\text{mA}, I_B = 5\text{mA}$	-	-	1.5	V
Small–Signal Characteristics						
Small Signal Current Gain	h_{fe}	$I_C = 10\text{mA}, V_{CE} = 10\text{V}, f = 100\text{MHz}$	8.5	-	-	MHz
Collector–Base Capacitance	C_{cb}	$V_{CB} = 5\text{V}, I_E = 0, f = 140\text{kHz}$	-	-	3.0	pF
Emitter–Base Capacitance	C_{eb}	$V_{BE} = 500\text{mV}, I_C = 0, f = 140\text{kHz}$	-	-	3.5	pF
Switching Characteristics						
Storage Time	t_s	$I_C = 10\text{mA}, V_{CC} = 1.5\text{V}, I_{B1} = I_{B2} = 1\text{mA}$	-	-	20	ns
Turn–Off Time	t_{off}		-	-	20	ns
Turn–On Time	t_{on}	$I_C = 10\text{mA}, V_{CC} = 1.5\text{V}, I_{B1} = 1\text{mA}$	-	-	15	ns

Note 3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

