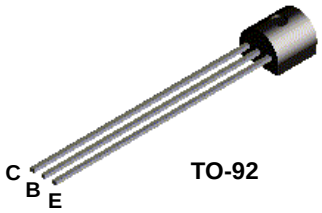
FAIRCHILD SEMICONDUCTOR TM

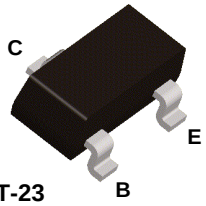
Discrete POWER & Signal Technologies

2N5771



TO-92

MMBT5771



SOT-23
Mark: 3R

PNP Switching Transistor

This device is designed for very high speed saturate switching at collector currents to 100 mA. Sourced from Process 65. See PN4258 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	15	V
V_{CBO}	Collector-Base Voltage	15	V
V_{EBO}	Emitter-Base Voltage	4.5	V
I_C	Collector Current - Continuous	200	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

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

NOTES:
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		2N5771	*MMBT5771	
P_D	Total Device Dissipation Derate above 25°C	350 2.8	225 1.8	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	556	°C/W

*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

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PNP Switching Transistor
(continued)

Electrical Characteristics
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	I_C = 3.0 mA, I_B = 0	15		V
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	I_C = 100 µA, V_{BE} = 0	15		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 100 µA, I_E = 0	15		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 100 µA, I_C = 0	4.5		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 8.0 V, I_E = 0		10	nA
I_{CES}	Collector Cutoff Current	V_{CE} = 8.0 V, V_{BE} = 0 V_{CE} = 8.0 V, V_{BE} = 0, T_A= 125°C		10 5.0	nA µA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 4.5 V, I_C = 0		1.0	µA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	I_C = 1.0 mA, V_{CE} = 0.5 V I_C = 10 mA, V_{CE} = 0.3 V I_C = 10mA,V_{CE} = 0.3V,T_A = -55°C I_C = 50 mA, V_{CE} = 1.0 V	35 50 20 40	 120 	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 1.0 mA, I_B = 0.1 mA I_C = 10 mA, I_B = 1.0 mA I_C = 50 mA, I_B = 5.0 mA		0.15 0.18 0.6	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 1.0 mA, I_B = 0.1 mA I_C = 10 mA, I_B = 1.0 mA I_C = 50 mA, I_B = 5.0 mA	 0.75 	0.8 0.95 1.5	V V V
SMALL SIGNAL CHARACTERISTICS					
C_{cb}	Collector-Base Capacitance	V_{CB} = 5.0 V, I_E = 0, f = 140 kHz		3.0	pF
C_{eb}	Emitter-Base Capacitance	V_{BE} = 0.5 V, I_C = 0, f = 140 kHz		3.5	pF
h_{fe}	Small-Signal Current Gain	I_C = 10 mA, V_{CE} = 10 V, f = 100 MHz	8.5		MHz
SWITCHING CHARACTERISTICS					
t_s	Storage Time	I_C = 10 mA, V_{CC} = 1.5 V, I_{B1} = I_{B2} = 1.0 mA		20	ns
t_{on}	Turn-On Time	I_C = 10 mA, V_{CC} = 1.5 V, I_B = 1.0 mA		15	ns
t_{off}	Turn-Off Time	I_C = 10 mA, V_{CC} = 1.5 V, I_{B1} = I_{B2} = 1.0 mA		20	ns

*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%