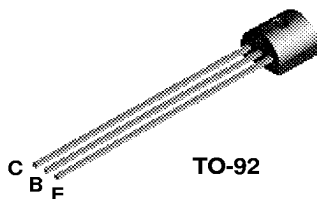
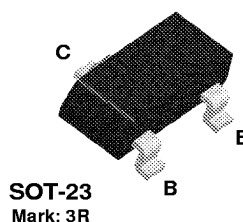


2N5771



MMBT5771



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."

PNP Switching Transistor

(continued)

2N5771 / MMBT5771

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
--------	-----------	-----------------	-----	-----	-------

OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 3.0 \text{ mA}, I_B = 0$	15		V
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = 100 \mu\text{A}, V_{BE} = 0$	15		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	15		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100 \mu\text{A}, I_C = 0$	4.5		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 8.0 \text{ V}, I_E = 0$		10	nA
I_{CES}	Collector Cutoff Current	$V_{CE} = 8.0 \text{ V}, V_{BE} = 0$ $V_{CE} = 8.0 \text{ V}, V_{BE} = 0, T_A = 125^\circ\text{C}$		10 5.0	nA μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 4.5 \text{ V}, I_C = 0$		1.0	μA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$I_C = 1.0 \text{ mA}, V_{CE} = 0.5 \text{ V}$ $I_C = 10 \text{ mA}, V_{CE} = 0.3 \text{ V}$ $I_C = 10 \text{ mA}, V_{CE} = 0.3 \text{ V}, T_A = -55^\circ\text{C}$ $I_C = 50 \text{ mA}, V_{CE} = 1.0 \text{ V}$	35 50 20 40	120	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1.0 \text{ mA}, I_B = 0.1 \text{ mA}$ $I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$ $I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		0.15 0.18 0.6	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1.0 \text{ mA}, I_B = 0.1 \text{ mA}$ $I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$ $I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$	0.75	0.8 0.95 1.5	V V V

SMALL SIGNAL CHARACTERISTICS

C_{cb}	Collector-Base Capacitance	$V_{CB} = 5.0 \text{ V}, I_E = 0,$ $f = 140 \text{ kHz}$		3.0	pF
C_{eb}	Emitter-Base Capacitance	$V_{BE} = 0.5 \text{ V}, I_C = 0,$ $f = 140 \text{ kHz}$		3.5	pF
h_{fe}	Small-Signal Current Gain	$I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 100 \text{ MHz}$	8.5		MHz

SWITCHING CHARACTERISTICS

t_s	Storage Time	$I_C = 10 \text{ mA}, V_{CC} = 1.5 \text{ V},$ $I_{B1} = I_{B2} = 1.0 \text{ mA}$		20	ns
t_{on}	Turn-On Time	$I_C = 10 \text{ mA}, V_{CC} = 1.5 \text{ V},$ $I_B = 1.0 \text{ mA}$		15	ns
t_{off}	Turn-Off Time	$I_C = 10 \text{ mA}, V_{CC} = 1.5 \text{ V},$ $I_{B1} = I_{B2} = 1.0 \text{ mA}$		20	ns

*Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$