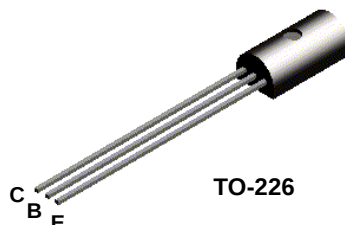
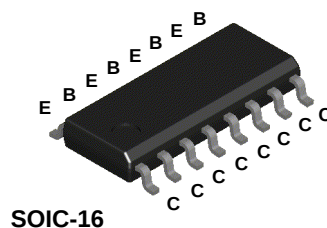


TN3467A



TO-226

MMPQ3467



SOIC-16

PNP Switching Transistor

This device is designed for high speed saturated switching applications at currents to 800 mA. Sourced from Process 70.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	40	V
V _{CBO}	Collector-Base Voltage	40	V
V _{EBO}	Emitter-Base Voltage	5.0	V
I _C	Collector Current - Continuous	1.2	A
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
		TN3467A	MMPQ3467	
P _D	Total Device Dissipation Derate above 25°C	1.0 8.0	1.0 8.0	W mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	50		°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient Effective 4 Die Each Die	125	125 240	°C/W °C/W °C/W

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*	$I_C = 10 \text{ mA}$, $I_B = 0$	40		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10 \text{ }\mu\text{A}$, $I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \text{ }\mu\text{A}$, $I_C = 0$	5.0		V
I_{BEV}	Base-Cutoff Current	$V_{CE} = 30 \text{ V}$, $V_{BE} = 3.0 \text{ V}$		120	nA
I_{CEX}	Collector-Cutoff Current	$V_{CE} = 30 \text{ V}$, $V_{BE} = 3.0 \text{ V}$		100	nA
I_{CBO}	Collector-Cutoff Current	$V_{CB} = 30 \text{ V}$, $I_E = 0$ $V_{CB} = 30 \text{ V}$, $I_E = 0$, $T_A = 150^\circ\text{C}$		0.01 15	μA μA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$I_C = 150 \text{ mA}$, $V_{CE} = 1.0 \text{ V}$ $I_C = 500 \text{ mA}$, $V_{CE} = 1.0 \text{ V}$ $I_C = 1.0 \text{ A}$, $V_{CE} = 5.0 \text{ V}$	40 40 40	120	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 150 \text{ mA}$, $I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}$, $I_B = 50 \text{ mA}$ $I_C = 1.0 \text{ A}$, $I_B = 100 \text{ mA}$		0.3 0.5 1.0	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 150 \text{ mA}$, $I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}$, $I_B = 50 \text{ mA}$ $I_C = 1.0 \text{ A}$, $I_B = 100 \text{ mA}$	0.8	1.0 1.2 1.6	V V V

SMALL SIGNAL CHARACTERISTICS

f_T	Current Gain-Bandwidth Product	$I_C = 50 \text{ mA}$, $V_{CE} = 10 \text{ V}$, $f = 100 \text{ MHz}$	175		MHz
C_{obo}	Output Capacitance	$V_{CB} = 10 \text{ V}$, $I_E = 0$, $f = 1.0 \text{ KHz}$		25	pF
C_{ibo}	Input Capacitance	$V_{BE} = 0.5 \text{ V}$, $I_C = 0$, $f = 1.0 \text{ KHz}$		100	pF

SWITCHING CHARACTERISTICS (except for MMPQ3467)

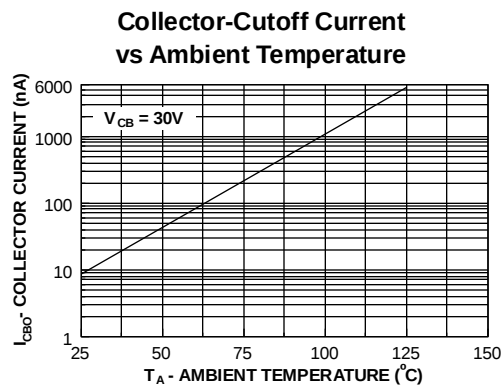
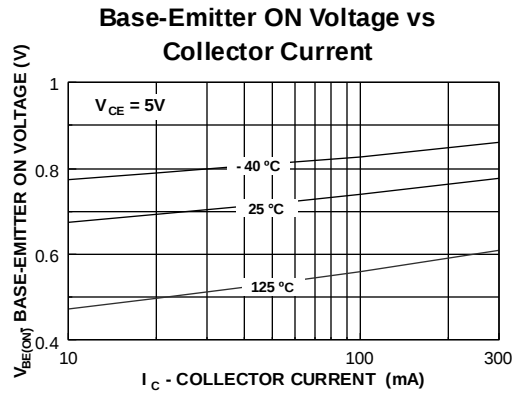
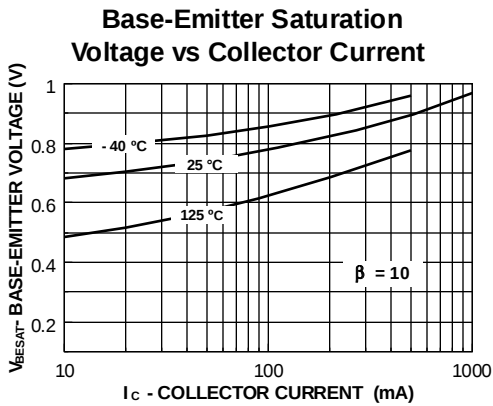
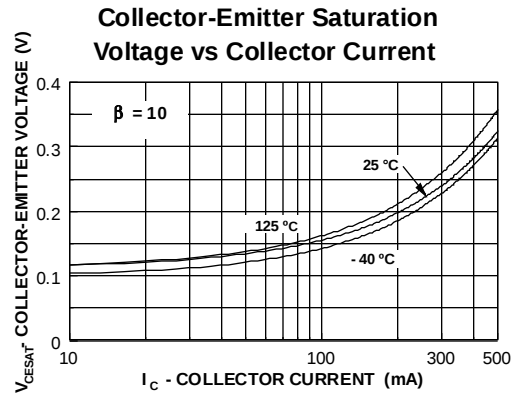
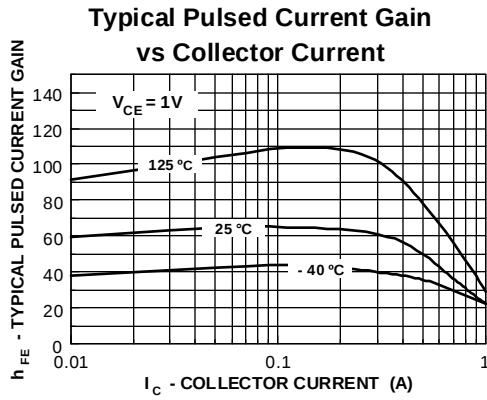
t_d	Delay Time	$V_{CC} = 30 \text{ V}$, $V_{BE} = 2.0 \text{ V}$,		10	ns
t_r	Rise Time	$I_C = 500 \text{ mA}$, $I_{B1} = 50 \text{ mA}$		30	ns
t_s	Storage Time	$V_{CC} = 30 \text{ V}$, $I_C = 500 \text{ mA}$,		60	ns
t_f	Fall Time	$I_{B1} = I_{B2} = 50 \text{ mA}$		30	ns

*Pulse Test: Pulse Width $\leq 300 \text{ }\mu\text{s}$, Duty Cycle $\leq 1.0\%$

PNP Switching Transistor (continued)

TN3467A / MM1PQ3467

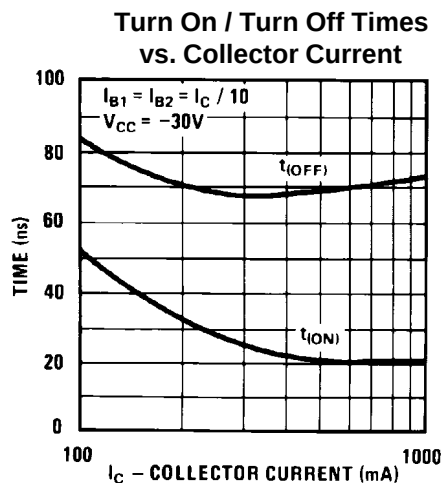
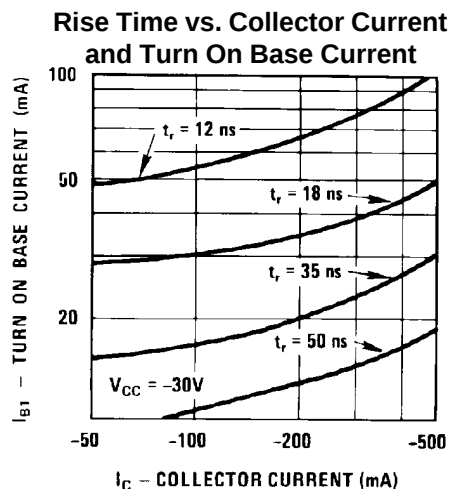
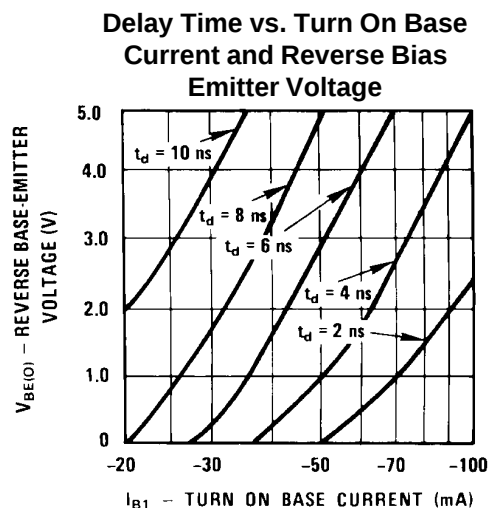
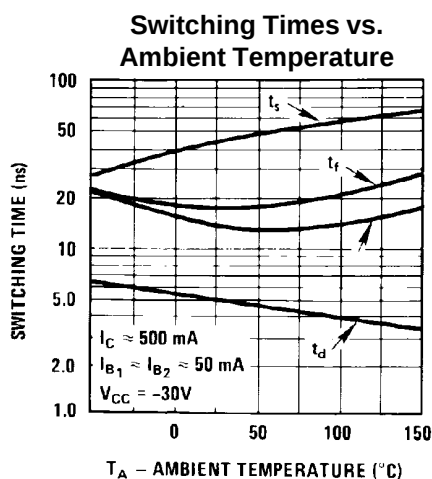
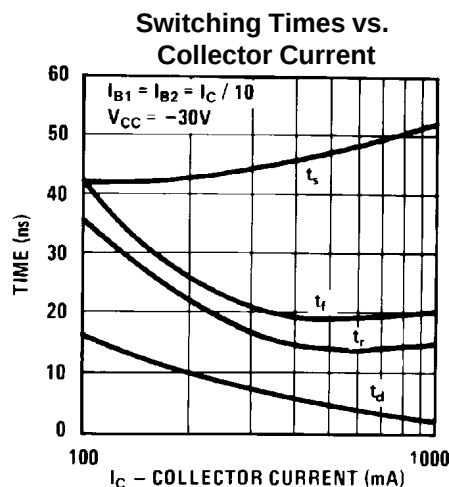
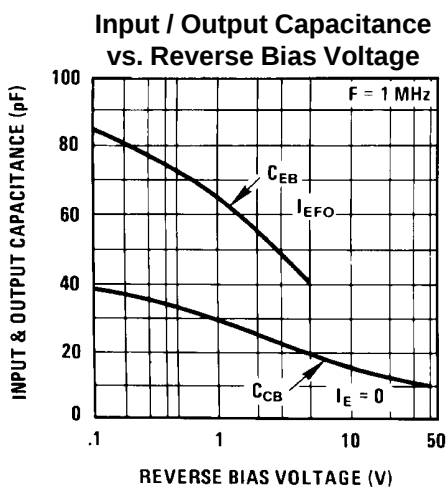
DC Typical Characteristics



PNP Switching Transistor

(continued)

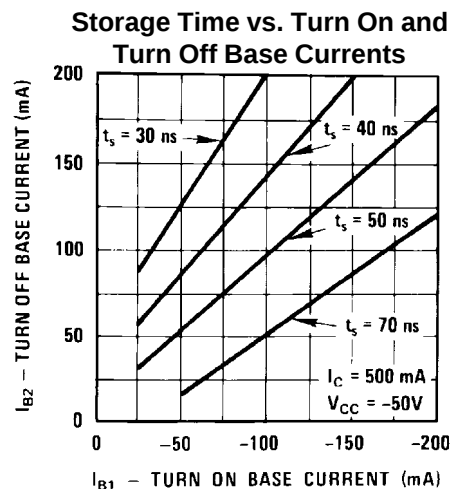
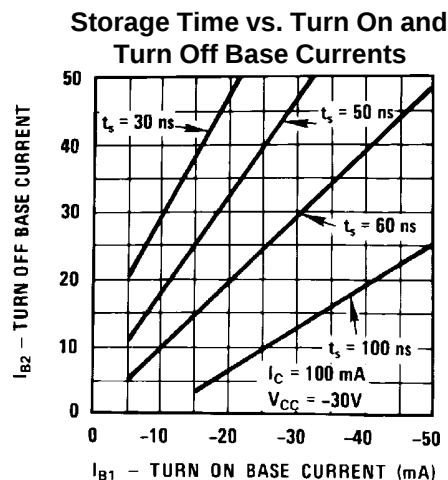
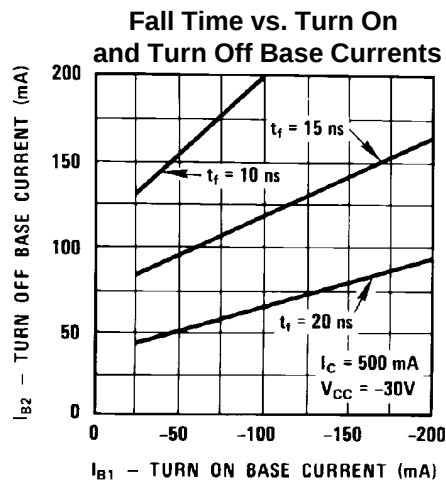
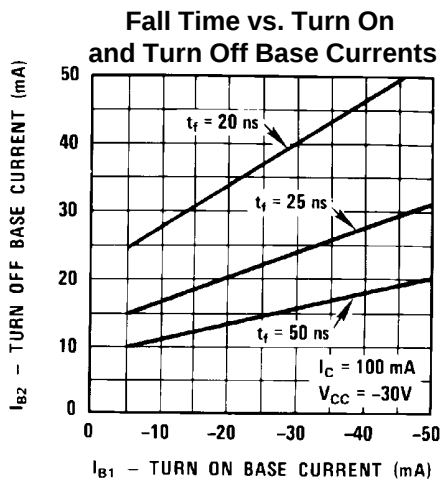
AC Typical Characteristics



PNP Switching Transistor

(continued)

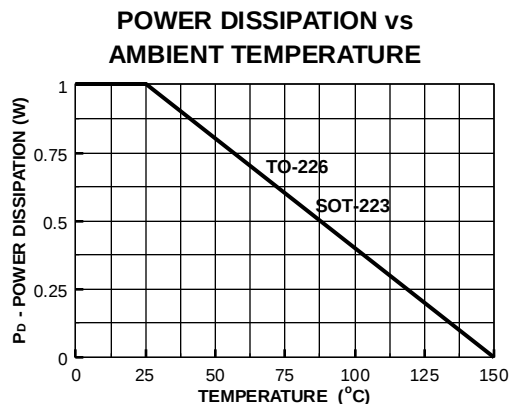
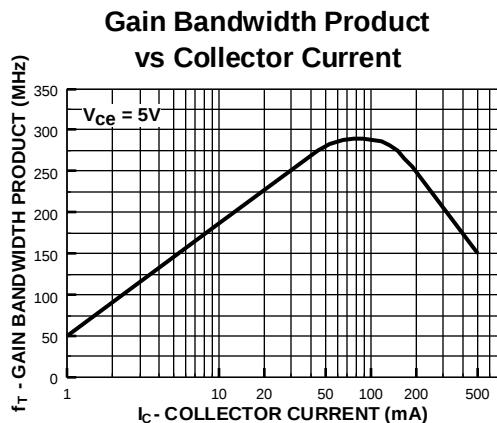
AC Typical Characteristics (continued)



PNP Switching Transistor

(continued)

AC Typical Characteristics (continued)



Test Circuits

PW = 200 ns
Rise Time ≤ 2.0 ns
Duty Cycle = 2 %

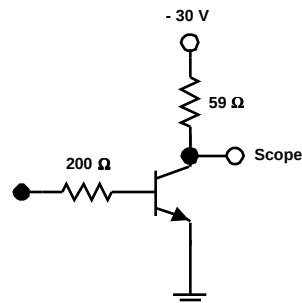
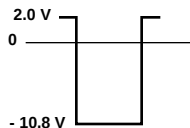


FIGURE 1: t_{ON} Equivalent Test Circuit

$2.0 < t_1 < 500 \mu s$
 $t_2 < 5$ ns
 $t_3 > 1.0 \mu s$
Duty Cycle = 2 %

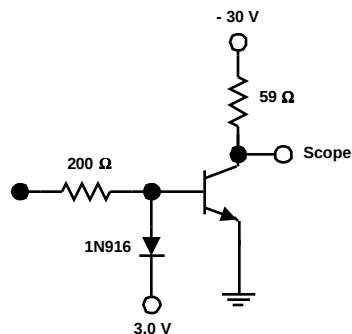
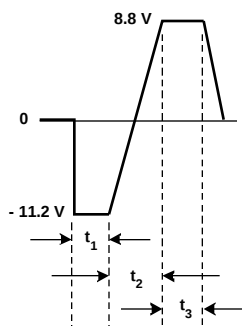


FIGURE 2: t_{OFF} Equivalent Test Circuit