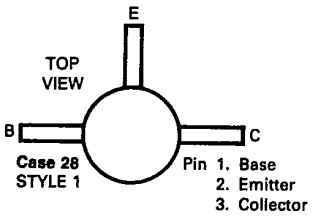
MICRO-T (continued)

MMT3546 — PNP
SWITCHING TRANSISTOR



- designed for high-speed, low-level switching applications, where high-density packaging is required.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	12	Vdc
Collector-Base Voltage	V_{CB}	15	Vdc
Emitter-Base Voltage	V_{EB}	4.5	Vdc
Collector Current — Continuous	I_C	250	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	250 2.0	mW mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	0.50	°C/mW

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Parameter	Test Conditions	Min	Max	Unit
OFF CHARACTERISTICS				
BV_{CEO}	I_C = 10 mAdc, I_B = 0	12	—	Vdc
BV_{CBO}	I_C = 10 μAdc, I_E = 0	15	—	Vdc
BV_{EBO}	I_E = 10 μAdc, I_C = 0	4.5	—	Vdc
I_{CBO}	V_{CB} = 10 Vdc, I_E = 0	—	100	nAdc
I_{EBO}	V_{EB} = 3.0 Vdc, I_C = 0	—	100	nAdc
ON CHARACTERISTICS				
h_{FE}	I_C = 10 mAdc, V_{CE} = 1.0 Vdc I_C = 100 mAdc, V_{CE} = 1.0 Vdc	30 15	— —	—
$V_{CE(sat)}$	I_C = 10 mAdc, I_B = 1.0 mAdc I_C = 100 mAdc, I_B = 10 mAdc	— —	0.15 0.5	Vdc
$V_{BE(sat)}$	I_C = 10 mAdc, I_B = 1.0 mAdc I_C = 100 mAdc, I_B = 10 mAdc	0.7 —	0.9 1.6	Vdc

14

continued

MICRO-T (continued) **MMT3546** (continued)

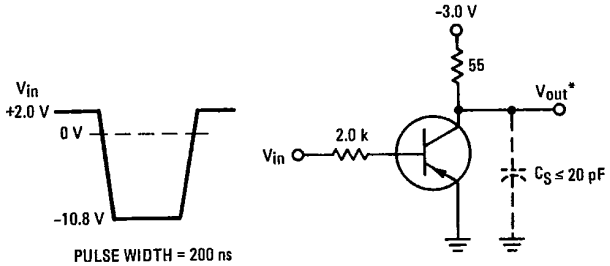
DYNAMIC CHARACTERISTICS

f_T	I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 100 MHz	700	—	MHz
C_{ob}	V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz	—	6.0	pF
C_{ib}	V_{BE} = 0.5 Vdc, I_C = 0, f = 1.0 MHz	—	8.0	pF

SWITCHING CHARACTERISTICS

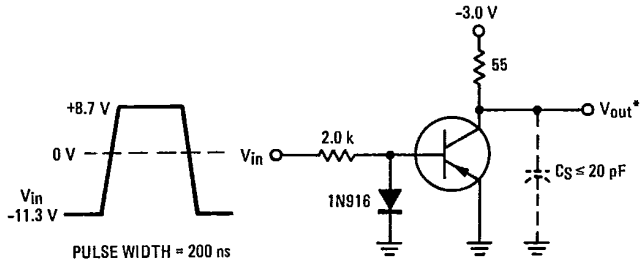
t_d	V_{CC} = 3.0 Vdc, V_{BE} = 2.0 Vdc, I_C = 50 mAdc, I_{B1} = 5.0 mAdc	—	10	ns
t_r		—	15	ns
t_s	V_{CC} = 3.0 Vdc, I_C = 50 mAdc, I_{B1} = I_{B2} = 5.0 mAdc	—	20	ns
t_f		—	15	ns

FIGURE 1 – DELAY AND RISE TIME EQUIVALENT TEST CIRCUIT



PULSE WIDTH = 200 ns
RISE TIME ≤ 2.0 ns
DUTY CYCLE ≤ 10%

FIGURE 2 – STORAGE AND FALL TIME EQUIVALENT TEST CIRCUIT



PULSE WIDTH = 200 ns
RISE TIME ≤ 2.0 ns
DUTY CYCLE ≤ 10%

*OSCILLOSCOPE RISE TIME ≤ 1.0 ns

14