

6367255 MOTOROLA SC (DIODES/OPTO)

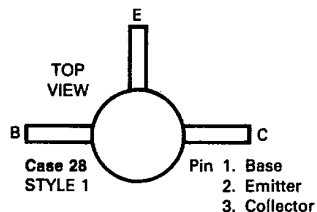
34C 38232 D

MICRO-T (continued)

MMT3960A — NPN

T-31-17

RF AND HIGH-SPEED SWITCHING TRANSISTOR



- designed for high-speed current-mode logic switching applications.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	8.0	Vdc
Collector-Base Voltage	V_{CB}	15	Vdc
Emitter-Base Voltage	V_{EB}	3.0	Vdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	250 2.0	mW mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Test Conditions	Min	Typ	Max	Unit
-----------	-----------------	-----	-----	-----	------

OFF CHARACTERISTICS

BV_{CEO}	$I_C = 10 \text{ mAdc}, I_B = 0$	8.0	—	—	Vdc
BV_{CBO}	$I_C = 10 \text{ } \mu\text{Adc}, I_E = 0$	15	—	—	Vdc
BV_{EBO}	$I_E = 10 \text{ } \mu\text{Adc}, I_C = 0$	3.0	—	—	Vdc
I_{CBO}	$V_{CB} = 10 \text{ Vdc}, I_E = 0$	—	—	50	nAdc
I_{EBO}	$V_{EB} = 1.5 \text{ Vdc}, I_C = 0$	—	—	50	nAdc

ON CHARACTERISTICS

h_{FE}	$I_C = 1.0 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$ $I_C = 10 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$ $I_C = 30 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$	30 30 30	— — —	200 — —	—
$V_{CE(sat)}$	$I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ mAdc}$	—	—	0.2	Vdc
$V_{BE(sat)}$	$I_C = 10 \text{ mAdc}, I_B = 0.1 \text{ mAdc}$	0.75	—	0.90	Vdc

DYNAMIC CHARACTERISTICS

f_T	$I_C = 30 \text{ mAdc}, V_{CE} = 2.0 \text{ Vdc}, f = 100 \text{ MHz}$	1600	—	—	MHz
C_{ob}	$V_{CB} = 4.0 \text{ Vdc}, I_E = 0, f = 140 \text{ kHz}$	—	1.3	2.0	pF
C_{ib}	$V_{BE} = 0.5 \text{ Vdc}, I_C = 0, f = 140 \text{ kHz}$	—	1.2	3.0	pF

14

continued

6367255 MOTOROLA SC (DIODES/OPTO)

34C 38233 D

MICRO-T (continued)

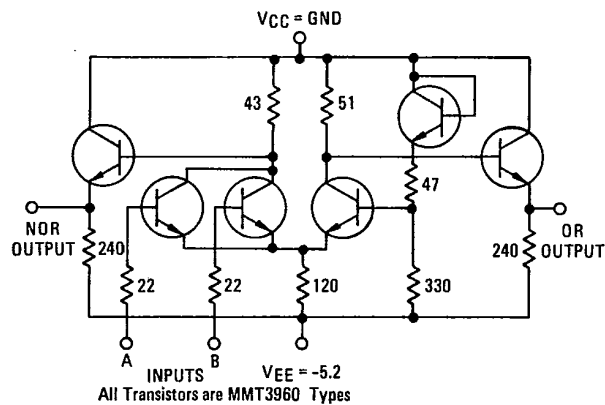
MMT3960,A (continued)

T-3/-17

SWITCHING CHARACTERISTICS (Figure 1)

$t_{d(on)}$	Turn-On Delay Time	—	1.0	—	ns
t_r	Rise Time	—	0.75	—	ns
$t_{d(off)}$	Turn-Off Delay Time	—	1.1	—	ns
t_f	Fall Time	—	0.85	—	ns

FIGURE 1 — TWO INPUT OR/NOR ECL GATE



PROPAGATION DELAY

RISE AND FALL TIMES

