

6367255 MOTOROLA SC (DIODES/OPTO)

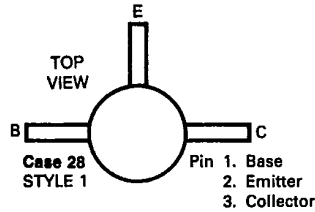
34C 38210 D

7-35-19

MICRO-T (continued)

# MMT2222 — NPN

## GENERAL PURPOSE TRANSISTOR



- designed for high-speed switching circuits and dc to VHF amplifier applications

**MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	30	Vdc
Collector-Base Voltage	$V_{CB}$	60	Vdc
Emitter-Base Voltage	$V_{EB}$	5.0	Vdc
Collector Current — Continuous	$I_C$	300	mAdc
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	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** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Parameter	Test Conditions	Min	Typ	Max	Unit
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**OFF CHARACTERISTICS**

$BV_{CEO}$	$I_C = 10 \text{ mAdc}, I_B = 0$	30	—	—	Vdc
$BV_{CBO}$	$I_C = 10 \text{ } \mu\text{Adc}, I_E = 0$	60	—	—	Vdc
$BV_{EBO}$	$I_E = 10 \text{ } \mu\text{Adc}, I_C = 0$	5.0	—	—	Vdc
$I_{CBO}$	$V_{CB} = 50 \text{ Vdc}, I_E = 0$	—	—	0.05	$\mu\text{Adc}$

**ON CHARACTERISTICS**

$h_{FE}$	$I_C = 1.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$	50	—	—	—
	$I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$	75	—	—	—
	$I_C = 150 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$	100	—	300	—
	$I_C = 300 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$	30	—	—	—
$V_{CE(sat)}$	$I_C = 150 \text{ mAdc}, I_B = 15 \text{ mAdc}$	—	0.12	0.4	Vdc
	$I_C = 300 \text{ mAdc}, I_B = 30 \text{ mAdc}$	—	0.22	1.6	Vdc
$V_{BE(sat)}$	$I_C = 150 \text{ mAdc}, I_B = 15 \text{ mAdc}$	—	0.85	1.3	Vdc
	$I_C = 300 \text{ mAdc}, I_B = 30 \text{ mAdc}$	—	0.96	2.6	Vdc

**DYNAMIC CHARACTERISTICS**

$f_T$	$I_C = 20 \text{ mAdc}, V_{CE} = 20 \text{ Vdc}, f = 100 \text{ MHz}$	200	340	—	MHz
$C_{ob}$	$V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 100 \text{ MHz}$	—	3.5	8.0	pF
$C_{ib}$	$V_{EB} = 0.5 \text{ Vdc}, I_C = 0, f = 100 \text{ MHz}$	—	—	30	pF

continued

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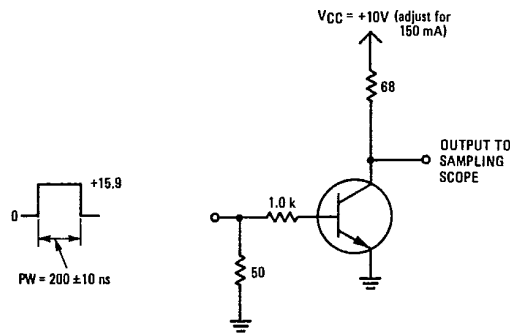
MMT2222 (continued)

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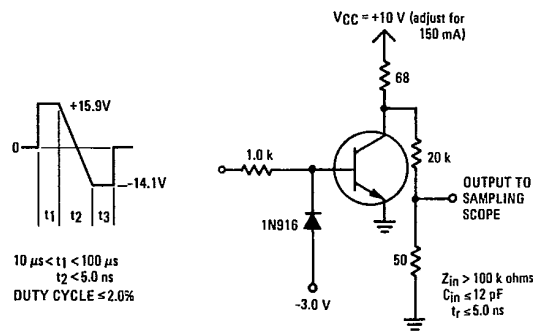
**SWITCHING CHARACTERISTICS**

$t_{on}$	$V_{CC} = 10 \text{ Vdc}$ , $I_C = 150 \text{ mAdc}$ , $V_{BE(off)} = 0 \text{ Vdc}$ , $I_{B1} = 15 \text{ mAdc}$	—	20	—	ns
$t_{off}$	$V_{CC} = 10 \text{ Vdc}$ , $I_C = 150 \text{ mAdc}$ , $I_{B1} = I_{B2} = 15 \text{ mAdc}$	—	180	—	ns

**FIGURE 1 – TURN-ON TIME TEST CIRCUIT**



**FIGURE 2 – TURN-OFF TIME TEST CIRCUIT**



Rise time ( $t_r$ ) of applied pulse shall be 2.0 ns max; Duty Cycle  $\leq$  2.0%.