

MOTOROLA SC (DIODES/OPTO)

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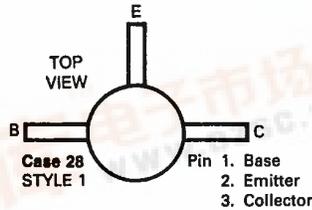
6367255 MOTOROLA SC (DIODES/OPTO)

34C 38210 D

T-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°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
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OFF CHARACTERISTICS

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

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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MICRO-T (continued) 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

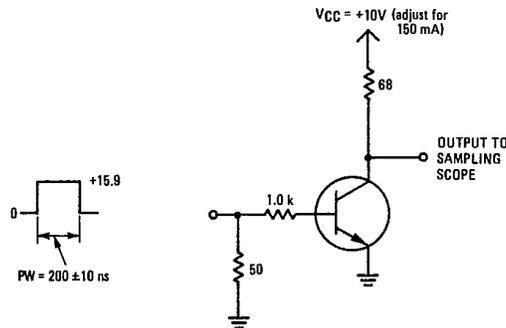
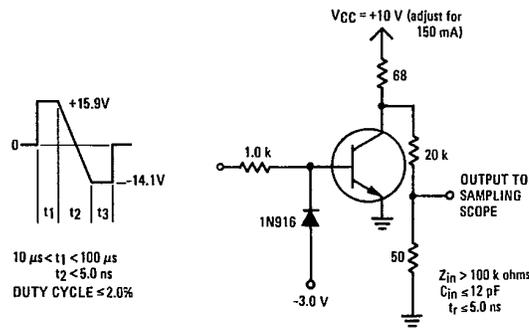


FIGURE 2 – TURN-OFF TIME TEST CIRCUIT



Rise time (t_2) of applied pulse shall be 2.0 ns max; Duty Cycle \leq 2.0%.