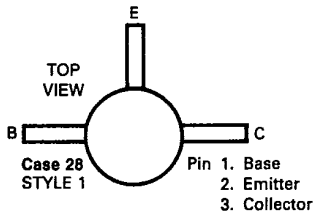
MICRO-T (continued)

MMT74 — NPN
RF AMPLIFIER TRANSISTOR



- designed for high-gain, low-noise amplifier, oscillator and mixer applications.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	12	Vdc
Collector-Base Voltage	V_{CB}	20	Vdc
Emitter-Base Voltage	V_{EB}	3.0	Vdc
Collector Current	I_C	40	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	Typ	Max	Unit
OFF CHARACTERISTICS					
BV_{CEO}	I_C = 3.0 mAdc, I_B = 0	10	—	—	Vdc
BV_{CBO}	I_C = 100 μAdc, I_E = 0	20	—	—	Vdc
BV_{EBO}	I_E = 10 μAdc, I_C = 0	3.0	—	—	Vdc
I_{CBO}	V_{CB} = 10 Vdc, I_E = 0	—	—	100	nAdc
ON CHARACTERISTICS					
h_{FE}	I_C = 3.0 mAdc, V_{CE} = 1.0 Vdc	25	—	—	—
DYNAMIC CHARACTERISTICS					
f_T	I_C = 4.0 mAdc, V_{CE} = 10 Vdc, f = 100 MHz	700	1000	—	MHz
C_{cb}	V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz	—	1.0	3.0	pF
NF	I_C = 1.5 mAdc, V_{CE} = 10 Vdc, R_S = 50 Ω, f = 450 MHz	—	4.0	—	dB

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continued

MICRO-T (continued) **MMT74** (continued) T-31-17

FUNCTIONAL TEST

G_{pe}	I_C = 1.5 mAdc, V_{CE} = 10 Vdc, f = 450 MHz	—	14	—	dB

FIGURE 1 – TEST CIRCUIT FOR NOISE FIGURE AND POWER GAIN

Capacitance values in pF

L1, L2 – Silver plated brass rod, 1-1/2" long and 1/4" dia. Install at least 1/2" from nearest vertical chassis surface.

L3 – 1/2" turn #16 AWG wire, located 1/4" from and parallel to L2.

① – External interlead shield to isolate collector lead from emitter and base leads.

Neutralization Procedure:

(A) Connect 450-MHz signal generator (with R_S = 50 ohms) to input terminals of amplifier.

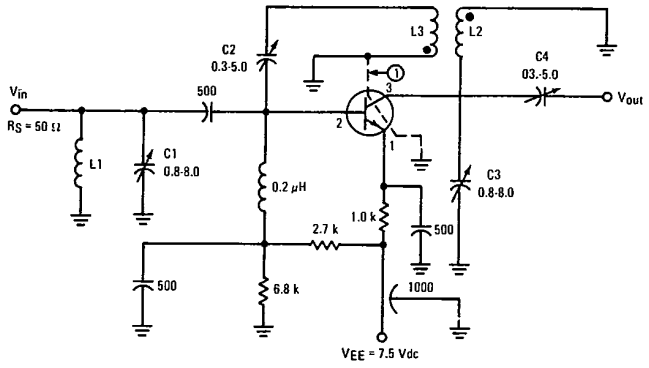
(B) Connect 50-ohm RF voltmeter across output terminals of amplifier.

(C) Apply V_{EE}, and with signal generator adjusted for 5 mV output from amplifier, tune C1, C3, and C4 for maximum output.

(D) Interchange connections to signal generator and RF voltmeter.

(E) With sufficient signal applied to output terminals of amplifier, adjust C2 for minimum indication at input.

(F) Repeat steps (A), (B), and (C) to determine if retuning is necessary.



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