

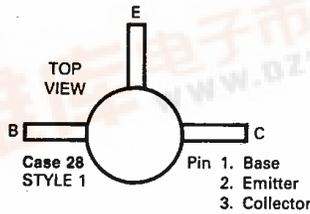
6367255 MOTOROLA SC (DIODES/OPTO)

34C 38215 D

MICRO-T (continued)

T-31-17

MMT2857,A — NPN RF AMPLIFIER TRANSISTORS



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

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	15	Vdc
Collector-Base Voltage	V_{CB}	30	Vdc
Emitter-Base Voltage	V_{EB}	3.0	Vdc
Collector Current	I_C	40	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_{sig}	-55 to +150	$^\circ\text{C}$

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

Parameter	Test Conditions	Min	Max	Unit
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OFF CHARACTERISTICS

BV_{CEO}	$I_C = 3.0 \text{ mAdc}, I_E = 0$	15	—	Vdc
BV_{CBO}	$I_C = 10 \mu\text{Adc}, I_E = 0$	30	—	Vdc
BV_{EBO}	$I_E = 10 \mu\text{Adc}, I_C = 0$	3.0	—	Vdc
I_{CBO}	$V_{CB} = 15 \text{ Vdc}, I_E = 0$	—	50	nAdc

ON CHARACTERISTIC

h_{FE}	$I_C = 3.0 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$	30	—	—
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DYNAMIC CHARACTERISTICS

f_T	$I_C = 4.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 100 \text{ MHz}$	MMT2857	1,000	—	MHz
	$I_C = 5.0 \text{ mAdc}, V_{CE} = 6.0 \text{ Vdc}, f = 100 \text{ MHz}$	MMT2857A	1,000	—	
	$I_C = 1.5 \text{ mAdc}, V_{CE} = 6.0 \text{ Vdc}, f = 100 \text{ MHz}$	MMT2857A	750	—	
C_{cb}	$V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 0.1 \text{ to } 1.0 \text{ MHz}$		—	1.0	pF
NF	$I_C = 1.5 \text{ mAdc}, V_{CE} = 6.0 \text{ Vdc}, R_s = 50 \Omega,$ $f = 450 \text{ MHz}$	MMT2857A	—	5.0	dB

FUNCTIONAL TEST

G_{pe}	$I_C = 1.5 \text{ mAdc}, V_{CE} = 6.0 \text{ Vdc}, f = 450 \text{ MHz}$	MMT2857A	10	—	dB
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continued



6367255 MOTOROLA SC (DIODES/OPTO)

34C 38216 D

MICRO-T (continued) MMT2857,A (continued)

T-31-17

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:

- Connect 450 MHz signal generator (with $R_S = 50$ ohms) to input terminals of amplifier.
- Connect 50-ohm RF voltmeter across output terminals of amplifier.
- Apply V_{EE} , and with signal generator adjusted for 5 mV output from amplifier, tune C1, C3, and C4 for maximum output.
- Interchange connections to signal generator and RF voltmeter.
- With sufficient signal applied to output terminals of amplifier, adjust C2 for minimum indication at input.
- Repeat steps (A), (B), and (C) to determine if retuning is necessary.

