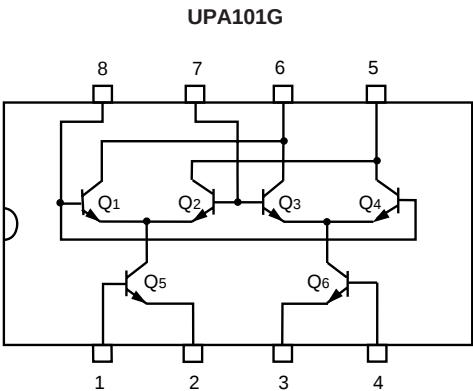


FEATURES

- **BUILT-IN ULTRAHIGH FREQUENCY MULTIPLIER:**
(9 GHz Single Transistors)
- **OUTSTANDING h_{FE} LINEARITY**
- **SMALL PACKAGE**
- **TAPE AND REEL PACKAGING OPTION AVAILABLE**

CONNECTION DIAGRAM (Top View)



DESCRIPTION

This Silicon MMIC transistor array contains six (6), 9 GHz bipolar transistors. Applications include a multiplier, double balanced mixer, phase detector, or AGC circuit.

NEC's stringent quality assurance and test procedures ensure the highest reliability and performance.

ELECTRICAL CHARACTERISTICS (TA = 25°C)

PART NUMBER PACKAGE OUTLINE			UPA101G G08		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
ICBO	Collector Cut-off Current at VCB = 5 V, IE = 0 (All transistors)	μA			1.0
IEBO	Emitter Cut-off Current at VEB = 1 V, IC = 0 (Q5 and Q6)	μA			1.0
hFE	Direct Current Amplification, VCE = 3 V, IC = 1 mA (Q5 and Q6)		40	100	250
hFE1/hFE2	Direct Current Amplification Ratio, VCE = 3 V, IC = 1 mA, (Q5 and Q6)		0.9	1.0	1.1
CEB	Emitter to Base Capacitance at VEB = 0, f = 1 MHz	pF		1.4	2.8
fT1	Gain Bandwidth Product at VCE = 3 V, IC = 10 mA	GHz		9	
RTH	Thermal Resistance, Single Transistor Whole device	°C/W °C/W			40 25

Note:
1. Measured by installing a single transistor in a Micro-X package: the value shown is a reference value.

ABSOLUTE MAXIMUM RATINGS¹ ($T_A = 25^\circ\text{C}$)

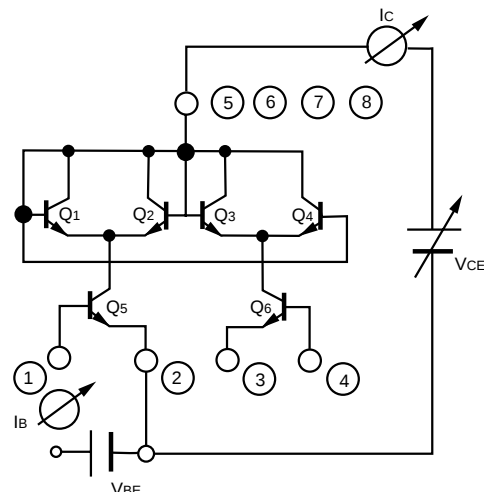
SYMBOLS	PARAMETERS	UNITS	RATINGS
V_{CBO}	Collector to Base Voltage ²	V	15
V_{CEO}	Collector to Emitter Voltage ²	V	6
V_{EBO}	Emitter to Base Voltage ²	V	2.5
I_C	Collector Current ²	mA	40
P_T	Total Power Dissipation	mW	350
T_J	Junction Temperature	$^\circ\text{C}$	125
T_{STG}	Storage Temperature	$^\circ\text{C}$	-55 to +125

Note:

1. Operation in excess of any one of these conditions may result in permanent damage.
2. Absolute maximum ratings for each transistor.

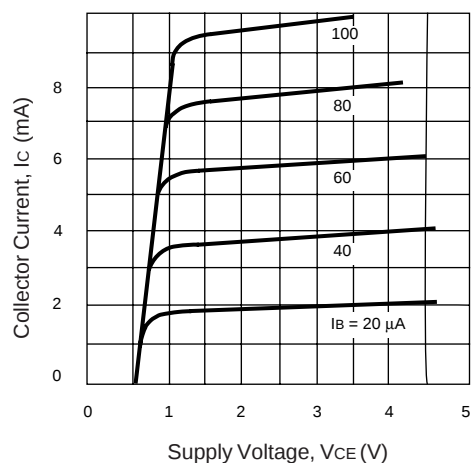
TEST CIRCUIT SCHEMATIC*

(For Electrical Characteristics Measurements excluding f_T)

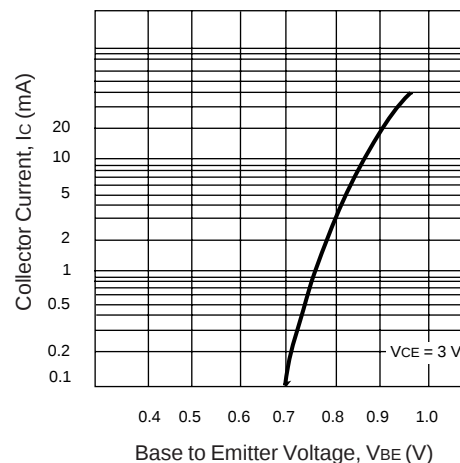
**TYPICAL PERFORMANCE CURVES** ($T_A = 25^\circ\text{C}$)

See Test Circuit Schematic

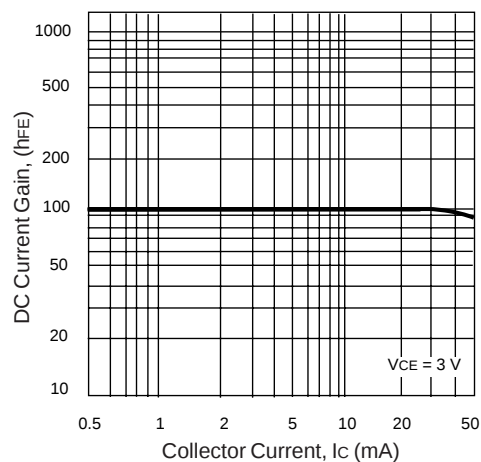
**COLLECTOR CURRENT vs.
PIN 5 TO PIN 2 VOLTAGE**



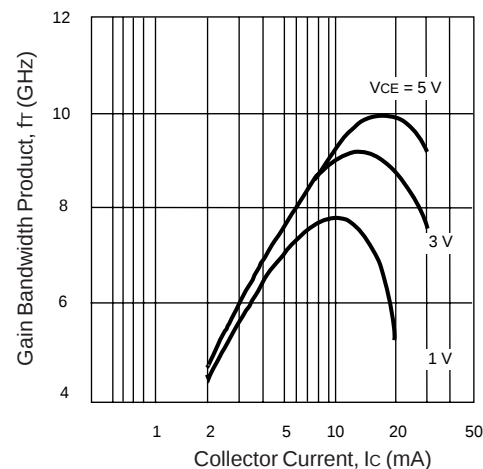
**COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE**



**DC CURRENT GAIN vs.
COLLECTOR CURRENT**



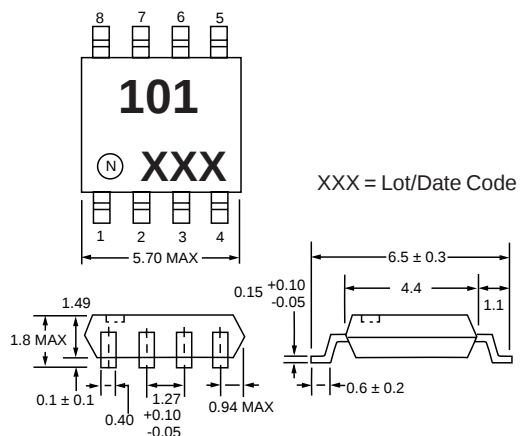
**GAIN BANDWIDTH PRODUCT vs.
COLLECTOR CURRENT**



*See Performance Characteristics for voltage.

OUTLINE DIMENSIONS (Units in mm)

UPA101G
PACKAGE OUTLINE G08



See Connection Diagram for description of leads.

ORDERING INFORMATION

PART NUMBER	QUANTITY
UPA101G-E1	2500/REEL