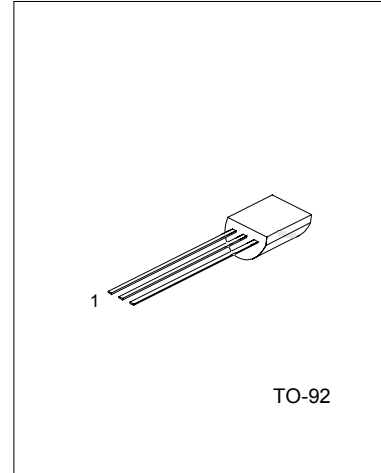


# UTCMPSH10A NPN EPITAXIAL SILICON TRANSISTOR

## RF TRANSISTOR

### DESCRIPTION

The UTC MPSH10A is designed for using as VHF and UHF oscillators and VHF Mixer in a tuner of a TV receiver.



1: BASE 2: EMITTER 3: COLLECTOR

### ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER                 | SYMBOL           | RATINGS    | UNIT |
|---------------------------|------------------|------------|------|
| Collector-base voltage    | V <sub>CB0</sub> | 30         | V    |
| Collector-emitter voltage | V <sub>CEO</sub> | 25         | V    |
| Emitter-base voltage      | V <sub>EBO</sub> | 3          | V    |
| Total Power Dissipation   | P <sub>c</sub>   | 350        | mW   |
| Collector current         | I <sub>c</sub>   | 50         | mA   |
| Junction Temperature      | T <sub>j</sub>   | 150        | °C   |
| Storage Temperature       | T <sub>STG</sub> | -55 ~ +150 | °C   |

### ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

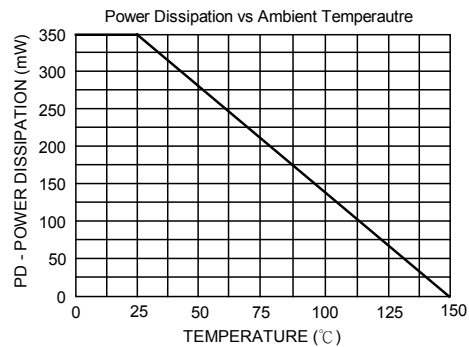
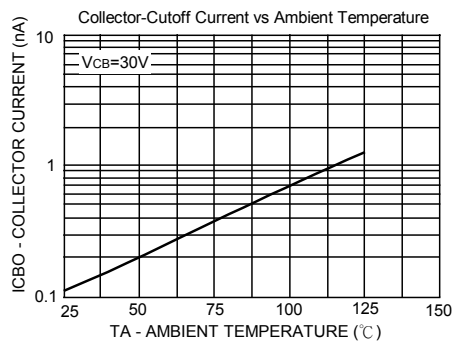
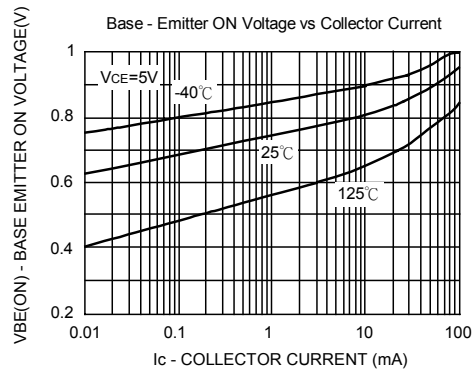
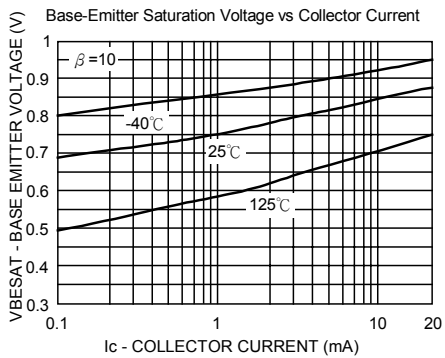
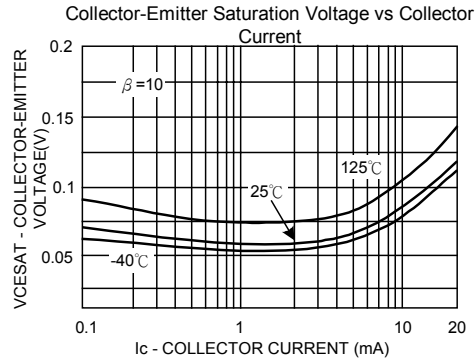
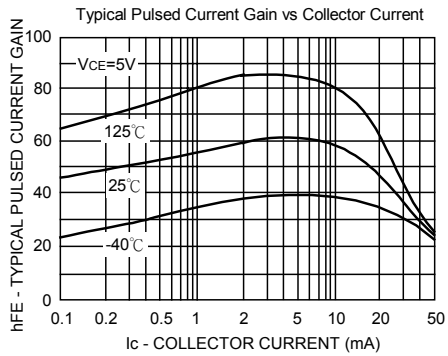
| PARAMETER                            | SYMBOL               | TEST CONDITIONS                                     | MIN | TYP | MAX | UNIT |
|--------------------------------------|----------------------|---|-----|-----|-----|------|
| Collector-base breakdown voltage     | BV <sub>CB0</sub>    | I <sub>c</sub> =100μA                               | 30  |     |     | V    |
| Collector-emitter breakdown voltage  | BV <sub>CEO</sub>    | I <sub>c</sub> =1mA                                 | 25  |     |     | V    |
| Emitter-base breakdown voltage       | BV <sub>EBO</sub>    | I <sub>E</sub> =10μA                                |     |     | 3   | V    |
| Collector cut-off current            | I <sub>CB0</sub>     | V <sub>CB</sub> =25V                                |     |     | 100 | nA   |
| Emitter cut-off current              | I <sub>EBO</sub>     | V <sub>EB</sub> =2V                                 |     |     | 100 | nA   |
| Collector-emitter saturation voltage | V <sub>CE(SAT)</sub> | I <sub>C</sub> =4mA, I <sub>B</sub> =400μA          |     |     | 500 | mV   |
| Base-emitter on voltage              | V <sub>BE(ON)</sub>  | V <sub>CE</sub> =10V, I <sub>C</sub> =4mA           |     |     | 950 | mV   |
| DC current gain                      | h <sub>FE</sub>      | V <sub>CE</sub> =10V, I <sub>C</sub> =4mA           | 60  |     |     |      |
| Output capacitance                   | C <sub>ob</sub>      | V <sub>CB</sub> =10V, f=1MHZ                        |     |     | 0.7 | pF   |
| Current gain bandwidth product       | f <sub>T</sub>       | V <sub>CE</sub> =10V, I <sub>C</sub> =4mA, f=100MHZ | 650 |     |     | MHZ  |

### CLASSIFICATION OF hFE

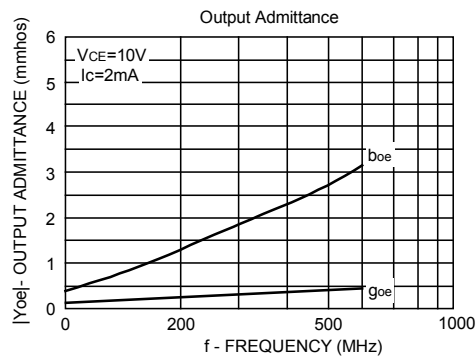
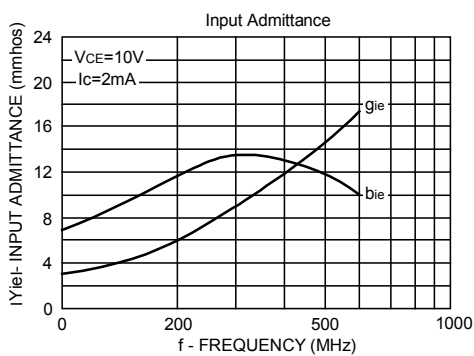
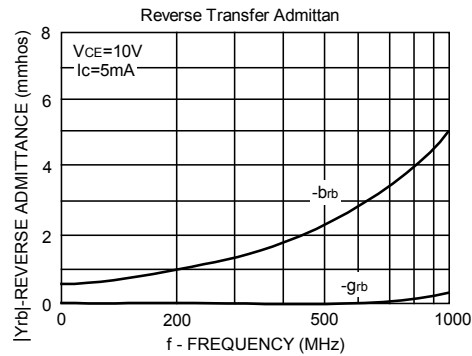
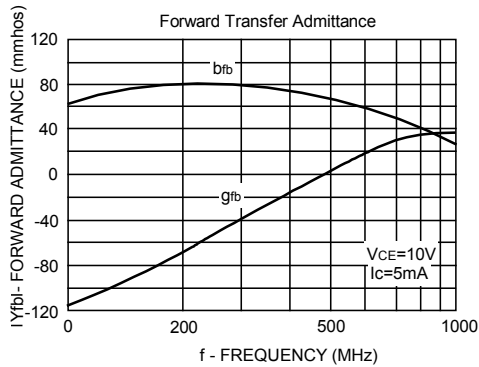
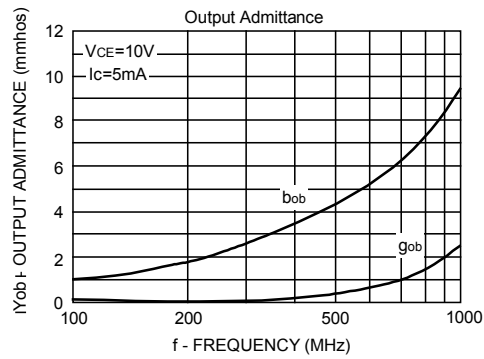
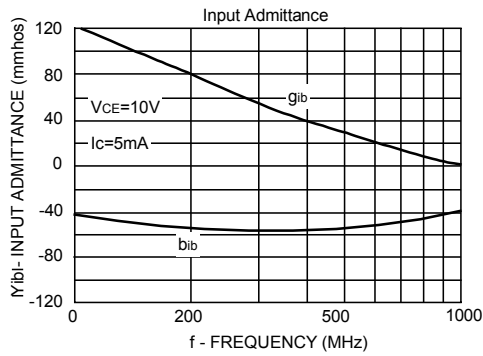
| RANK  | A      | B      | C       |
|-------|--------|--------|---------|
| RANGE | 60-100 | 90-130 | 120-200 |

# UTCMP5H10A NPN EPITAXIAL SILICON TRANSISTOR

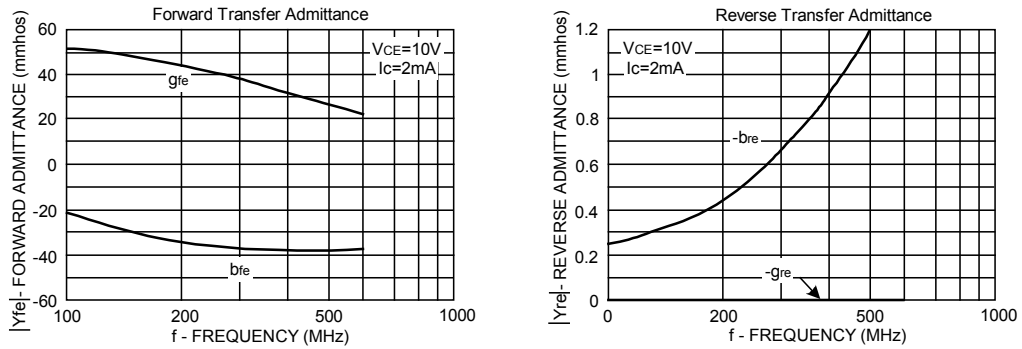
## Typical Characteristics



# UTCMP5H10A NPN EPITAXIAL SILICON TRANSISTOR



# UTCMP5H10A NPN EPITAXIAL SILICON TRANSISTOR



## Test Circuits

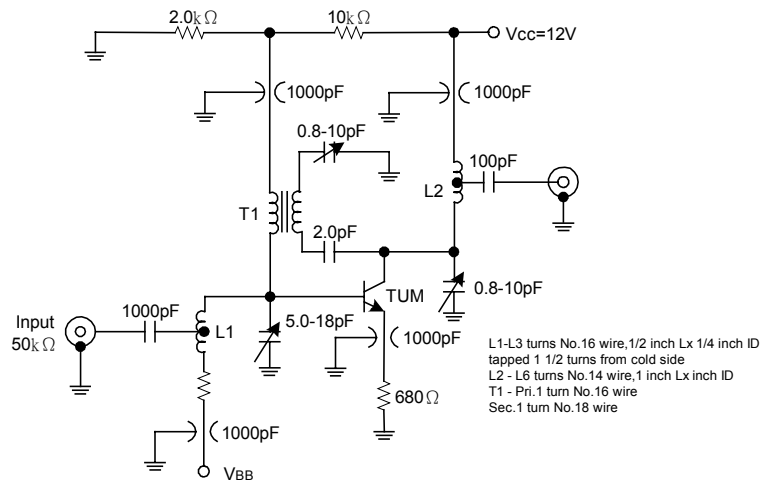


FIGURE 1: Neutralized 200 MHz PG and NF Circuit

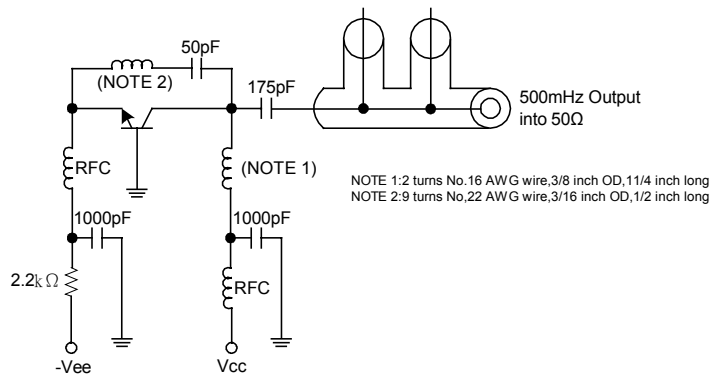


FIGURE 2: 500 MHz Oscillator Circuit

# UTCMPSH10A NPN EPITAXIAL SILICON TRANSISTOR

## Test Circuits

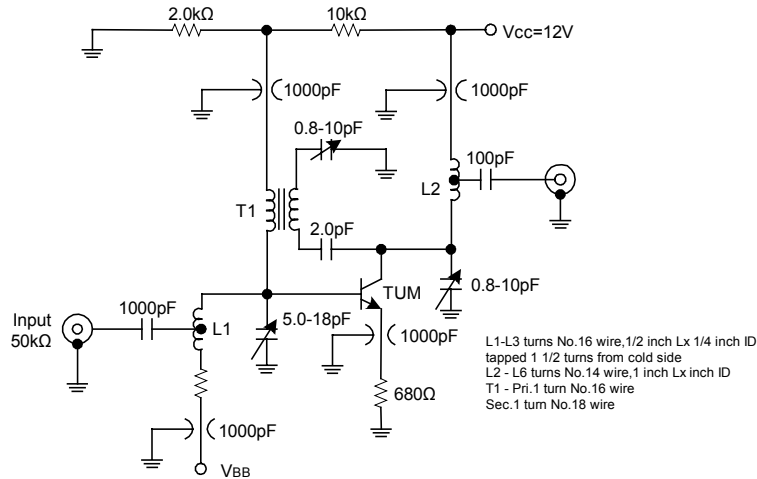


FIGURE 1: Neutralized 200 MHz PG and NF Circuit

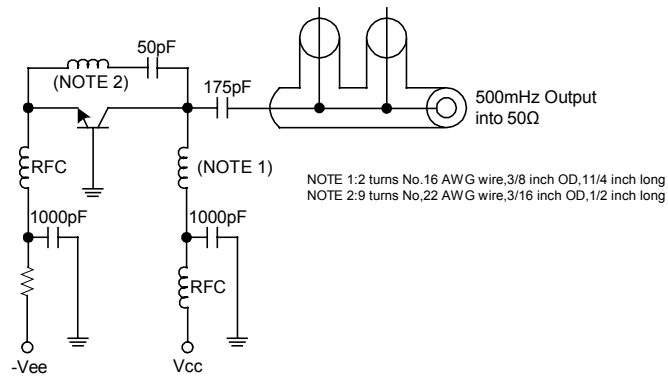


FIGURE 2: 500 MHz Oscillator Circuit

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