

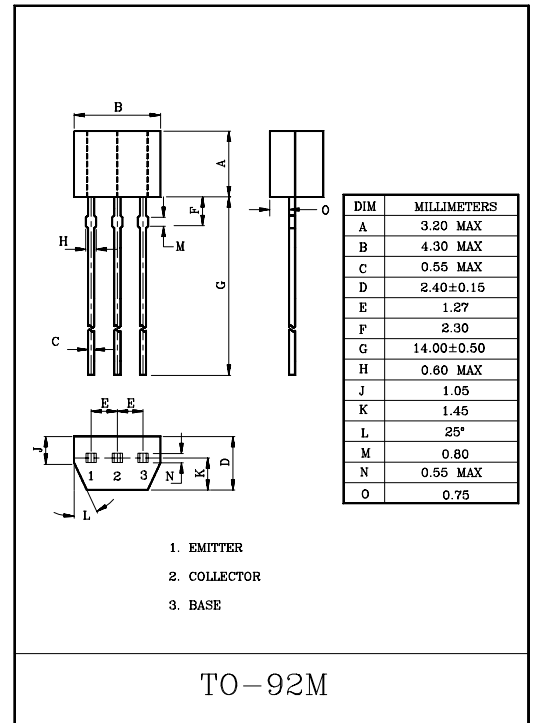
HIGH FREQUENCY APPLICATION.  
HF, VHF BAND AMPLIFIER APPLICATION.

### FEATURES

- High Power Gain :  $G_{pe}=30\text{dB(Typ.)}$  ( $f=10.7\text{MHz}$ ).
- Recommended for FM IF, OSC Stage and AM CONV, IF Stage.

### MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )

| CHARACTERISTIC              | SYMBOL    | RATING  | UNIT             |
|-----------------------------|-----------|---------|------------------|
| Collector-Base Voltage      | $V_{CBO}$ | 35      | V                |
| Collector-Emitter Voltage   | $V_{CEO}$ | 30      | V                |
| Emitter-Base Voltage        | $V_{EBO}$ | 4       | V                |
| Collector Current           | $I_C$     | 50      | mA               |
| Emitter Current             | $I_E$     | -50     | mA               |
| Collector Power Dissipation | $P_C$     | 400     | mW               |
| Junction Temperature        | $T_j$     | 150     | $^\circ\text{C}$ |
| Storage Temperature Range   | $T_{stg}$ | -55~150 | $^\circ\text{C}$ |



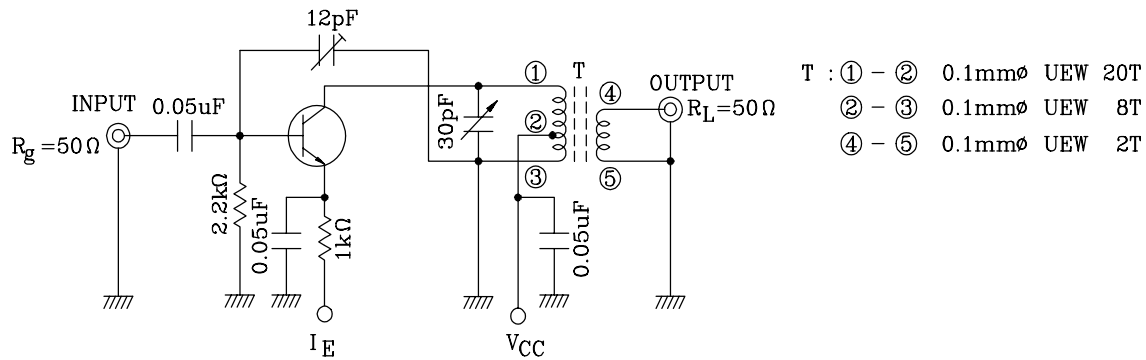
### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

| CHARACTERISTIC                       | SYMBOL                | TEST CONDITION   | MIN. | TYP. | MAX. | UNIT          |
|--------------------------------------|-----------------------|--|------|------|------|---------------|
| Collector Cut-off Current            | $I_{CBO}$             | $V_{CB}=35\text{V}, I_E=0$                                   | -    | -    | 0.1  | $\mu\text{A}$ |
| Emitter Cut-off Current              | $I_{EBO}$             | $V_{EB}=4\text{V}, I_C=0$                                    | -    | -    | 1.0  | $\mu\text{A}$ |
| DC Current Gain                      | $h_{FE}(\text{Note})$ | $V_{CE}=12\text{V}, I_C=2\text{mA}$                          | 40   | -    | 240  |               |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$         | $I_C=10\text{mA}, I_B=1\text{mA}$                            | -    | -    | 0.4  | V             |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$         | $I_C=10\text{mA}, I_B=1\text{mA}$                            | -    | -    | 1.0  | V             |
| Transition Frequency                 | $f_T$                 | $V_{CE}=10\text{V}, I_C=1\text{mA}$                          | 100  | -    | -    | MHz           |
| Collector Output Capacitance         | $C_{ob}$              | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$                    | -    | 2.0  | 3.2  | pF            |
| Collector-Base Time Constant         | $C_c \cdot r_{bb}$    | $V_{CE}=10\text{V}, I_E=-1\text{mA}, f=30\text{MHz}$         | 10   | -    | 50   | pS            |
| Power Gain                           | $G_{pe}$              | $V_{CC}=6\text{V}, I_E=-1\text{mA}, f=10.7\text{MHz}$ (Fig.) | 27   | 29   | 33   | dB            |

Note :  $h_{FE}$  Classification R:40~80 , O:70~140 , Y:120~240

# KTC3193

Fig.  $G_{pe}$  TEST CIRCUIT



y PARAMETERS (Typ.)

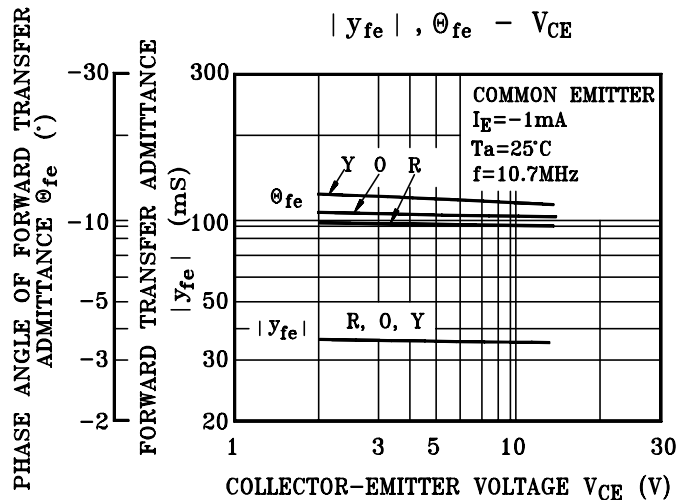
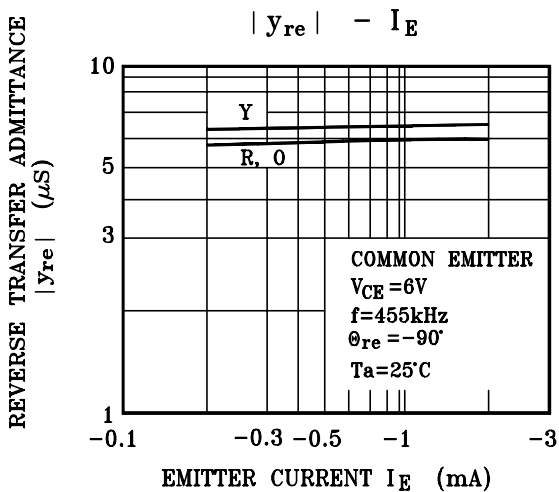
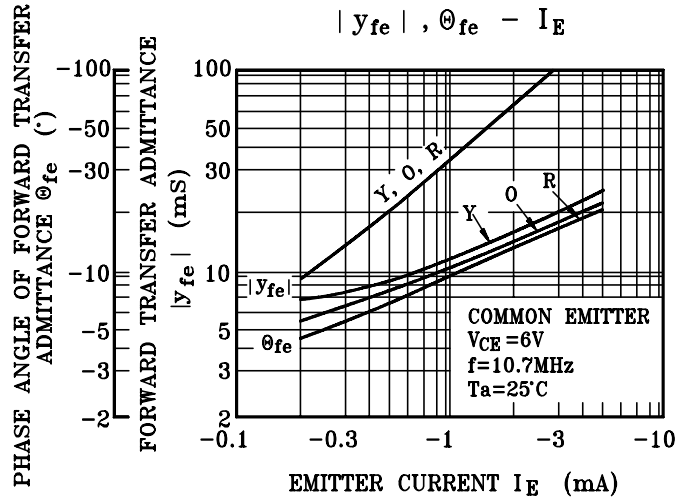
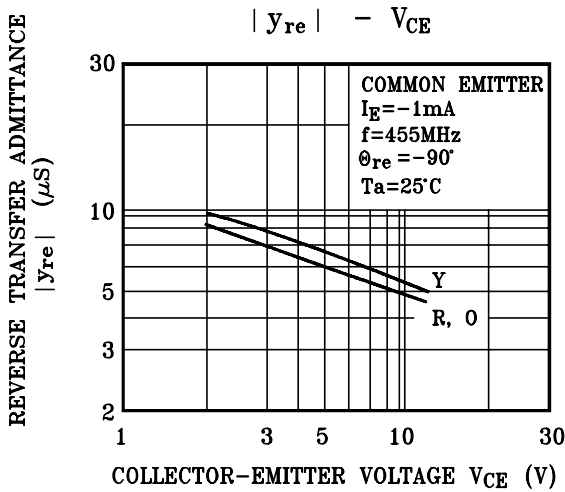
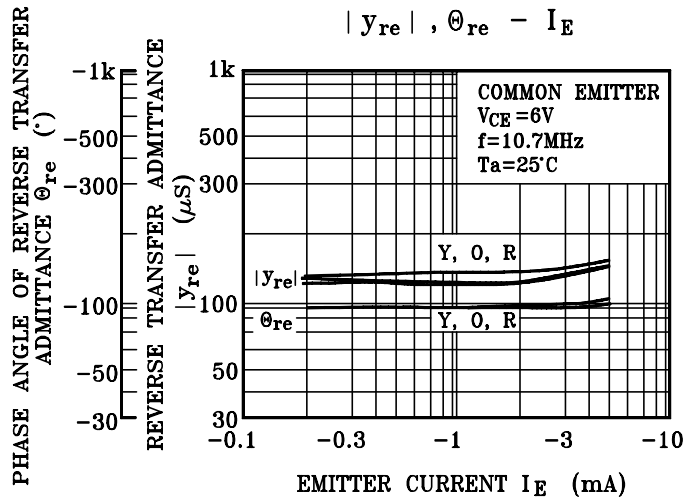
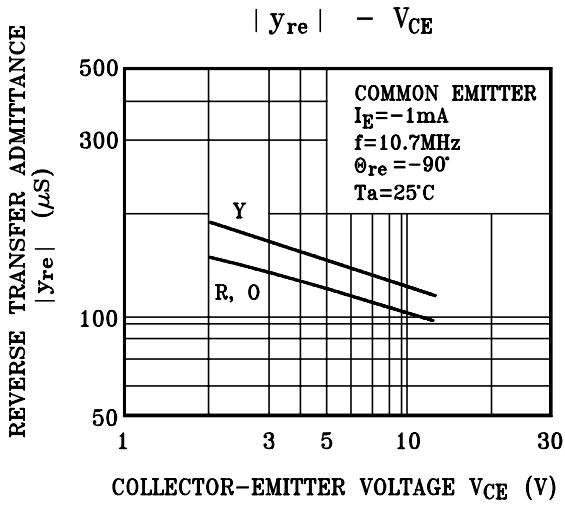
(1) (COMMON EMITTER  $f=455\text{kHz}$ ,  $T_a=25^\circ\text{C}$ )

| CHARACTERISTIC                             | SYMBOL        | KTC3193-R | KTC3193-O | KTC3193-Y | UNIT          |
|--|---------------|-----------|-----------|-----------|---------------|
| Collector-Emitter Voltage                  | $V_{CE}$      | 6         | 6         | 6         | V             |
| Emitter Current                            | $I_E$         | -1        | -1        | -1        | mA            |
| Input Conductance                          | $g_{ie}$      | 0.58      | 0.41      | 0.26      | mS            |
| Input Capacitance                          | $C_{ie}$      | 53        | 46        | 38        | pF            |
| Output Conductance                         | $g_{oe}$      | 1.9       | 2.7       | 4.8       | $\mu\text{S}$ |
| Output Capacitance                         | $C_{oe}$      | 2.6       | 2.8       | 3.6       | pF            |
| Forward Transfer Admittance                | $ y_{fe} $    | 38        | 38        | 38        | mS            |
| Phase Angle of Forward Transfer Admittance | $\theta_{fe}$ | -0.79     | -0.83     | -0.92     | $^\circ$      |
| Reverse Transfer Admittance                | $ y_{re} $    | 5.7       | 5.7       | 6.2       | $\mu\text{S}$ |
| Phase Angle of Reverse Transfer Admittance | $\theta_{re}$ | -90       | -90       | -90       | $^\circ$      |

(2) (COMMON EMITTER  $f=10.7\text{MHz}$ ,  $T_a=25^\circ\text{C}$ )

| CHARACTERISTIC                             | SYMBOL        | KTC3193-R | KTC3193-O | KTC3193-Y | UNIT          |
|--|---------------|-----------|-----------|-----------|---------------|
| Collector-Emitter Voltage                  | $V_{CE}$      | 6         | 6         | 6         | V             |
| Emitter Current                            | $I_E$         | -1        | -1        | -1        | mA            |
| Input Conductance                          | $g_{ie}$      | 1.04      | 0.85      | 0.65      | mS            |
| Input Capacitance                          | $C_{ie}$      | 49        | 43        | 36        | pF            |
| Output Conductance                         | $g_{oe}$      | 10        | 15        | 28        | $\mu\text{S}$ |
| Output Capacitance                         | $C_{oe}$      | 2.7       | 2.9       | 3.6       | pF            |
| Forward Transfer Admittance                | $ y_{fe} $    | 37        | 37        | 37        | mS            |
| Phase Angle of Forward Transfer Admittance | $\theta_{fe}$ | -9.6      | -10.4     | -11.5     | $^\circ$      |
| Reverse Transfer Admittance                | $ y_{re} $    | 120       | 120       | 140       | $\mu\text{S}$ |
| Phase Angle of Reverse Transfer Admittance | $\theta_{re}$ | -90       | -90       | -90       | $^\circ$      |

# KTC3193



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