# Low frequency amplifier (30V, 1.5A)

## US6X6

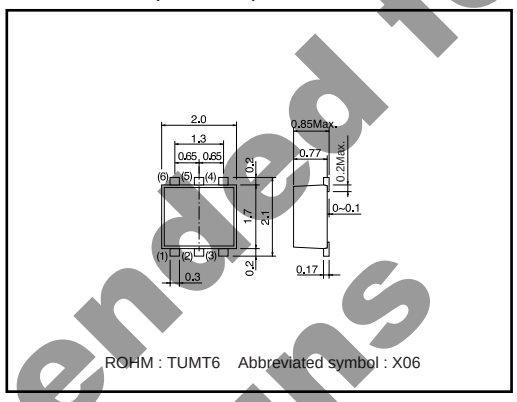
**●Application**

Low frequency amplifier
Driver

**●Features**

1) A collector current is large.
2) $V_{CE(sat)}$ : max. 350mV
   At $I_C$ = 1A / $I_B$ = 50mA

**●Dimensions** (Unit : mm)

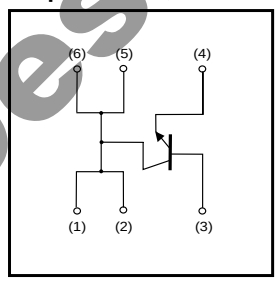



**●Absolute maximum ratings** (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Collector-base voltage | $V_{CBO}$ | 30 | V |
| Collector-emitter voltage | $V_{CEO}$ | 30 | V |
| Emitter-base voltage | $V_{EBO}$ | 6 | V |
| Collector current | $I_C$ | 1.5 | A |
| | $I_{CP}$ | 3 | A *1 |
| Power dissipation | $P_C$ | 400 | mW *2 |
| | | 1.0 | W *3 |
| Junction temperature | Tj | 150 | °C |
| Range of storage temperature | Tstg | −55 to +150 | °C |

*1 Single pulse, Pw=1ms
*2 Each Terminal Mounted on a Recommended
*3 Mounted on a 25mm×25mm×t0.8mm ceramic substrate

**●Equivalent circuit**




**●Electrical characteristics** (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $BV_{CBO}$ | 30 | – | – | V | $I_C$=10μA |
| Collector-emitter breakdown voltage | $BV_{CEO}$ | 30 | – | – | V | $I_C$=1mA |
| Emitter-base breakdown voltage | $BV_{EBO}$ | 6 | – | – | V | $I_E$=10μA |
| Collector cutoff current | $I_{CBO}$ | – | – | 100 | nA | $V_{CB}$=30V |
| Emitter cutoff current | $I_{EBO}$ | – | – | 100 | nA | $V_{EB}$=6V |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | – | 140 | 350 | mV | $I_C$=1A, $I_B$=50mA |
| DC current gain | $h_{FE}$ | 270 | – | 680 | – | $V_{CE}$=2V, $I_C$=100mA * |
| Transition frequency | $f_T$ | – | 300 | – | MHz | $V_{CE}$=2V, $I_E$=−100mA, f=100MHz * |
| Collector output capacitance | Cob | – | 11 | – | pF | $V_{CB}$=10V, $I_E$=0A, f=1MHz |

* Pulsed

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## ●Packaging specifications

| | | |
|---|---|---|
| Type | Package | Taping |
| | Code | TR |
| | Basic ordering unit (pieces) | 3000 |
| US6X6 | | ○ |

## ●Electrical characteristic curves

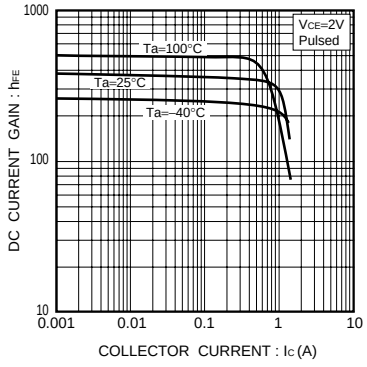


Fig.1 DC current gain vs. collector current

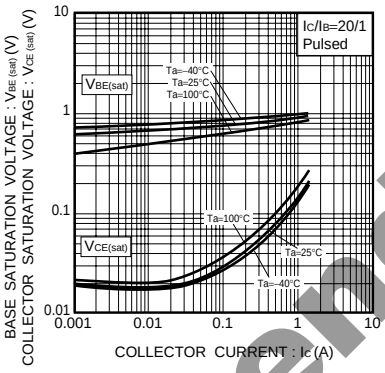


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

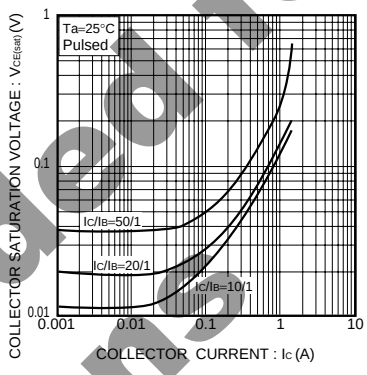


Fig.3 Collector-emitter saturation voltage vs. collector current

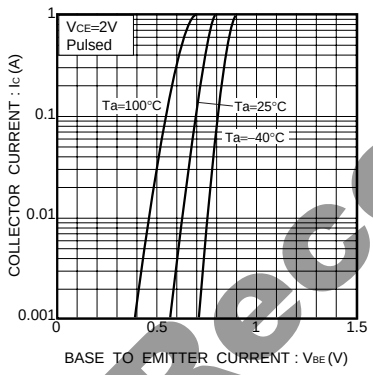


Fig.4 Grounded emitter propagation characteristics

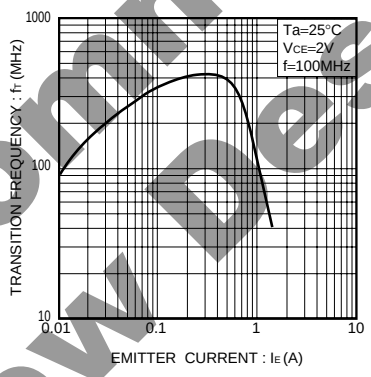


Fig.5 Gain bandwidth product vs. emitter current

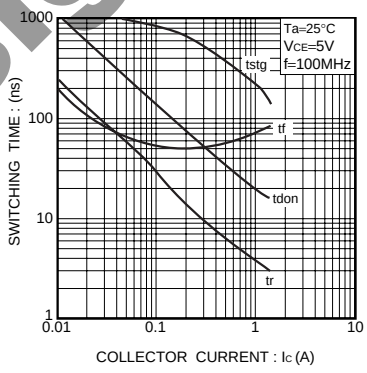


Fig.6 Switching time

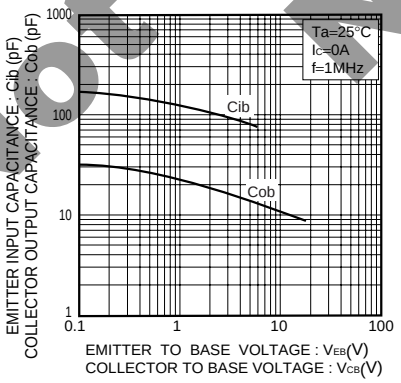


Fig.7 Collector output capacitance vs. collector-base voltage Emitter input capacitance vs. emitter-base voltage

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