

Transistors

Low frequency amplifier

QSX5

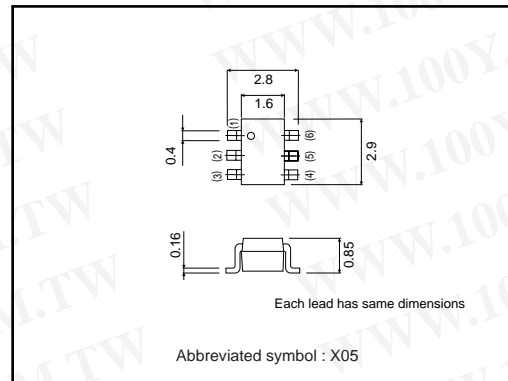
●Application

Low frequency amplifier
 Driver

●Features

- 1) A collector current is large.
- 2) $V_{CE(sat)} \leq 180mV$
 At $I_c = 1A / I_b = 50mA$

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

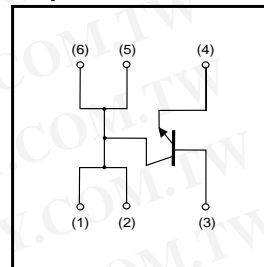
| Parameter | Symbol | Limits | Unit |
|------------------------------|-----------|-------------|-------|
| Collector-base voltage | V_{CBO} | 15 | V |
| Collector-emitter voltage | V_{CEO} | 12 | V |
| Emitter-base voltage | V_{EBO} | 6 | V |
| Collector current | I_c | 2 | A |
| | I_{cP} | 4 | A *1 |
| Power dissipation | P_c | 500 | mW *2 |
| | | 1.25 | W *3 |
| Junction temperature | T_j | 150 | °C |
| Range of storage temperature | T_{stg} | -55 to +150 | °C |

*1 Single pulse, $P_w=1ms$

*2 Each Terminal Mounted on a Recommended

*3 Mounted on a 25mm×25mm×0.8mm Ceramic substrate

●Equivalent circuit



●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|------|-------------------------------------|
| Collector-base breakdown voltage | BV_{CBO} | 15 | - | - | V | $I_c=10\mu A$ |
| Collector-emitter breakdown voltage | BV_{CEO} | 12 | - | - | V | $I_c=1mA$ |
| Emitter-base breakdown voltage | BV_{EBO} | 6 | - | - | V | $I_E=10\mu A$ |
| Collector cutoff current | I_{cBO} | - | - | 100 | nA | $V_{CB}=15V$ |
| Emitter cutoff current | I_{EBO} | - | - | 100 | nA | $V_{EB}=6V$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | - | 90 | 180 | mV | $I_c=1A, I_b=50mA$ |
| DC current gain | h_{FE} | 270 | - | 680 | - | $V_{CE}=2V, I_c=200mA^*$ |
| Transition frequency | f_T | - | 360 | - | MHz | $V_{CE}=2V, I_E=-200mA, f=100MHz^*$ |
| Collector output capacitance | C_{ob} | - | 20 | - | pF | $V_{CB}=10V, I_E=0A, f=1MHz$ |

* Pulsed

Transistors

●Packaging specifications

| Type | Package | Taping |
|------|------------------------------|--------|
| | Code | TR |
| | Basic ordering unit (pieces) | 3000 |
| QSX5 | | ○ |

●Electrical characteristic curves

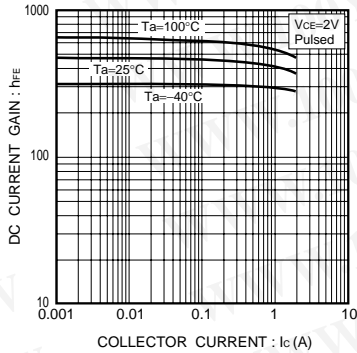


Fig.1 DC current gain vs. collector current

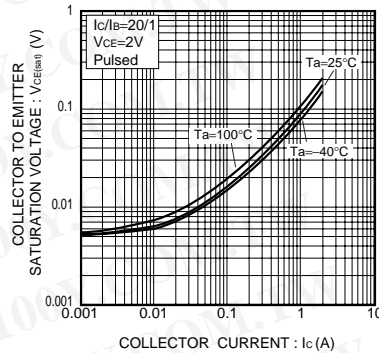


Fig.2 Base-emitter saturation voltage vs. collector current

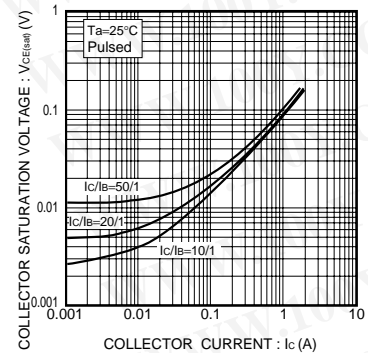


Fig.3 Collector-emitter saturation voltage vs. collector current

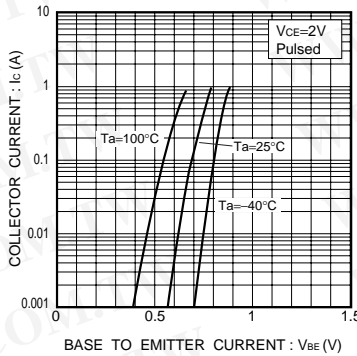


Fig.4 Grounded emitter propagation characteristics

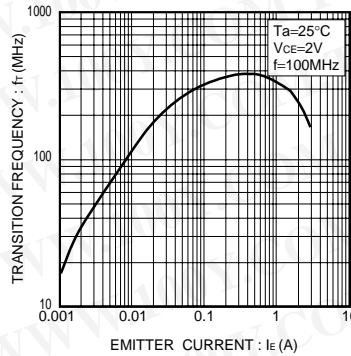


Fig.5 Gain bandwidth product vs. emitter current

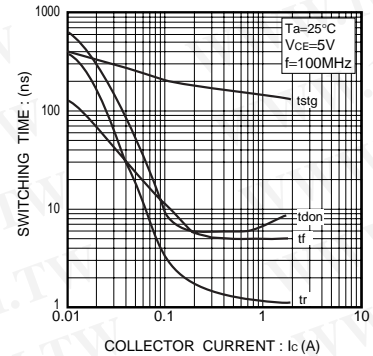


Fig.6 Switching time

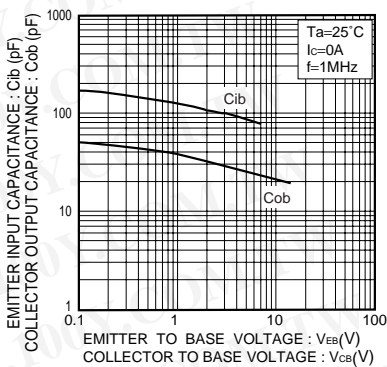


Fig.7 Collector output capacitance vs. collector-base voltage
 Emitter input capacitance vs. emitter-base voltage

Appendix

Notes

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