

DESCRIPTION

Mitsubishi 2SC5213 is a resin sealed silicon NPN epitaxial type transistor. It designed with high voltage, high hFE and high fr. Complementary with 2SA1948.

FEATURE

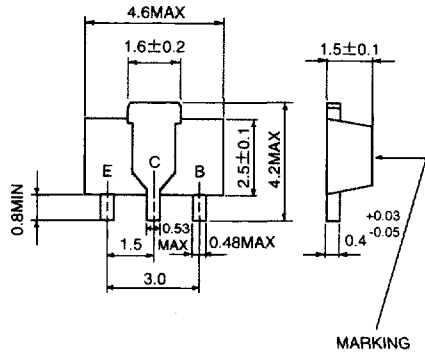
- High fr fr=200MHz typ, low Cob Cob=2.3pF typ
- Excellent linearity of DC forward current gain
- High hFE hFE=150 to 800
- Small package for mounting
- High voltage VCE0=120V
- High collector dissipation Pc=500mW

APPLICATION

Pre-drive stage of output 40 to 80W main amplifier. Final stage of tone control amplifier.

OUTLINE DRAWING

Unit:mm

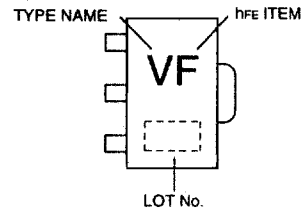


TERMINAL CONNECTOR

- E : EMITTER
- C : COLLECTOR EIAJ : SC-62
- B : BASE JEDEC : -

Note)
The dimension without tolerance represent central value.

MARKING



MAXIMUM RATINGS (Ta=25°C)

| Symbol | Parameter | Ratings | Unit |
|--------|--------------------------------|-------------|------|
| Vcbo | Collector to Base voltage | 120 | V |
| Vebo | Emitter to Base voltage | 5 | V |
| Vceo | Collector to Emitter voltage | 120 | V |
| Ic | Collector current | 100 | mA |
| Pc | Collector dissipation(Ta=25°C) | 500 | mW |
| Tj | Junction temperature | +150 | °C |
| Tstg | Storage temperature | -55 to +150 | °C |

ELECTRICAL CHARACTERISTICS (Ta=25°C)

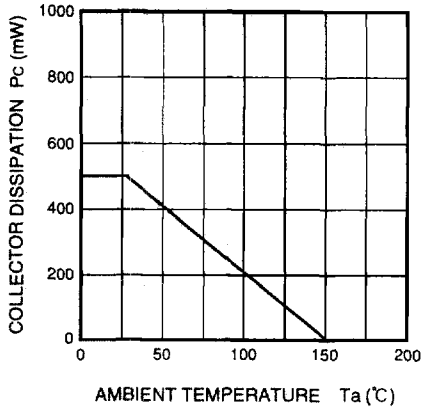
| Symbol | Parameter | Test conditions | Limits | | | Unit |
|----------|------------------------------|------------------------|--------|------|-----|------|
| | | | Min | Typ | Max | |
| V(BR)CBO | C to B break down voltage | Ic=10 μA, IE=0 | 120 | | | V |
| V(BR)EBO | E to B break down voltage | IE=10 μA, Ic=0 | 5 | | | V |
| V(BR)CEO | C to E break down voltage | Ic=1mA, RBE=∞ | 120 | | | V |
| Icbo | Collector cut off current | VCE=100V, IE=0 | | | 0.1 | μA |
| Iebo | Emitter cut off current | VEB=4V, Ic=0 | | | 0.1 | μA |
| hFE * | DC forward current gain | VCE=10V, Ic=10mA | 150 | | 800 | — |
| VCE(sat) | C to E saturation voltage | Ic=50mA, IB=2.5mA | | 0.17 | 0.6 | V |
| fr | Gain band width product | VCE=10V, IE=-10mA | | 200 | | MHz |
| Cob | Collector output capacitance | VCE=-10V, IE=0, f=1MHz | | 2.3 | | pF |

* : It shows hFE classification in right table.

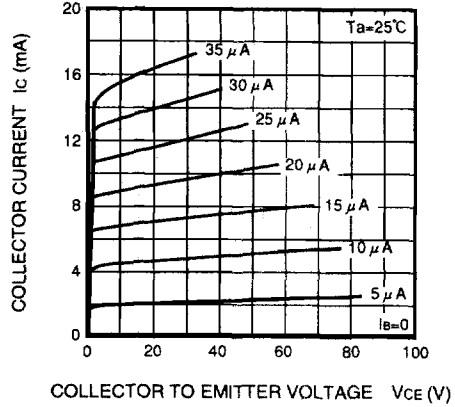
| Marking | VE | VF | VG |
|---------|------------|------------|------------|
| hFE | 150 to 300 | 250 to 500 | 400 to 800 |

TYPICAL CHARACTERISTICS

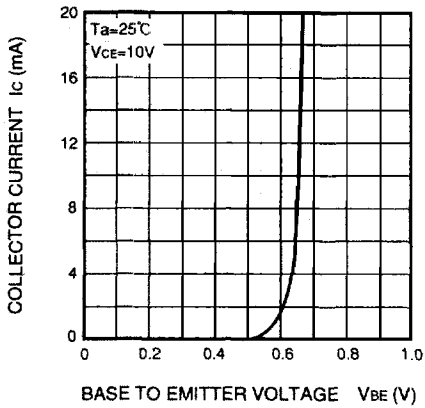
COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE



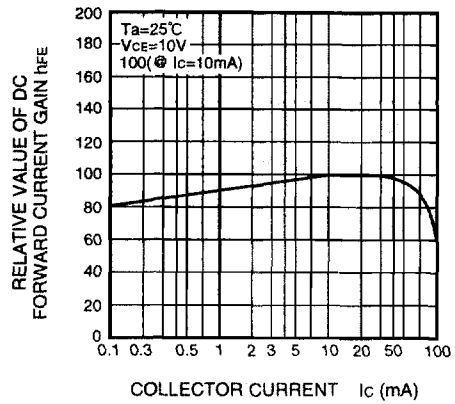
COMMON EMITTER OUTPUT



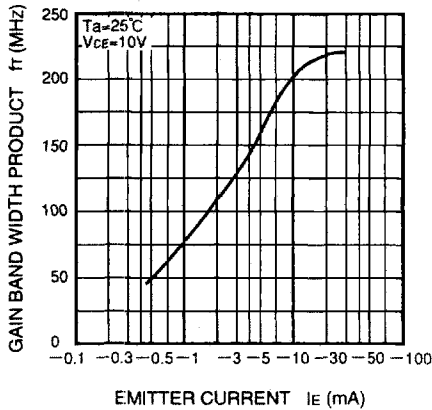
COMMON EMITTER TRANSFER



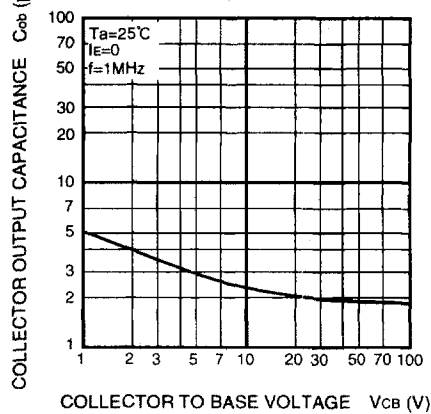
DC FORWARD CURRENT GAIN VS. COLLECTOR CURRENT



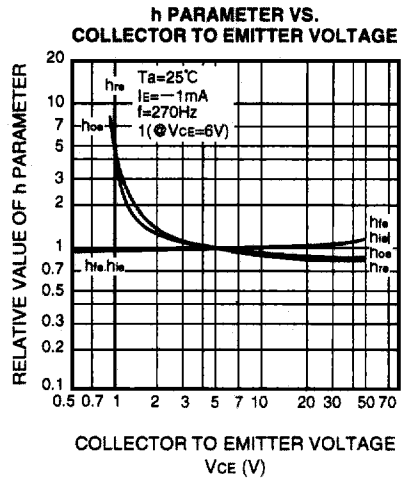
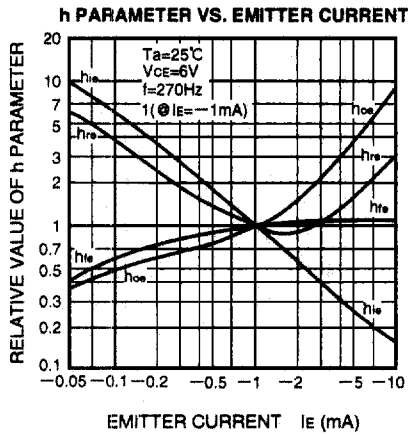
GAIN BAND WIDTH PRODUCT VS. EMITTER CURRENT



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



FOR PRE-DRIVE APPLICATION
SILICON NPN EPITAXIAL TYPE



COMMON EMITTER h PARAMETER (TYPICAL VALUE)

| Symbol | Parameter | Test conditions | Limits | Unit |
|----------|---|---|--------|------------------|
| h_{ie} | Closed loop small signal input impedance | $T_a=25^\circ\text{C}$ $V_{CE}=6\text{V}$ $I_E = -1\text{mA}$ $f=270\text{Hz}$ | 18 | $\text{k}\Omega$ |
| h_{re} | Open loop small signal reverse voltage amplification factor | | 0.08 | $\times 10^{-3}$ |
| h_{fe} | Closed loop small signal forward current amplification factor | | 600 | — |
| h_{oe} | Open loop small signal output admittance | | 10 | μS |