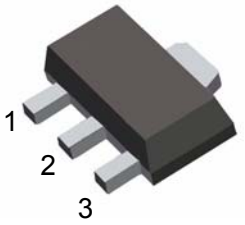
JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

# SOT-89 Plastic-Encapsulate Transistors

## 2SC4115 TRANSISTOR (NPN)

**SOT-89**




1. BASE
2. COLLECTOR
3. EMITTER

### FEATURES

- Low $V_{CE(sat)}$.$V_{CE(sat)}$ = 0.2V (Typ.)($I_C$ / $I_B$ = 2A / 0.1A)
- Excellent current gain characteristics.
- Complements to 2SA1585



### MAXIMUM RATINGS ($T_A$=25℃ unless otherwise noted)

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 40 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 20 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 6 | V |
| $I_C$ | Collector Current -Continuous | 3 | A |
| $P_C$ | Collector Power Dissipation | 500 | mW |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -55-150 | ℃ |

### ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **Collector-base breakdown voltage** | $V_{(BR)CBO}$ | $I_C$= 50μA, $I_E$=0 | 40 | | | V |
| **Collector-emitter breakdown voltage** | $V_{(BR)CEO}$ | $I_C$=1mA , $I_B$=0 | 20 | | | V |
| **Emitter-base breakdown voltage** | $V_{(BR)EBO}$ | $I_E$=50μA, $I_C$=0 | 6 | | | V |
| **Collector cut-off current** | $I_{CBO}$ | $V_{CB}$=30V, $I_E$=0 | | | 0.1 | μA |
| **Emitter cut-off current** | $I_{EBO}$ | $V_{EB}$= 5V, $I_C$=0 | | | 0.1 | μA |
| **DC current gain** | $h_{FE}$ | $V_{CE}$=2V, $I_C$= 0.1A | 120 | | 560 | |
| **Collector-emitter saturation voltage*** | $V_{CEsat}$ | $I_C$= 2A, $I_B$=0.1A | | | 0.5 | V |
| **Transition frequency** | $f_T$ | $V_{CE}$=2V, $I_C$=0.5 A F=100MHz | 200 | 290 | | MHz |

***pulse test**

### CLASSIFICATION OF $h_{FE}$

| Rank | Q | R | S |
|---|---|---|---|
| **Range** | 120-270 | 180-390 | 270-560 |
| **marking** | 4115Q | 4115R | 4115S |

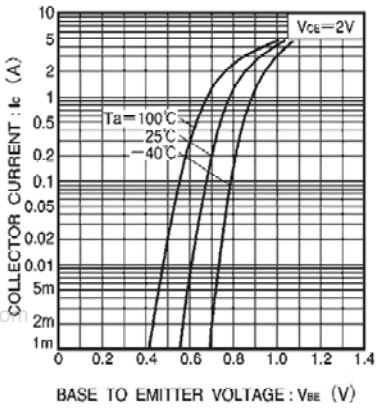



Fig.1 Grounded emitter propagation characteristics

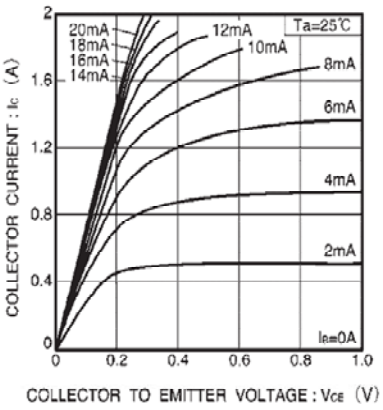



Fig.2 Grounded emitter output characteristics (Ⅰ)

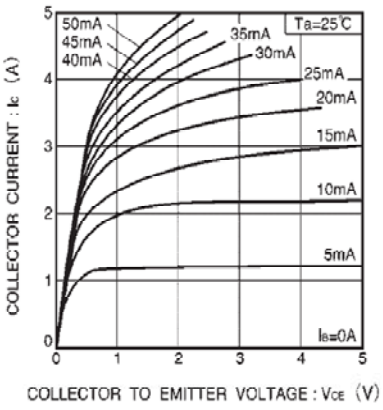



Fig.3 Grounded emitter output characteristics (Ⅱ)

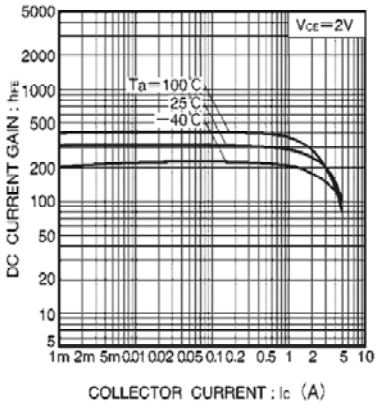



Fig.4 DC current gain vs. collector current

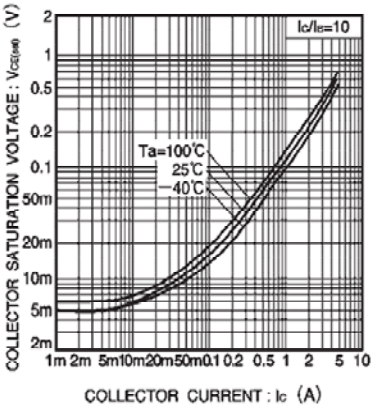



Fig.5 Collector-emitter saturation voltage vs. collector current (Ⅰ)

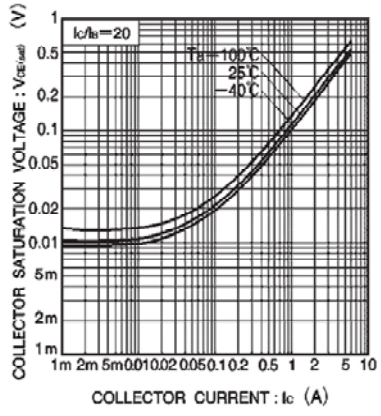



Fig.6 Collector-emitter saturation voltage vs. collector current (Ⅱ)

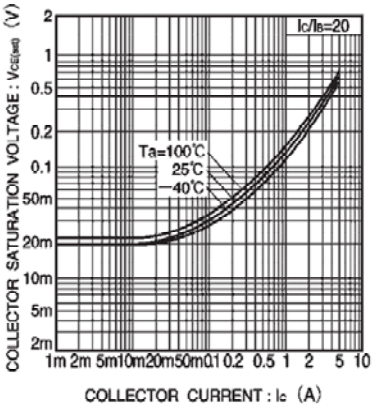



Fig.7 Collector-emitter saturation voltage vs. collector current (Ⅲ)

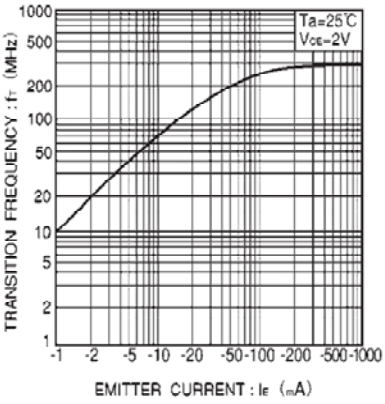



Fig.8 Gain bandwidth product vs. emitter current

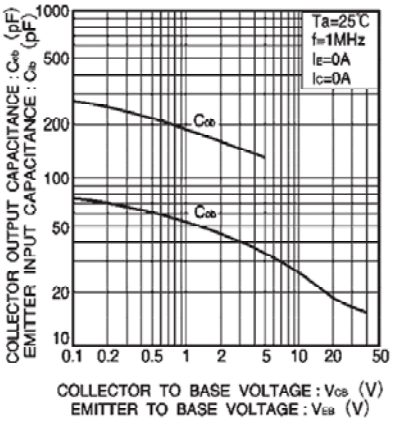



Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage