

# Medium Power Transistor (32V, 0.5A)

## 2SC2411K

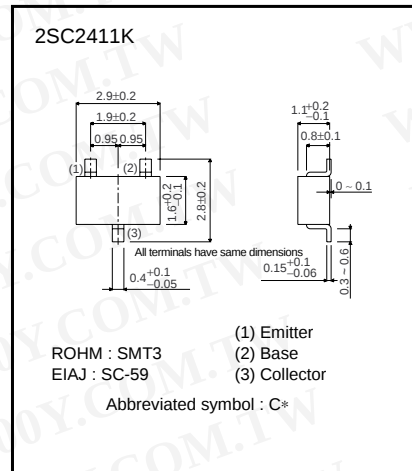
### ●Features

- 1) High  $I_{CMax.}$   
 $I_{CMax.} = 0.5A$
- 2) Low  $V_{CE(sat)}$ .  
Optimal for low voltage operation.
- 3) Complements the 2SA1036K.

### ●Structure

Epitaxial planar type  
NPN silicon transistor

### ●External dimensions (Units : mm)



\* Denotes  $h_{FE}$

### ●Absolute maximum ratings ( $T_a = 25^\circ C$ )

| Parameter                   | Symbol    | Limits      | Unit       |
|-----------------------------|-----------|-------------|------------|
| Collector-base voltage      | $V_{CBO}$ | 40          | V          |
| Collector-emitter voltage   | $V_{CEO}$ | 32          | V          |
| Emitter-base voltage        | $V_{EBO}$ | 5           | V          |
| Collector current           | $I_C$     | 0.5         | A *        |
| Collector power dissipation | $P_C$     | 0.2         | W          |
| Junction temperature        | $T_j$     | 150         | $^\circ C$ |
| Storage temperature         | $T_{stg}$ | -55 to +150 | $^\circ C$ |

\*  $P_C$  must not be exceeded.

## Transistors

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

| Parameter                            | Symbol        | Min. | Typ. | Max. | Unit    | Conditions                             |
|--------------------------------------|---------------|------|------|------|---------|----------------------------------------|
| Collector-base breakdown voltage     | $BV_{CBO}$    | 40   | —    | —    | V       | $I_C = 100\mu A$                       |
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | 32   | —    | —    | V       | $I_C = 1mA$                            |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | 5    | —    | —    | V       | $I_E = 100\mu A$                       |
| Collector cutoff current             | $I_{CBO}$     | —    | —    | 1    | $\mu A$ | $V_{CB} = 20V$                         |
| Emitter cutoff current               | $I_{EBO}$     | —    | —    | 1    | $\mu A$ | $V_{EB} = 4V$                          |
| DC current transfer ratio            | $h_{FE}$      | 120  | —    | 390  | —       | $V_{CE} = 3V, I_C = 100mA$             |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | —    | —    | 0.6  | V       | $I_C/I_B = 500mA/50mA$                 |
| Transition frequency                 | $f_T$         | —    | 250  | —    | MHz     | $V_{CE} = 5V, I_E = -20mA, f = 100MHz$ |
| Output capacitance                   | $C_{ob}$      | —    | 6.5  | —    | pF      | $V_{CB} = 10V, I_E = 0A, f = 1MHz$     |

### ●Packaging Specifications and $h_{FE}$

| Type     | $h_{FE}$ | Package                      | Taping |
|----------|----------|------------------------------|--------|
|          |          | Code                         | T146   |
|          |          | Basic ordering unit (pieces) | 3000   |
| 2SC2411K | QR       |                              | ○      |

$h_{FE}$  values are classified as follows:

| Item     | Q          | R          |
|----------|------------|------------|
| $h_{FE}$ | 120 to 270 | 180 to 390 |

### ●Electrical characteristic curves

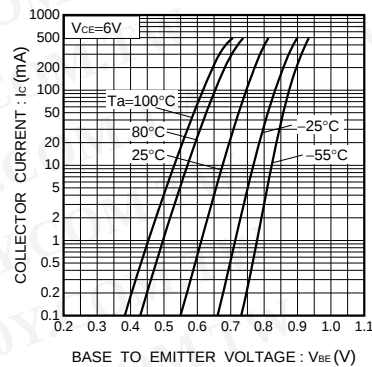


Fig.1 Grounded emitter propagation characteristics

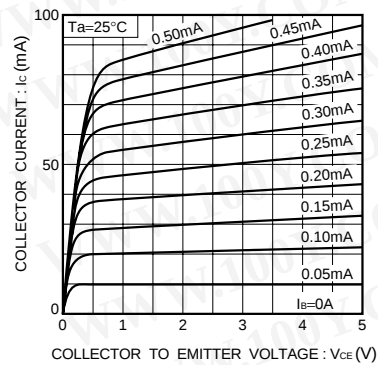


Fig.2 Grounded emitter output characteristics (I)

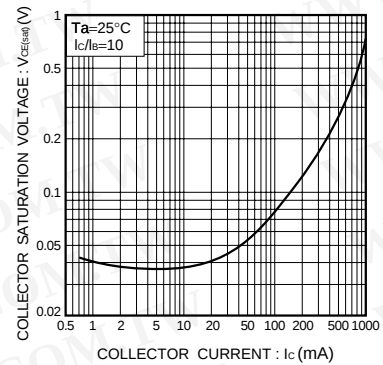


Fig.4 Collector-emitter saturation voltage vs. collector current

# Transistors

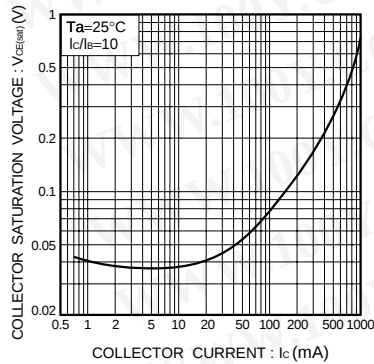


Fig.4 Collector-emitter saturation voltage vs. collector current

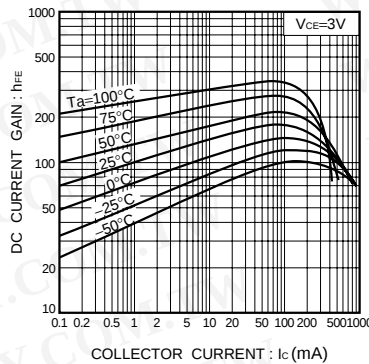


Fig.5 DC current gain vs. collector current

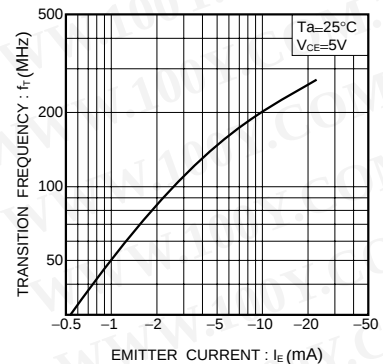


Fig.6 Gain bandwidth product vs. emitter current

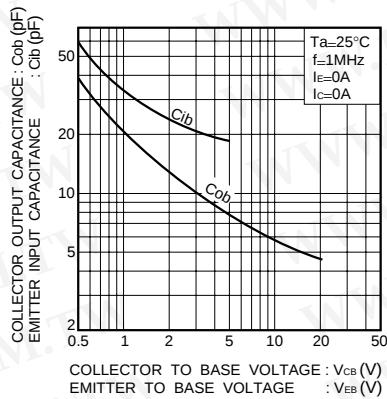


Fig.7 Collector output capacitance vs. collector-base voltage  
 Emitter input capacitance vs. emitter-base voltage

## Appendix

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