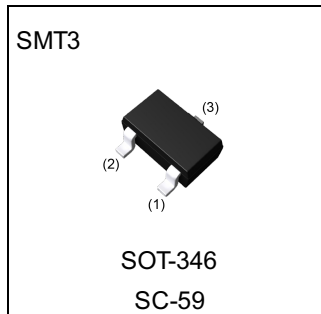


| Parameter | Value  |
|-----------|--------|
| $V_{CEO}$ | -32V   |
| $I_C$     | -500mA |

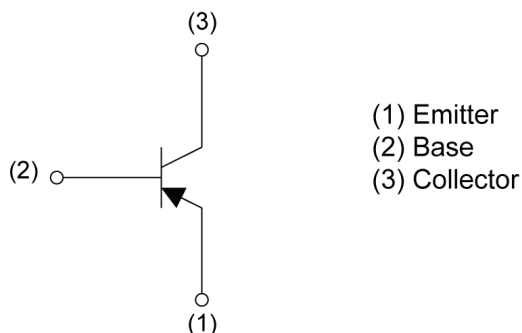
## ●Outline



## ●Features

- 1) Large  $I_C$ .  
 $I_{C\text{MAX}} = -500\text{mA}$
- 2) Low  $V_{CE(\text{sat})}$ .  
Ideal for low-voltage operating.
- 3) Complements the 2SC2411K.

## ●Inner circuit



## ●Application

GENERAL PURPOSE SMALL SIGNAL AMPLIFIER

## ●Packaging specifications

| Part No. | Package | Package size | Taping code | Reel size (mm) | Tape width (mm) | Basic ordering unit.(pcs) | Marking |
|----------|---------|--------------|-------------|----------------|-----------------|---------------------------|---------|
| 2SA1036K | SMT3    | 2928         | T146        | 180            | 8               | 3000                      | H       |

● **Absolute maximum ratings** ( $T_a = 25^\circ\text{C}$ )

| Parameter                    | Symbol              | Values      | Unit             |
|------------------------------|---------------------|-------------|------------------|
| Collector-base voltage       | $V_{\text{CBO}}$    | -40         | V                |
| Collector-emitter voltage    | $V_{\text{CEO}}$    | -32         | V                |
| Emitter-base voltage         | $V_{\text{EBO}}$    | -5          | V                |
| Collector current            | $I_{\text{C}}$      | -500        | mA               |
| Power dissipation            | $P_{\text{D}}^{*1}$ | 200         | mW               |
| Junction temperature         | $T_{\text{j}}$      | 150         | $^\circ\text{C}$ |
| Range of storage temperature | $T_{\text{stg}}$    | -55 to +150 | $^\circ\text{C}$ |

● **Electrical characteristics** ( $T_a = 25^\circ\text{C}$ )

| Parameter                            | Symbol               | Conditions                                                                           | Values |      |      | Unit          |
|--------------------------------------|----------------------|--------------------------------------------------------------------------------------|--------|------|------|---------------|
|                                      |                      |                                                                                      | Min.   | Typ. | Max. |               |
| Collector-base breakdown voltage     | $BV_{\text{CBO}}$    | $I_{\text{C}} = -100\mu\text{A}$                                                     | -40    | -    | -    | V             |
| Collector-emitter breakdown voltage  | $BV_{\text{CEO}}$    | $I_{\text{C}} = -1\text{mA}$                                                         | -32    | -    | -    | V             |
| Emitter-base breakdown voltage       | $BV_{\text{EBO}}$    | $I_{\text{E}} = -100\mu\text{A}$                                                     | -5     | -    | -    | V             |
| Collector cut-off current            | $I_{\text{CBO}}$     | $V_{\text{CB}} = -20\text{V}$                                                        | -      | -    | -1.0 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{\text{EBO}}$     | $V_{\text{EB}} = -4\text{V}$                                                         | -      | -    | -1.0 | $\mu\text{A}$ |
| Collector-emitter saturation voltage | $V_{\text{CE(sat)}}$ | $I_{\text{C}} = -300\text{mA}$ , $I_{\text{B}} = -30\text{mA}$                       | -      | -    | -600 | mV            |
| DC current gain                      | $h_{\text{FE}}$      | $V_{\text{CE}} = -3\text{V}$ , $I_{\text{C}} = -100\text{mA}$                        | 82     | -    | 390  | -             |
| Transition frequency                 | $f_{\text{T}}$       | $V_{\text{CE}} = -5\text{V}$ , $I_{\text{E}} = 20\text{mA}$ ,<br>$f = 100\text{MHz}$ | -      | 200  | -    | MHz           |
| Output capacitance                   | $C_{\text{ob}}$      | $V_{\text{CB}} = -10\text{V}$ , $I_{\text{E}} = 0\text{A}$ ,<br>$f = 1\text{MHz}$    | -      | 7.0  | -    | pF            |

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

| rank            | P      | Q       | R       | - | - |
|-----------------|--------|---------|---------|---|---|
| $h_{\text{FE}}$ | 82-180 | 120-270 | 180-390 | - | - |

\*1 Each terminal mounted on a reference land.

●Electrical characteristic curves( $T_a = 25^\circ\text{C}$ )

Fig.1 Grounded emitter propagation

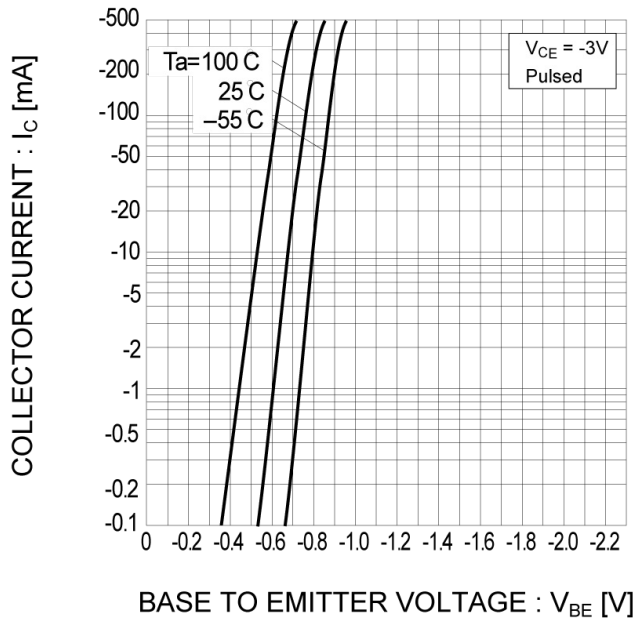


Fig.2 Grounded emitter output characteristics (I)

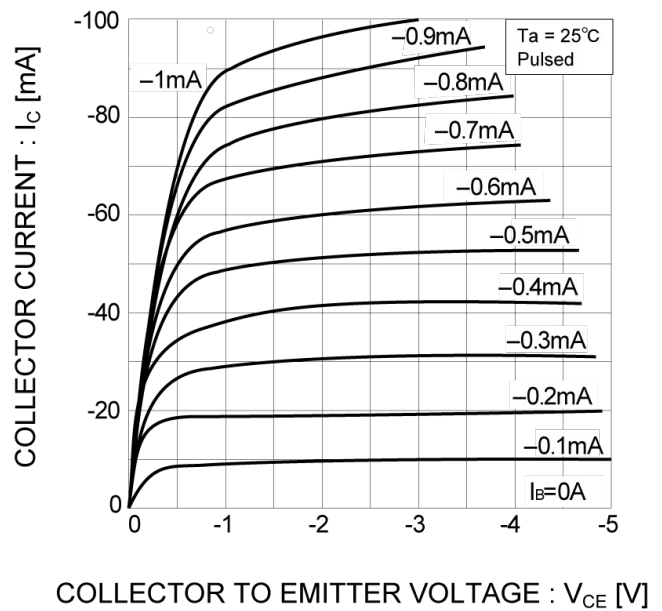


Fig.3 Grounded emitter output characteristics (II)

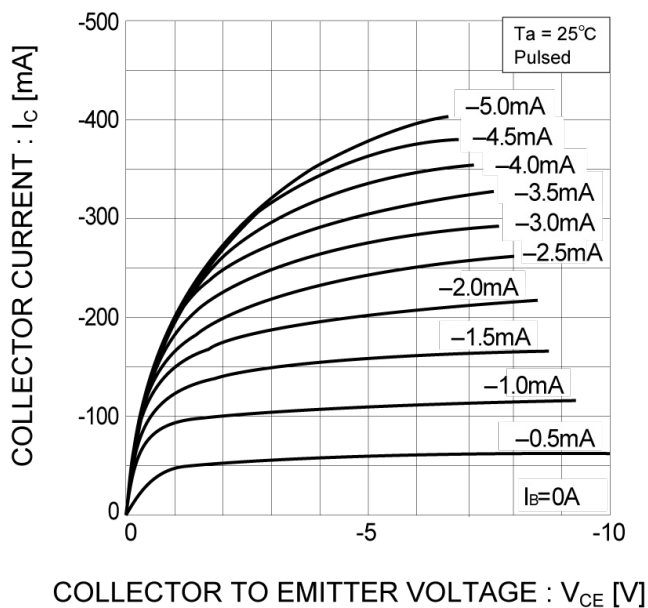
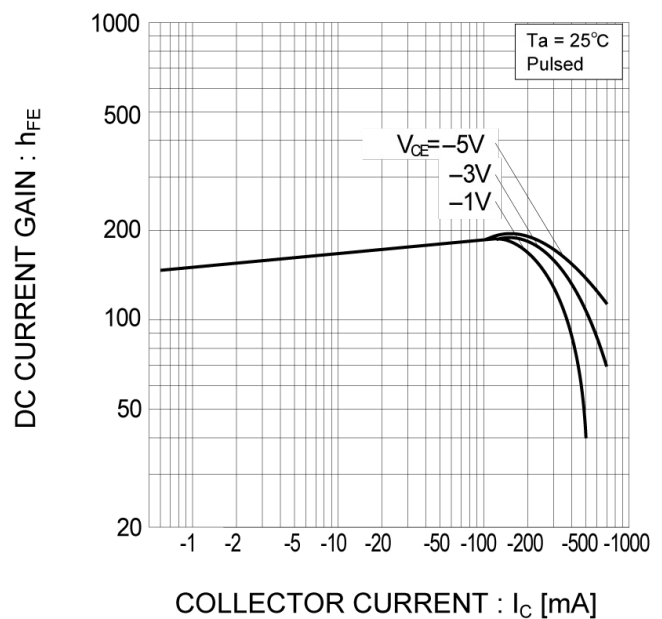


Fig.4 DC current gain vs. collector current (I)



●Electrical characteristic curves( $T_a = 25^\circ\text{C}$ )

Fig.5 DC current gain vs. collector current (II)

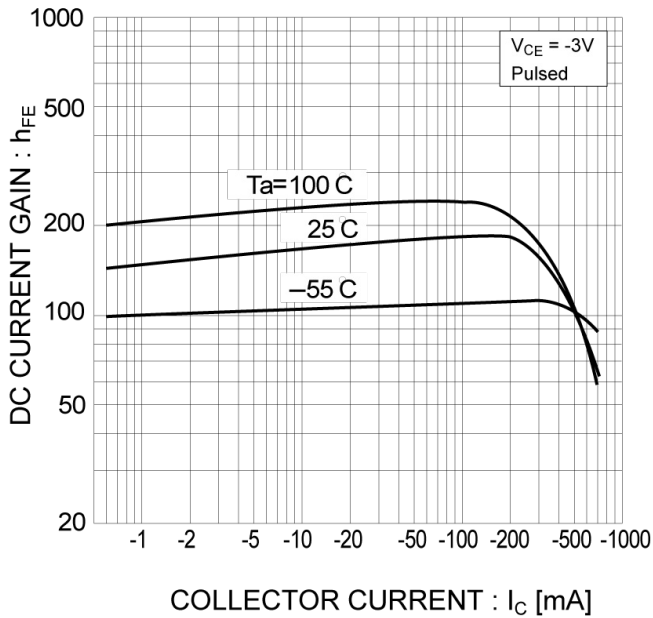


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

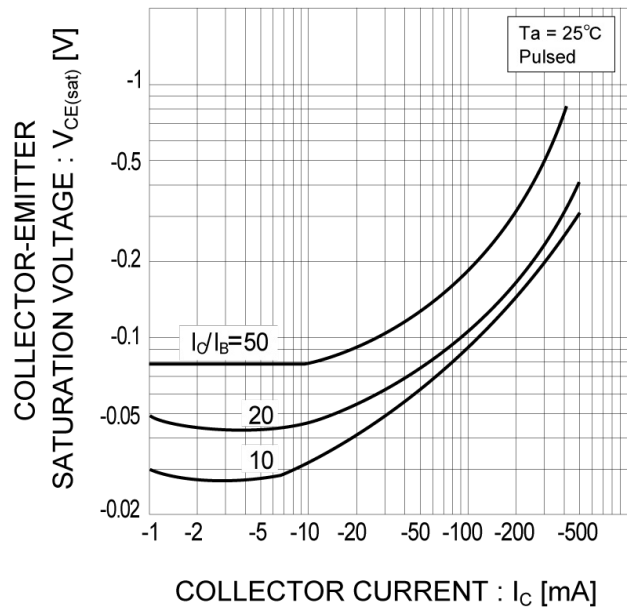


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

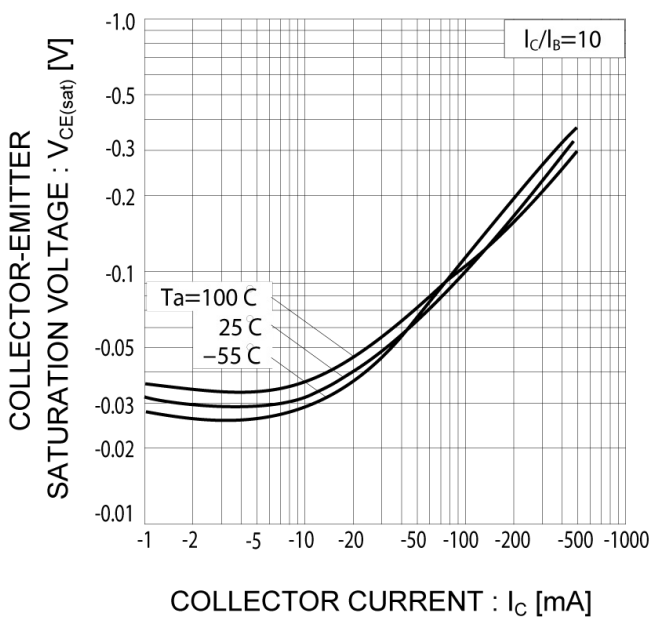
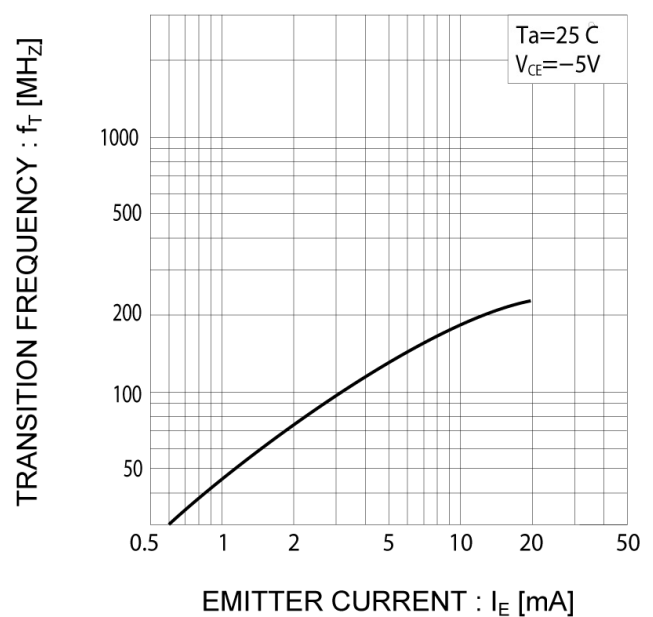


Fig.8 Gain bandwidth product vs. emitter current



●Electrical characteristic curves( $T_a = 25^\circ\text{C}$ )

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

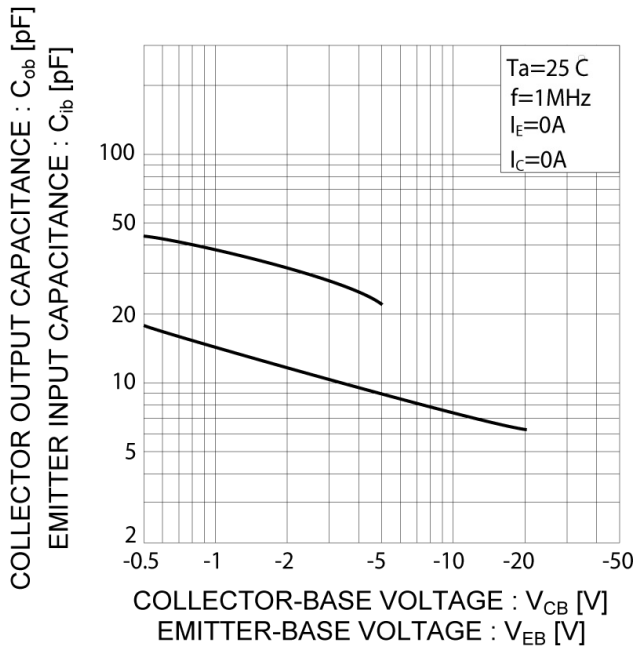
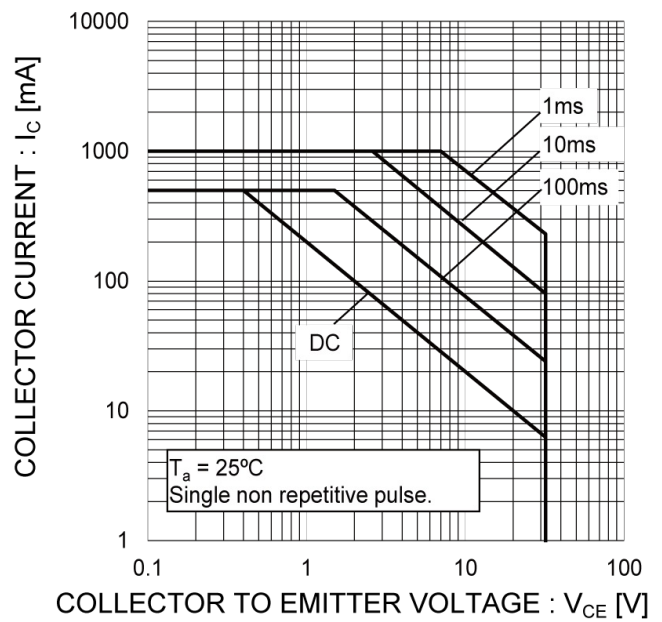
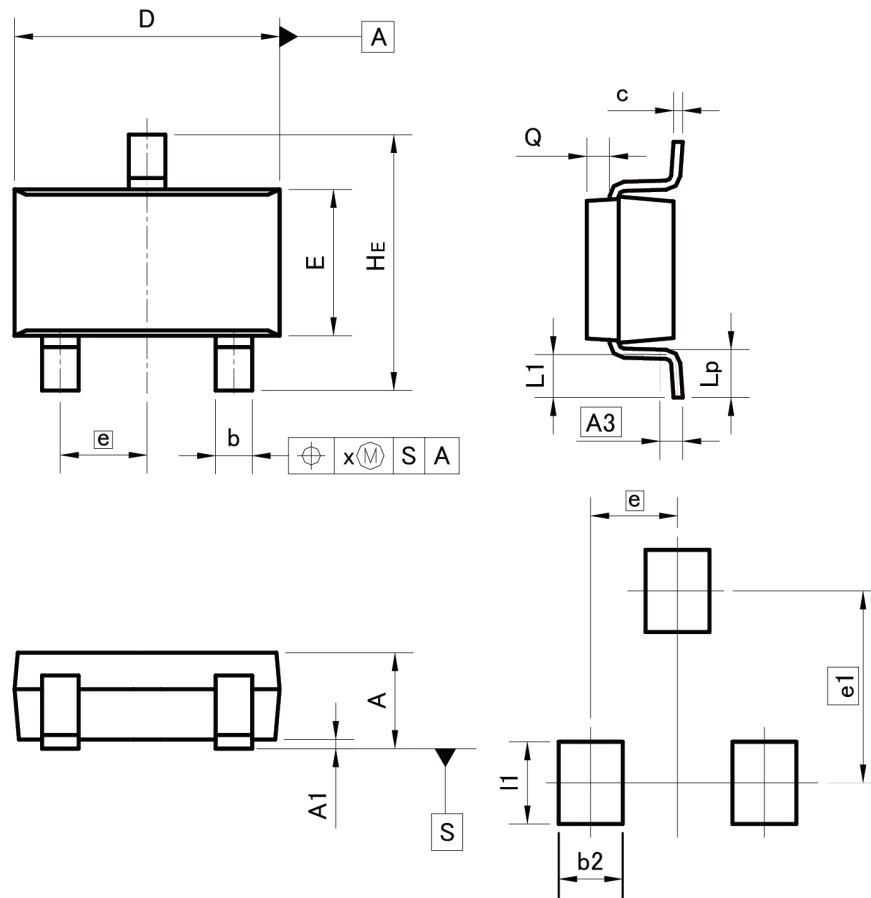


Fig.10 Safe Operating Area



## ●Dimensions

SMT3



Pattern of terminal position areas  
[Not a recommended pattern of soldering pads]

| DIM | MILIMETERS |      | INCHES |       |
|-----|------------|------|--------|-------|
|     | MIN        | MAX  | MIN    | MAX   |
| A   | 1.00       | 1.30 | 0.039  | 0.051 |
| A1  | 0.00       | 0.10 | 0.000  | 0.004 |
| A3  | 0.25       |      | 0.010  |       |
| b   | 0.35       | 0.50 | 0.014  | 0.020 |
| c   | 0.09       | 0.25 | 0.004  | 0.010 |
| D   | 2.80       | 3.00 | 0.110  | 0.118 |
| E   | 1.50       | 1.80 | 0.059  | 0.071 |
| e   | 0.95       |      | 0.037  |       |
| HE  | 2.60       | 3.00 | 0.102  | 0.118 |
| L1  | 0.30       | 0.60 | 0.012  | 0.024 |
| Lp  | 0.40       | 0.70 | 0.016  | 0.028 |
| Q   | 0.20       | 0.30 | 0.008  | 0.012 |
| x   | —          | 0.10 | —      | 0.004 |
| y   | —          | 0.10 | —      | 0.004 |

| DIM | MILIMETERS |      | INCHES |       |
|-----|------------|------|--------|-------|
|     | MIN        | MAX  | MIN    | MAX   |
| b2  | —          | 0.60 | —      | 0.024 |
| e1  | 2.10       |      | 0.083  |       |
| l1  | —          | 0.90 | —      | 0.035 |

Dimension in mm/inches

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## 2SA1036K - Web Page

[Distribution Inventory](#)

|                             |          |
|-----------------------------|----------|
| Part Number                 | 2SA1036K |
| Package                     | SMT3     |
| Unit Quantity               | 3000     |
| Minimum Package Quantity    | 3000     |
| Packing Type                | Taping   |
| Constitution Materials List | inquiry  |
| RoHS                        | Yes      |