

GENERAL PURPOSE APPLICATION.  
SWITCHING APPLICATION.

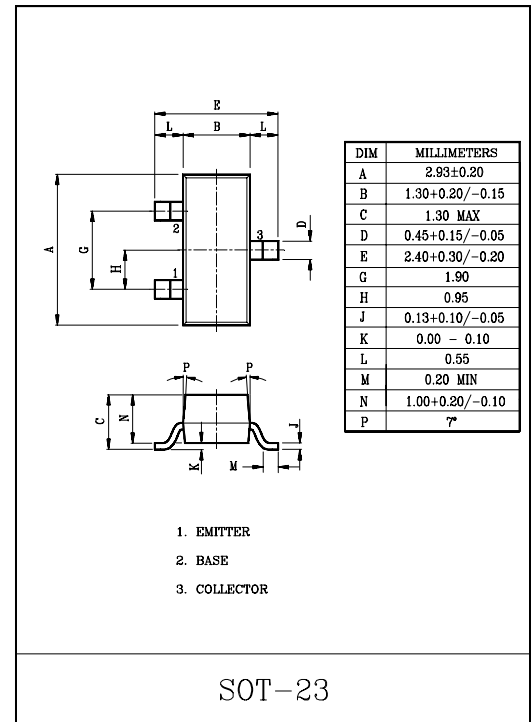
### FEATURES

- Low Leakage Current  
:  $I_{CEX} = -50\text{nA}(\text{Max.})$ , @  $V_{CE} = -30\text{V}$ ,  $V_{EB} = -3\text{V}$ .
- Low Saturation Voltage  
:  $V_{CE(sat)} = -0.4\text{V}(\text{Max.})$ , @  $I_C = -50\text{mA}$ ,  $I_B = -5\text{mA}$ .
- Complementary to KN3903S.

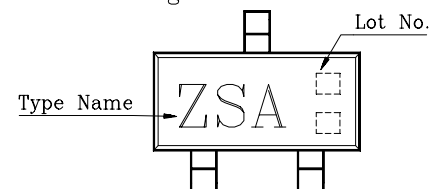
### MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

| CHARACTERISTIC              | SYMBOL    | RATING    | UNIT             |
|-----------------------------|-----------|-----------|------------------|
| Collector-Base Voltage      | $V_{CBO}$ | -40       | V                |
| Collector-Emitter Voltage   | $V_{CEO}$ | -40       | V                |
| Emitter-Base Voltage        | $V_{EBO}$ | -5        | V                |
| Collector Current           | $I_C$     | -200      | mA               |
| Base Current                | $I_B$     | -50       | mA               |
| Collector Power Dissipation | $P_C$ *   | 350       | mW               |
| Junction Temperature        | $T_j$     | 150       | $^\circ\text{C}$ |
| Storage Temperature Range   | $T_{stg}$ | -55 ~ 150 | $^\circ\text{C}$ |

$P_C$ \* : Package Mounted On 99.5% Alumina  $10 \times 8 \times 0.6\text{mm}$ .



### Marking



# KN3905S

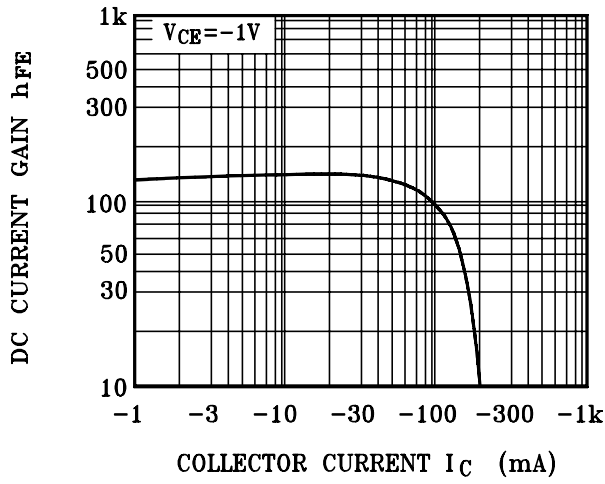
## ELECTRICAL CHARACTERISTICS (Ta=25°C)

| CHARACTERISTIC                         | SYMBOL         | TEST CONDITION                     | MIN.  | TYP. | MAX.  | UNIT |
|--|----------------|------------------------------------|-------|------|-------|------|
| Collector Cut-off Current              | $I_{CEX}$      | $V_{CE}=-30V, V_{EB}=-3V$          | -     | -    | -50   | nA   |
| Collector-Base Breakdown Voltage       | $V_{(BR)CBO}$  | $I_C=-10\mu A, I_E=0$              | -40   | -    | -     | V    |
| Collector-Emitter Breakdown Voltage *  | $V_{(BR)CEO}$  | $I_C=-1mA, I_B=0$                  | -40   | -    | -     | V    |
| Emitter-Base Breakdown Voltage         | $V_{(BR)EBO}$  | $I_E=-10\mu A, I_C=0$              | -5    | -    | -     | V    |
| DC Current Gain *                      | $h_{FE}(1)$    | $V_{CE}=-1V, I_C=-0.1mA$           | 30    | -    | -     |      |
|  | $h_{FE}(2)$    | $V_{CE}=-1V, I_C=-1mA$             | 40    | -    | -     |      |
|  | $h_{FE}(3)$    | $V_{CE}=-1V, I_C=-10mA$            | 50    | -    | 150   |      |
|  | $h_{FE}(4)$    | $V_{CE}=-1V, I_C=-50mA$            | 30    | -    | -     |      |
|  | $h_{FE}(5)$    | $V_{CE}=-1V, I_C=-100mA$           | 15    | -    | -     |      |
| Collector-Emitter Saturation Voltage * | $V_{CE(sat)1}$ | $I_C=-10mA, I_B=-1mA$              | -     | -    | -0.25 | V    |
|  | $V_{CE(sat)2}$ | $I_C=-50mA, I_B=-5mA$              | -     | -    | -0.4  |      |
| Base-Emitter Saturation Voltage *      | $V_{BE(sat)1}$ | $I_C=-10mA, I_B=-1mA$              | -0.65 | -    | -0.85 | V    |
|  | $V_{BE(sat)2}$ | $I_C=-50mA, I_B=-5mA$              | -     | -    | -0.95 |      |
| Transition Frequency                   | $f_T$          | $V_{CE}=-20V, I_C=-10mA, f=100MHz$ | -     | 200  | -     | MHz  |
| Collector Output Capacitance           | $C_{ob}$       | $V_{CB}=-5V, I_E=0, f=1MHz$        | -     | -    | 4.5   | pF   |

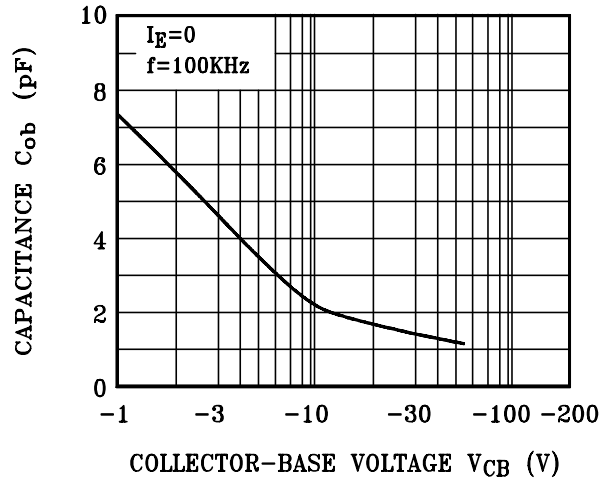
Note : \*Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$

# KN3905S

### $h_{FE} - I_C$



### $C_{ob} - V_{CB}$



### $V_{BE(sat)}, V_{CE(sat)} - I_C$

