

## NPN SMALL SIGNAL TRANSISTOR

### Features

- ✧ Epitaxial Planar Die Construction
- ✧ Totally Lead-Free & Fully RoHS compliant
- ✧ Halogen and Antimony Free
- ✧ NPN

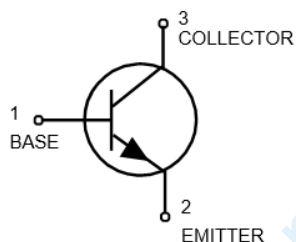
|           |       |
|-----------|-------|
| $V_{CBO}$ | 40V   |
| $V_{CEO}$ | 25V   |
| $V_{EBO}$ | 5.0V  |
| $I_c$     | 500mA |

### Applications

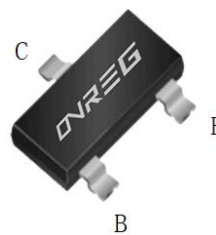
- ✧ Medium Power Amplification and Switching

### Mechanical Data

- ✧ Package : SOT-23



Circuit Diagram



SOT-23

### Absolute Maximum Rating ( $T_a=25^{\circ}\text{C}$ , unless otherwise noted)

| Symbol          | Parameter                                   | Value    | Unit                 |
|-----------------|---------------------------------------------|----------|----------------------|
| $V_{CBO}$       | Collector-Base Voltage                      | 40       | V                    |
| $V_{CEO}$       | Collector-Emitter Voltage                   | 25       | V                    |
| $V_{EBO}$       | Emitter-Base Voltage                        | 5        | V                    |
| $I_c$           | Collector Current                           | 500      | mA                   |
| $P_c$           | Collector Power Dissipation                 | 300      | mW                   |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient | 417      | $^{\circ}\text{C/W}$ |
| $T_j$           | Junction Temperature                        | 150      | $^{\circ}\text{C}$   |
| $T_{stg}$       | Storage Temperature                         | -55~+150 | $^{\circ}\text{C}$   |

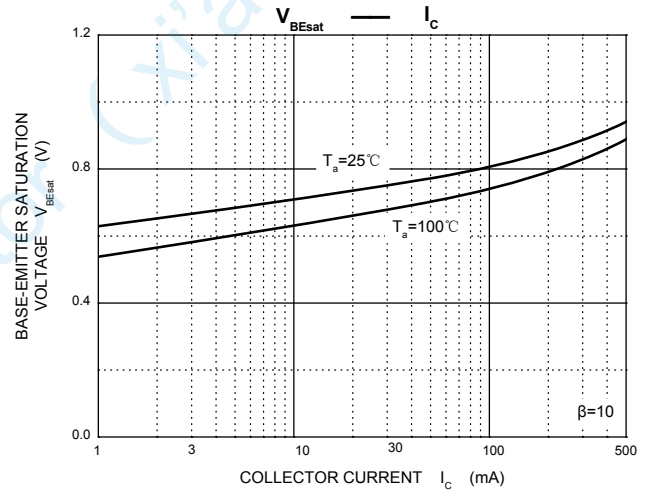
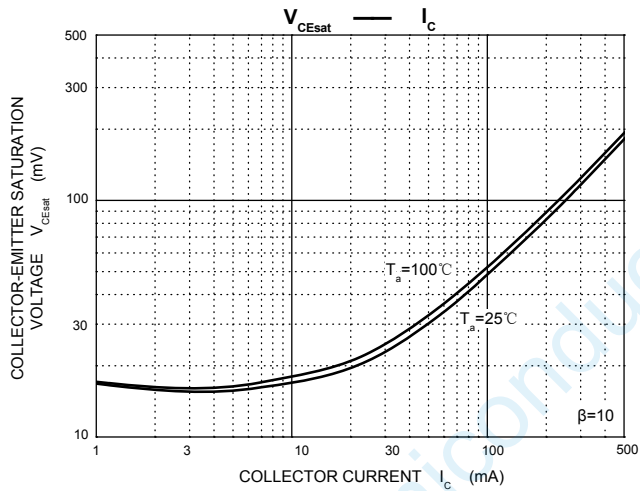
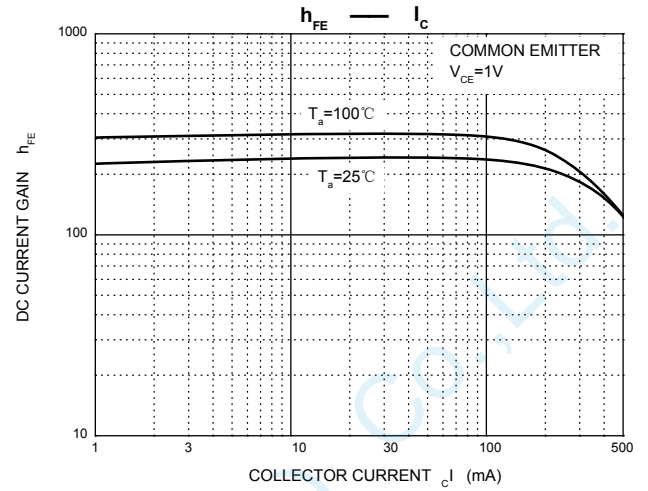
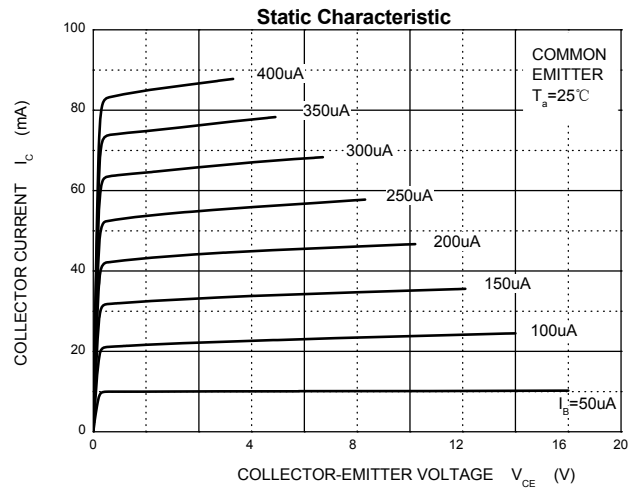
**Electronics Characteristics (Ta=25°C, unless otherwise noted)**

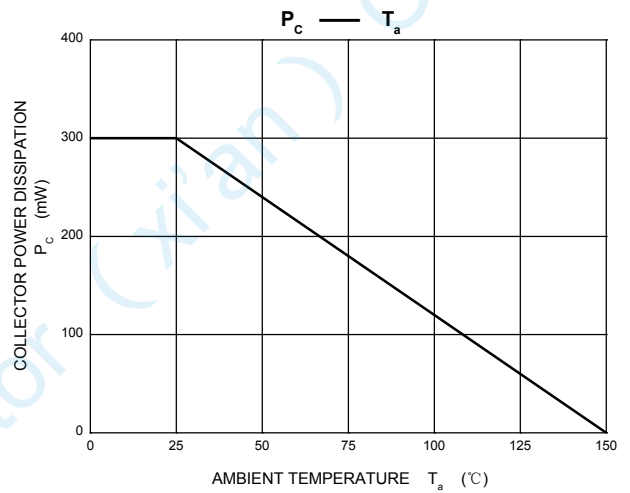
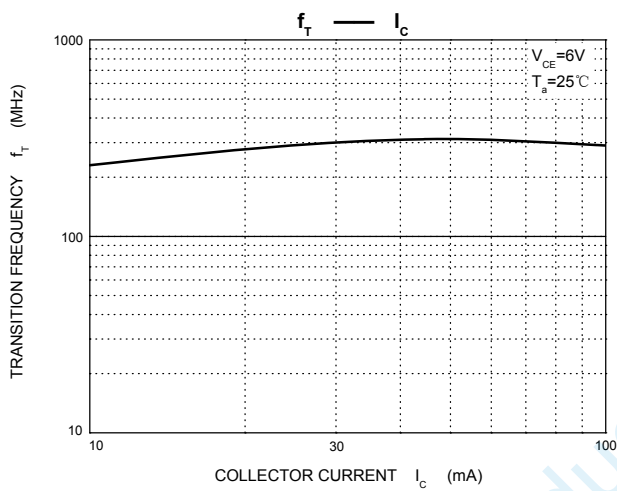
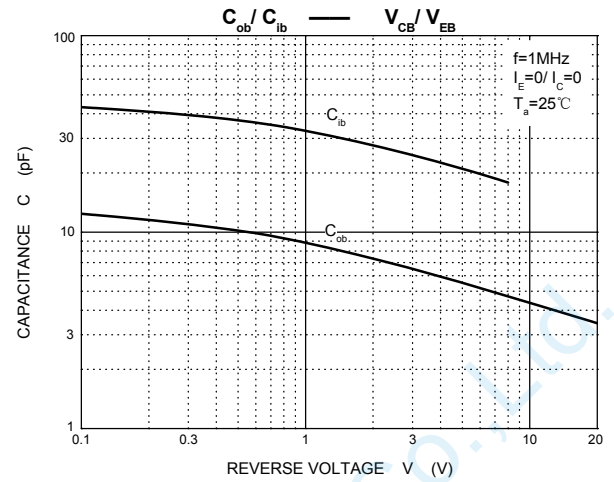
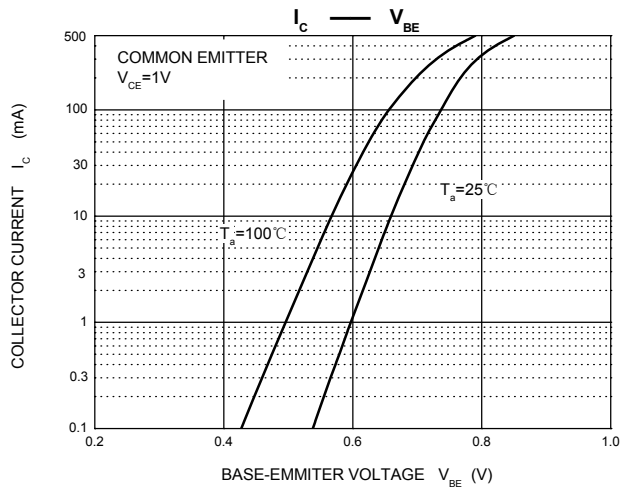
| Parameter                            | Symbol        | Test conditions                          | Min | Typ | Max | Unit    |
|--------------------------------------|---------------|------------------------------------------|-----|-----|-----|---------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C = 100\mu A, I_E = 0$                | 40  |     |     | V       |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C = 1mA, I_B = 0$                     | 25  |     |     | V       |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E = 100\mu A, I_C = 0$                | 5   |     |     | V       |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB} = 40V, I_E = 0$                  |     |     | 0.1 | $\mu A$ |
| Collector cut-off current            | $I_{CEO}$     | $V_{CB} = 20V, I_E = 0$                  |     |     | 0.1 | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = 5V, I_C = 0$                   |     |     | 0.1 | $\mu A$ |
| DC current gain                      | $h_{FE(1)}$   | $V_{CE} = 1V, I_C = 50mA$                | 120 |     | 400 |         |
|                                      | $h_{FE(2)}$   | $V_{CE} = 1V, I_C = 500mA$               | 50  |     |     |         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 500mA, I_B = 50mA$                |     |     | 0.6 | V       |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = 500mA, I_B = 50mA$                |     |     | 1.2 | V       |
| Transition frequency                 | $f_T$         | $V_{CE} = 6V, I_C = 20mA$<br>$f = 30MHz$ | 150 |     |     | MHz     |

**CLASSIFICATION OF  $h_{FE(1)}$** 

| Rank  | L       | H     | J     |
|-------|---------|-------|-------|
| Range | 120-200 | 2 350 | 3 400 |

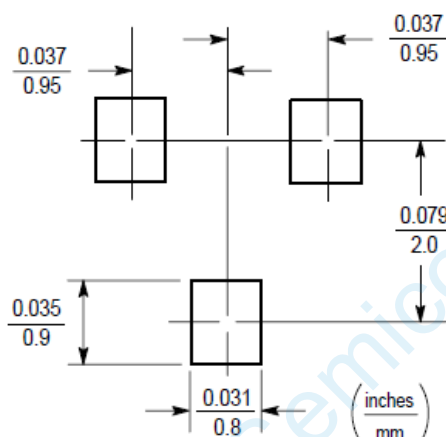
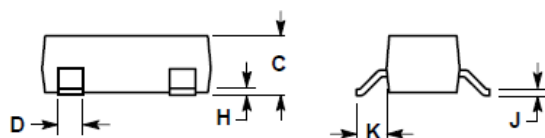
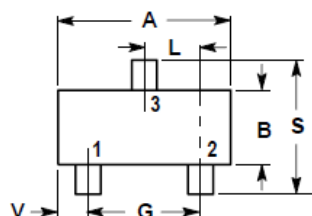
**Electronics Characteristics ( $T_a=25^\circ\text{C}$ , unless otherwise noted)**





## Package information

### SOT-23



#### NOTES:

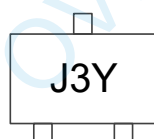
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| DIM | INCHES |        | MILLIMETERS |       |
|-----|--------|--------|-------------|-------|
|     | MIN    | MAX    | MIN         | MAX   |
| A   | 0.1102 | 0.1197 | 2.80        | 3.04  |
| B   | 0.0472 | 0.0551 | 1.20        | 1.40  |
| C   | 0.0350 | 0.0440 | 0.89        | 1.11  |
| D   | 0.0150 | 0.0200 | 0.37        | 0.50  |
| G   | 0.0701 | 0.0807 | 1.78        | 2.04  |
| H   | 0.0005 | 0.0040 | 0.013       | 0.100 |
| J   | 0.0034 | 0.0070 | 0.085       | 0.177 |
| K   | 0.0140 | 0.0285 | 0.35        | 0.69  |
| L   | 0.0350 | 0.0401 | 0.89        | 1.02  |
| S   | 0.0830 | 0.1039 | 2.10        | 2.64  |
| V   | 0.0177 | 0.0236 | 0.45        | 0.60  |

PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

Notes: This Pcb Layout Is For Reference Purposes Only

## Marking



## Ordering Information

| Part number | Material | Type | Reel size | MOQ     |
|-------------|----------|------|-----------|---------|
| OVS8050ST3R | GREEN    | T/R  | 7 inch    | 3k/reel |