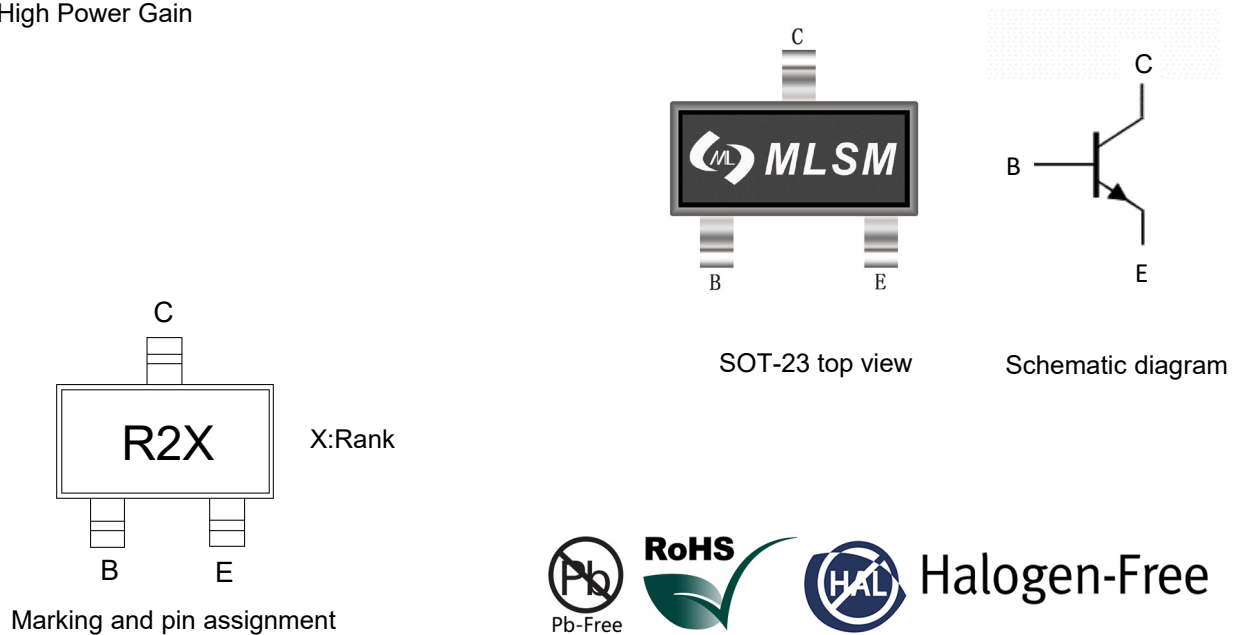


## Features

- Low Noise and High Gain
- High Power Gain



Halogen-Free

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

| Symbol          | Parameter                                        | Value    | Unit                 |
|-----------------|--------------------------------------------------|----------|----------------------|
| $V_{CBO}$       | Collector-Base Voltage                           | 20       | V                    |
| $V_{CEO}$       | Collector-Emitter Voltage                        | 12       | V                    |
| $V_{EBO}$       | Emitter-Base Voltage                             | 3        | V                    |
| $I_C$           | Collector Current                                | 100      | mA                   |
| $P_C$           | Collector Power Dissipation                      | 200      | mW                   |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient      | 625      | $^{\circ}\text{C/W}$ |
| $T_J, T_{stg}$  | Operation Junction and Storage Temperature Range | -55~+150 | $^{\circ}\text{C}$   |

## Ordering Information (Example)

| Type    | Package | Marking     | Minimum Package(pcs) | Inner Box Quantity(pcs) | Outer Carton Quantity(pcs) | Delivery Mode |
|---------|---------|-------------|----------------------|-------------------------|----------------------------|---------------|
| 2SC3356 | SOT-23  | R23/R24/R25 | 3,000                | 45,000                  | 180,000                    | 7"reel        |

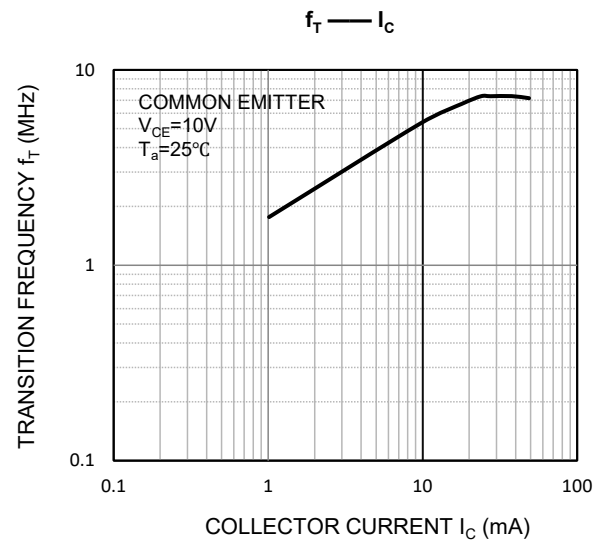
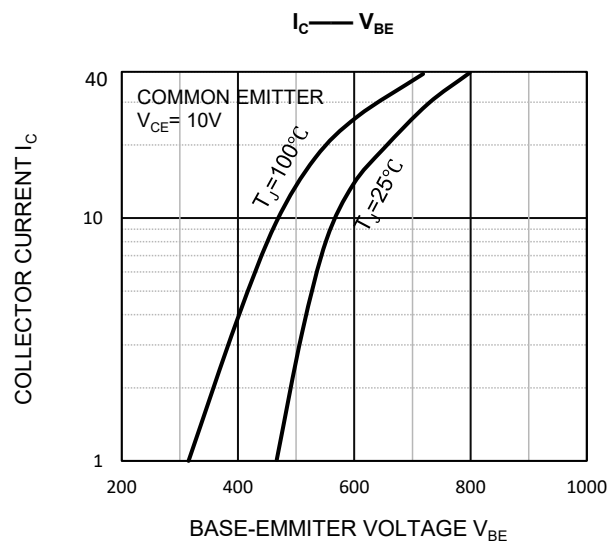
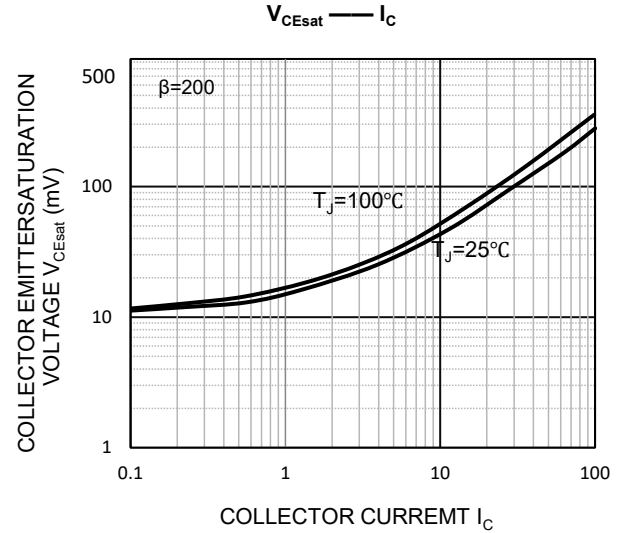
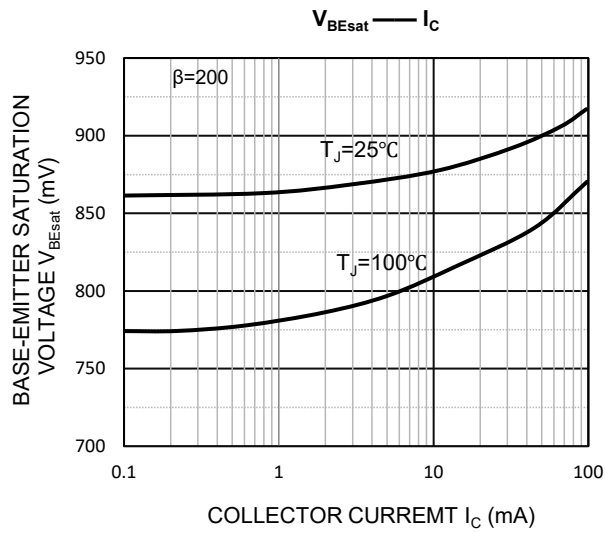
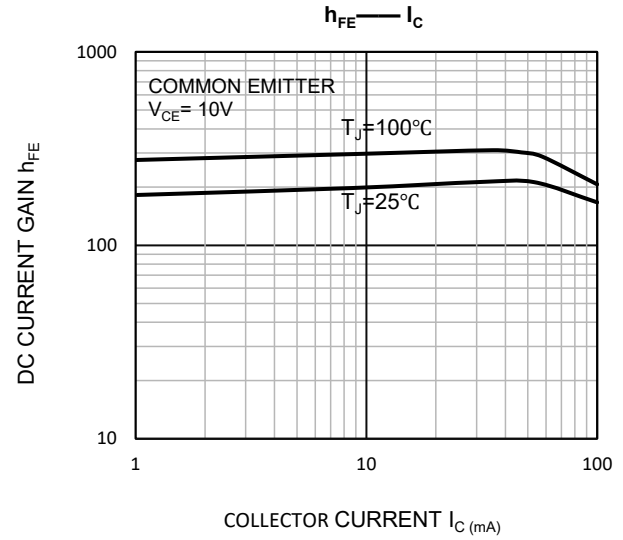
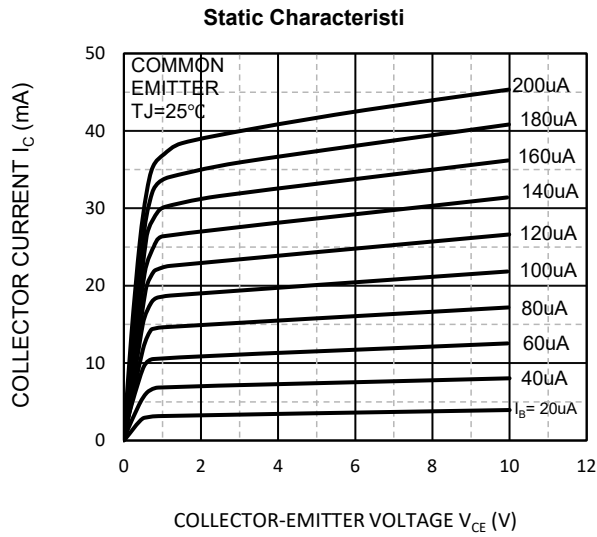
**ELECTRICAL CHARACTERISTICS**(Ta=25°C unless otherwise specified)

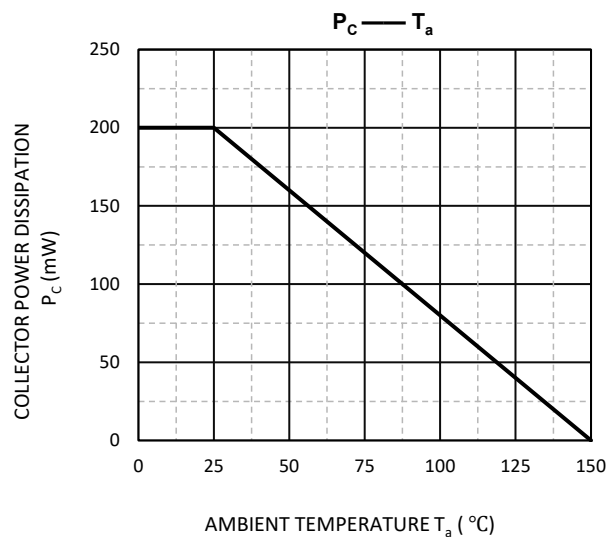
| Symbol        | Parameter                            | Condition                     | Min | Typ  | Max  | Unit    |
|---------------|--------------------------------------|-------------------------------|-----|------|------|---------|
| $V_{(BR)CBO}$ | Collector-base breakdown voltage     | $I_C=100\mu A, I_E=0$         | 20  | --   | --   | V       |
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage  | $I_C=1mA, I_B=0$              | 12  | --   | --   | V       |
| $V_{(BR)EBO}$ | Emitter-base breakdown voltage       | $I_E=100\mu A, I_C=0$         | 3   | --   | --   | V       |
| $I_{CBO}$     | Collector cut-off current            | $V_{CB}=10V, I_E=0$           | --  | --   | 1    | $\mu A$ |
| $I_{EBO}$     | Emitter cut-off current              | $V_{EB}=1V, I_C=0$            | --  | --   | 1    | $\mu A$ |
| $h_{FE}$      | DC current gain                      | $V_{CE}=10V, I_C=20mA$        | 50  | --   | 250  |         |
| $V_{CE(sat)}$ | Collector-emitter saturation voltage | $I_C=50mA, I_B=5mA$           | --  | --   | 0.3  | V       |
| $V_{BE(sat)}$ | Base-emitter saturation voltage      | $I_C=50mA, I_B=5mA$           | --  | --   | 1.15 | V       |
| $N_F$         | Noise Figure                         | $V_{CB}=10V, I_C=7mA, f=1GHz$ | --  | 1.65 | 2    | dB      |
| $C_{ob}$      | Collector output capacitance         | $V_{CB}=10V, I_E=0mA, f=1MHz$ | --  | 0.8  | 1    | pF      |
| $f_T$         | Transition frequency                 | $V_{CE}=10V, I_C=20mA$        | --  | 7    | --   | GHz     |

**Classification of  $h_{FE}$** 

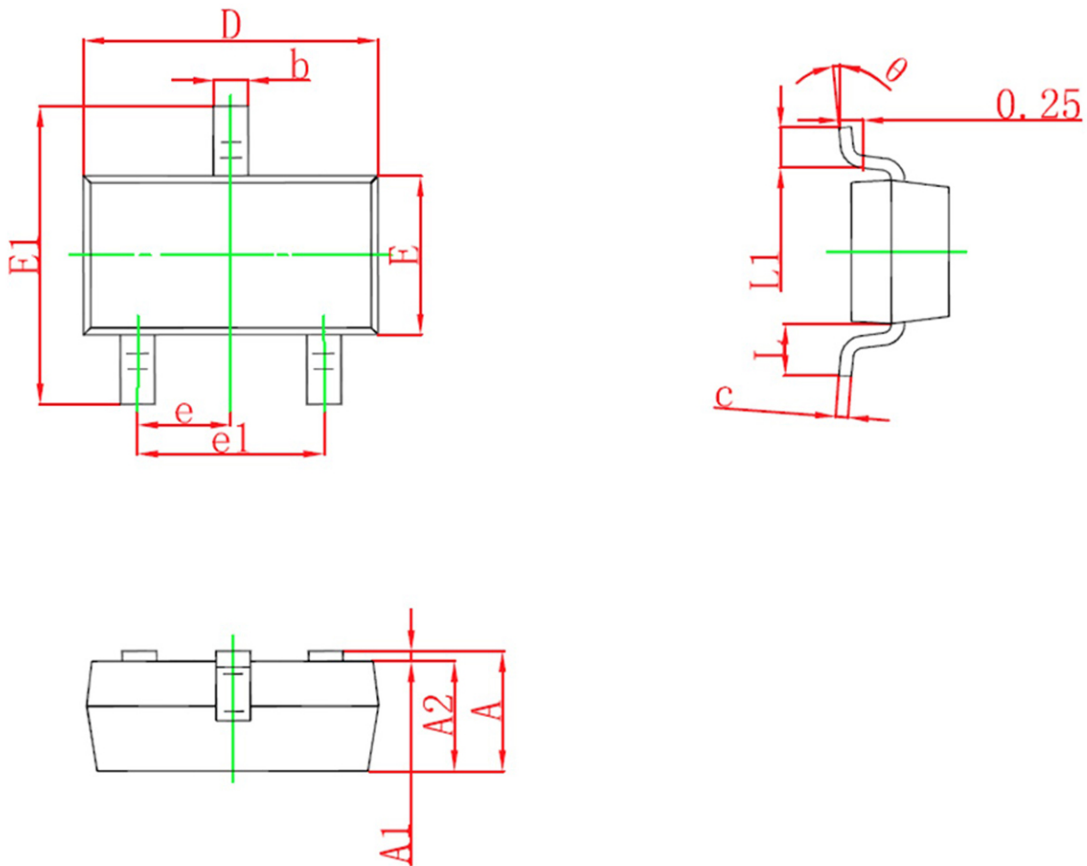
| Rank    | A      | B      | C       |
|---------|--------|--------|---------|
| Marking | R23    | R24    | R25     |
| Range   | 50-100 | 80-160 | 125-250 |

**Typical Operating Characteristics**





**SOT-23 Package information**



| Symbol   | Dimensions in Millimeters(mm) |       | Dimensions In Inches |       |
|----------|-------------------------------|-------|----------------------|-------|
|          | Min                           | Max   | Min                  | Max   |
| A        | 0.900                         | 1.150 | 0.035                | 0.045 |
| A1       | 0.000                         | 0.100 | 0.000                | 0.004 |
| A2       | 0.900                         | 1.050 | 0.035                | 0.041 |
| b        | 0.300                         | 0.500 | 0.012                | 0.020 |
| c        | 0.080                         | 0.150 | 0.003                | 0.006 |
| D        | 2.800                         | 3.000 | 0.110                | 0.118 |
| E1       | 2.250                         | 2.550 | 0.088                | 0.100 |
| E        | 1.200                         | 1.400 | 0.047                | 0.055 |
| e        | 0.950TYP                      |       | 0.037TYP             |       |
| e1       | 1.800                         | 2.000 | 0.071                | 0.079 |
| L        | 0.550 REF                     |       | 0.022 REF            |       |
| L1       | 0.300                         | 0.500 | 0.012                | 0.020 |
| $\theta$ | 0°                            | 8°    | 0°                   | 8°    |