

## Silicon NPN epitaxial planar type

## 2SD1254

## ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$ .
- Satisfactory linearity of forward current transfer ratio  $h_{FE}$ .
- Large collector current  $I_C$ .

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

| Parameter                   | Symbol    | Rating      | Unit             |
|-----------------------------|-----------|-------------|------------------|
| Collector-base voltage      | $V_{CBO}$ | 130         | V                |
| Collector-emitter voltage   | $V_{CEO}$ | 80          | V                |
| Emitter-base voltage        | $V_{EBO}$ | 7           | V                |
| Collector current           | $I_C$     | 3           | A                |
| Peak collector current      | $I_{CP}$  | 6           | A                |
| Collector power dissipation | $P_C$     | 30          | W                |
| $T_a = 25^\circ\text{C}$    |           | 1.3         | W                |
| Junction temperature        | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature         | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

■ Electrical Characteristics  $T_a = 25^\circ\text{C}$ 

| Parameter                            | Symbol        | Testconditions                                                                      | Min | Typ  | Max | Unit          |
|--------------------------------------|---------------|-------------------------------------------------------------------------------------|-----|------|-----|---------------|
| Collector-emitter voltage            | $V_{CEO}$     | $I_C = 10\text{ mA}$ , $I_B = 0$                                                    | 80  |      |     | V             |
| Collector-base cutoff current        | $I_{CBO}$     | $V_{CB} = 100\text{ V}$ , $I_E = 0$                                                 |     |      | 10  | $\mu\text{A}$ |
| Emitter-base cutoff current          | $I_{EBO}$     | $V_{EB} = 5\text{ V}$ , $I_C = 0$                                                   |     |      | 50  | $\mu\text{A}$ |
| Forward current transfer ratio       | $h_{FE}$      | $V_{CE} = 2\text{ V}$ , $I_C = 0.5\text{ A}$                                        | 60  |      | 260 |               |
| Forward current transfer ratio       |               | $V_{CE} = 2\text{ V}$ , $I_C = 0.1\text{ A}$                                        | 45  |      |     |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 2\text{ A}$ , $I_B = 0.1\text{ A}$                                           |     |      | 0.5 | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = 2\text{ A}$ , $I_B = 0.1\text{ A}$                                           |     |      | 1.5 | V             |
| Transition frequency                 | $f_T$         | $V_{CE} = 10\text{ V}$ , $I_C = 0.5\text{ A}$ , $f = 10\text{ MHz}$                 |     | 30   |     | MHz           |
| Turn-on time                         | $t_{on}$      | $I_C = 0.5\text{ A}$<br>$I_{B1} = -I_{B2} = 50\text{ mA}$<br>$V_{CC} = 50\text{ V}$ |     | 0.5  |     | $\mu\text{s}$ |
| Storage time                         | $t_{stg}$     |                                                                                     |     | 2.5  |     | $\mu\text{s}$ |
| Fall time                            | $t_f$         |                                                                                     |     | 0.15 |     | $\mu\text{s}$ |

■  $h_{FE}$  Classification

| Rank     | R      | Q      | P       |
|----------|--------|--------|---------|
| $h_{FE}$ | 60~120 | 90~180 | 130~260 |

