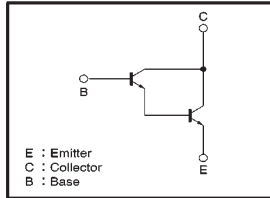


# High-gain Amplifier Transistor (32V, 0.3A)

2SD2142K / 2SC2062S

**●Features**

- 1) Darlington connection for a high  $h_{FE}$ .  
(DC current gain=5000 (Min.) at  $V_{CE}=3V$ ,  $I_C=0.1A$ )
- 2) High input impedance.

**●Circuit diagram****●Absolute maximum ratings (Ta=25°C)**

| Parameter                   | Symbol    | Limits   | Unit |
|-----------------------------|-----------|----------|------|
| Collector-base voltage      | $V_{CBO}$ | 40       | V    |
| Collector-emitter voltage   | $V_{CEO}$ | 32       | V    |
| Emitter-base voltage        | $V_{EBO}$ | 12       | V    |
| Collector current           | $I_C$     | 0.3      | A    |
| Collector power dissipation | $P_C$     | 0.2      | W    |
|                             |           | 0.3      |      |
| Junction temperature        | $T_J$     | 150      | °C   |
| Storage temperature         | $T_{stg}$ | -55~+150 | °C   |

**●Packaging specifications and  $h_{FE}$** 

| Type                         | 2SD2142K | 2SC2062S |
|------------------------------|----------|----------|
| Package                      | SMT3     | SPT      |
| $h_{FE}$                     | 5k~      | C        |
| Code                         | T146     | TP       |
| Basic ordering unit (pieces) | 3000     | 5000     |

**●Electrical characteristics (Ta=25°C)**

| Parameter                            | Symbol        | Min.  | Typ. | Max. | Unit    | Conditions                               |
|--------------------------------------|---------------|-------|------|------|---------|--|
| Collector-base breakdown voltage     | $BV_{CBO}$    | 40    | —    | —    | V       | $I_C=100\mu A$                           |
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | 32    | —    | —    | V       | $I_C=10mA$                               |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | 12    | —    | —    | V       | $I_E=100\mu A$                           |
| Collector cutoff current             | $I_{CBO}$     | —     | —    | 0.1  | $\mu A$ | $V_{CB}=30V$                             |
| Emitter cutoff current               | $I_{EBO}$     | —     | —    | 0.1  | $\mu A$ | $V_{EB}=12V$                             |
| DC current transfer ratio            | $h_{FE}$      | 5000  | —    | —    | —       | $V_{CE}/I_C=3V/0.1A$                     |
|                                      |               | 10000 | —    | —    | —       |  |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | —     | —    | 1.4  | V       | $I_C/I_B=200mA/0.2mA$                    |
| Transition frequency                 | $f_T$         | —     | 200  | —    | MHz     | $V_{CE}=5V$ , $I_E=-10mA$ , $f=100MHz$ * |
| Output capacitance                   | $C_{ob}$      | —     | 2.5  | —    | pF      | $V_{CB}=10V$ , $I_E=0A$ , $f=1MHz$       |

\* Transition frequency of the device.

(94L-570-D25)

# Low $V_{CE(sat)}$ Transistor (Strobes and DC/DC converters) (10V, 5A)

2SD2470

**●Features**

- 1) Low saturation voltage, typically  $V_{CE(sat)}=0.25V$  at  $I_C/I_B=3A/0.1A$ .
- 2) Collector current of 5A is possible.

**●Packaging specifications and  $h_{FE}$** 

| Type                         | 2SD2470 |
|------------------------------|---------|
| Package                      | SPT     |
| $h_{FE}$                     | 270~820 |
| Code                         | TP      |
| Basic ordering unit (pieces) | 5000    |

**●Absolute maximum ratings (Ta=25°C)**

| Parameter                   | Symbol    | Limits   | Unit        |
|-----------------------------|-----------|----------|-------------|
| Collector-base voltage      | $V_{CBO}$ | 15       | V           |
| Collector-emitter voltage   | $V_{CEO}$ | 10       | V           |
| Emitter-base voltage        | $V_{EBO}$ | 10       | V           |
| Collector current           | $I_C$     | 5        | A (DC)      |
|                             |           | 8        | A (Pulse) * |
| Collector power dissipation | $P_C$     | 0.4      | W           |
| Junction temperature        | $T_J$     | 150      | °C          |
| Storage temperature         | $T_{stg}$ | -55~+150 | °C          |

\* Single pulse=10ms

**●Electrical characteristics (Ta=25°C)**

| Parameter                            | Symbol        | Min. | Typ. | Max. | Unit    | Conditions                             |
|--------------------------------------|---------------|------|------|------|---------|--|
| Collector-base breakdown voltage     | $BV_{CBO}$    | 10   | —    | —    | V       | $I_C=1mA$                              |
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | 15   | —    | —    | V       | $I_C=50\mu A$                          |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | 10   | —    | —    | V       | $I_E=50\mu A$                          |
| Collector cutoff current             | $I_{CBO}$     | —    | —    | 0.1  | $\mu A$ | $V_{CB}=10V$                           |
| Emitter cutoff current               | $I_{EBO}$     | —    | —    | 0.5  | $\mu A$ | $V_{EB}=8V$                            |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | —    | 0.25 | 0.5  | V       | $I_C/I_B=3/0.1A$                       |
| DC current transfer ratio            | $h_{FE}$      | 270  | —    | 820  | —       | $V_{CE}=2V$ , $I_C=2A$                 |
| Transition frequency                 | $f_T$         | —    | 170  | —    | MHz     | $V_{CE}=6V$ , $I_E=0.05A$ , $f=100MHz$ |
| Output capacitance                   | $C_{ob}$      | —    | 30   | —    | pF      | $V_{CB}=10V$ , $I_E=0A$ , $f=1MHz$     |

(SPEC-D230)