

## NPN general purpose transistor

2PD602; 2PD602A

查询 2PD601 供应商

## FEATURES

- Large collector current
- Low collector-emitter saturation voltage.

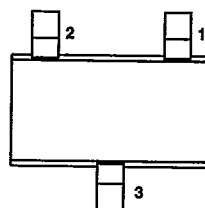
## DESCRIPTION

NPN transistor in a plastic SC59 package for general switching or amplification. Complementary pairs are 2PB710 and 2PB710A respectively.

## PINNING - SC59

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | base        |
| 2   | emitter     |
| 3   | collector   |

## PIN CONFIGURATION



MSA314

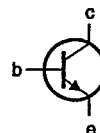


Fig.1 Simplified outline and symbol.

## MARKING CODES

|           |    |
|-----------|----|
| 2PD602Q:  | WQ |
| 2PD602R:  | WR |
| 2PD602S:  | WS |
| 2PD602AQ: | XQ |
| 2PD602AR: | XR |
| 2PD602AS: | XS |

## QUICK REFERENCE DATA

| SYMBOL    | PARAMETER                 | CONDITIONS                                                                                                  | MIN. | MAX. | UNIT |
|-----------|---------------------------|-------------------------------------------------------------------------------------------------------------|------|------|------|
| $V_{CBO}$ | collector-base voltage    | open emitter                                                                                                |      |      |      |
|           | 2PD602                    |                                                                                                             | —    | 30   | V    |
|           | 2PD602A                   |                                                                                                             | —    | 60   | V    |
| $V_{CEO}$ | collector-emitter voltage | open base                                                                                                   |      |      |      |
|           | 2PD602                    |                                                                                                             | —    | 25   | V    |
|           | 2PD602A                   |                                                                                                             | —    | 50   | V    |
| $h_{FE}$  | DC current gain           | $I_C = 150 \text{ mA}$ ; $V_{CE} = 10 \text{ V}$ ;<br>$T_{amb} = 25^\circ \text{C}$                         | 85   | 340  |      |
| $I_{CM}$  | peak collector current    |                                                                                                             | —    | 1    | A    |
| $P_{tot}$ | total power dissipation   | up to $T_{amb} = 25^\circ \text{C}$                                                                         | —    | 200  | mW   |
| $f_T$     | transition frequency      | $I_E = -50 \text{ mA}$ ; $V_{CB} = 10 \text{ V}$ ;<br>$f = 100 \text{ MHz}$ ; $T_{amb} = 25^\circ \text{C}$ | 150  | —    | MHz  |

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## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL    | PARAMETER                     | CONDITIONS                                               | MIN. | MAX. | UNIT             |
|-----------|-------------------------------|----------------------------------------------------------|------|------|------------------|
| $V_{CBO}$ | collector-base voltage        | open emitter                                             |      |      |                  |
|           | 2PD602                        |                                                          | —    | 30   | V                |
|           | 2PD602A                       |                                                          | —    | 60   | V                |
| $V_{CEO}$ | collector-emitter voltage     | open base                                                |      |      |                  |
|           | 2PD602                        |                                                          | —    | 25   | V                |
|           | 2PD602A                       |                                                          | —    | 50   | V                |
| $V_{EBO}$ | emitter-base voltage          | open collector                                           | —    | 5    | V                |
| $I_C$     | DC collector current          |                                                          | —    | 500  | mA               |
| $I_{CM}$  | peak collector current        |                                                          | —    | 1    | A                |
| $P_{tot}$ | total power dissipation       | up to $T_{amb} = 25^\circ\text{C}$ (note 1)<br>see Fig.2 | —    | 200  | mW               |
| $T_{stg}$ | storage temperature           |                                                          | —55  | 150  | $^\circ\text{C}$ |
| $T_J$     | junction temperature          |                                                          | —    | 150  | $^\circ\text{C}$ |
| $T_{amb}$ | operating ambient temperature | see Fig.2                                                | —55  | 150  | $^\circ\text{C}$ |

## Note

1. Refer to SC59 standard mounting conditions.

## THERMAL RESISTANCE

| SYMBOL        | PARAMETER                                   | CONDITIONS           | THERMAL RESISTANCE |
|---------------|---------------------------------------------|----------------------|--------------------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | in free air (note 1) | max. 625 K/W       |

## Note

1. Refer to SC59 standard mounting conditions.

## CHARACTERISTICS

 $T_{amb} = 25^\circ\text{C}$  unless otherwise specified.

| SYMBOL        | PARAMETER                            | CONDITIONS                                              | MIN. | MAX. | UNIT |
|---------------|--------------------------------------|---------------------------------------------------------|------|------|------|
| $V_{(BR)CBO}$ | collector-base breakdown voltage     | open emitter; $I_C = 10\ \mu\text{A}$ ; $I_E = 0$       |      |      |      |
|               | 2PD602                               |                                                         | 30   | —    | V    |
|               | 2PD602A                              |                                                         | 60   | —    | V    |
| $V_{(BR)CEO}$ | collector-emitter breakdown voltage  | open base; $I_C = 2\ \text{mA}$ ; $I_B = 0$ (note 1)    |      |      |      |
|               | 2PD602                               |                                                         | 25   | —    | V    |
|               | 2PD602A                              |                                                         | 50   | —    | V    |
| $V_{(BR)EBO}$ | emitter-base breakdown voltage       | open collector; $I_E = -10\ \mu\text{A}$ ; $I_C = 0$    | 5    | —    | V    |
| $V_{CE(sat)}$ | collector-emitter saturation voltage | $I_C = 300\ \text{mA}$ ; $I_B = 30\ \text{mA}$ (note 1) | —    | 600  | mV   |

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## CHARACTERISTICS (Continued)

| SYMBOL    | PARAMETER                      | CONDITIONS                                                | MIN. | MAX. | UNIT |
|-----------|--------------------------------|-----------------------------------------------------------|------|------|------|
| $I_{CBO}$ | collector-base cut-off current | $I_E = 0$ ; $V_{CB} = 20$ V                               | —    | 100  | nA   |
|           |                                | $I_E = 0$ ; $V_{CB} = 20$ V; $T_J = 150$ °C               | —    | 5    | μA   |
| $I_{EBO}$ | emitter-base cut-off current   | $I_C = 0$ ; $V_{EB} = 4$ V                                | —    | 100  | nA   |
| $h_{FE}$  | DC current gain                | $I_C = 500$ mA; $V_{CE} = 10$ V (note 1)                  | 40   | —    |      |
|           |                                | $I_C = 150$ mA; $V_{CE} = 10$ V (note 1)                  |      |      |      |
|           | 2PD602; 2PD602A                |                                                           | 85   | 340  |      |
|           | 2PD602Q; 2PD602AQ              |                                                           | 85   | 170  |      |
|           | 2PD602R; 2PD602AR              |                                                           | 120  | 240  |      |
|           | 2PD602S; 2PD602AS              |                                                           | 170  | 340  |      |
| $f_T$     | transition frequency           | $I_E = -50$ mA; $V_{CB} = 10$ V<br>$f = 100$ MHz (note 1) | 150  | —    | MHz  |
| $C_{ob}$  | collector output capacitance   | $I_E = 0$ ; $V_{CB} = 10$ V; $f = 1$ MHz                  | —    | 15   | pF   |

## Note

1. Pulse test :  $t_p \leq 300$  μs;  $\delta \leq 0.02$ .

