# 2SC6043

# **Bipolar Transistor** 50V, 2A, Low VCE(sat) NPN Single MP



http://onsemi.com

### **Applications**

• Voltage regulators, relay drivers, lamp drivers, electrical equipment

### **Features**

- Adoption of MBIT process
- High current capacitance

- Low collector to emitter saturation voltage
- High-speed switching

### **Specifications**

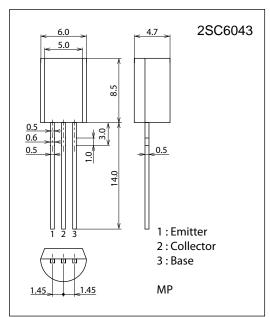
**Absolute Maximum Ratings** at Ta = 25°C

| Parameter                    | Symbol           | Conditions | Ratings     | Unit |
|------------------------------|------------------|------------|-------------|------|
| Collector to Base Voltage    | VCBO             |            | 80          | V    |
| Collector to Emitter Voltage | VCES             |            | 80          | V    |
| Collector to Emitter Voltage | VCEO             |            | 50          | V    |
| Emitter to Base Voltage      | V <sub>EBO</sub> |            | 6           | V    |
| Collector Current            | IC               |            | 2           | Α    |
| Collector Current (Pulse)    | ICP              |            | 4           | Α    |
| Base Current                 | IB               |            | 400         | mA   |
| Collector Dissipation        | PC               |            | 1           | W    |
| Junction Temperature         | Tj               |            | 150         | °C   |
| Storage Temperature          | Tstg             |            | -55 to +150 | °C   |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

### **Package Dimensions**

unit : mm (typ) 7520-002



### **Product & Package Information**

• Package : MP

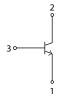
• JEITA, JEDEC : SC-51, TO-92(1-WATT), TO-226AE

• Minimum Packing Quantity : 1,000 pcs./box

#### Marking

# C6043

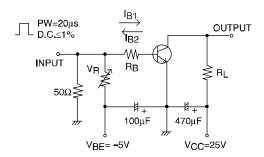
### **Electrical Connection**



### **Electrical Characteristics** at Ta = 25°C

| Description                             | Symbol                | O and distinct                              | Ratings |      |     | 1.1:4 |
|---|-----------------------|---|---------|------|-----|-------|
| Parameter                               |                       | Conditions                                  | min     | typ  | max | Unit  |
| Collector Cutoff Current                | ICBO                  | V <sub>CB</sub> =40V, I <sub>E</sub> =0A    |         |      | 1   | μА    |
| Emitter Cutoff Current                  | I <sub>EBO</sub>      | V <sub>EB</sub> =4V, I <sub>C</sub> =0A     |         |      | 1   | μΑ    |
| DC Current Gain                         | hFE1                  | V <sub>CE</sub> =2V, I <sub>C</sub> =100mA  | 200     |      | 560 |       |
|   | hFE2                  | V <sub>CE</sub> =2V, I <sub>C</sub> =1.5A   | 40      |      |     |       |
| Gain-Bandwidth Product                  | fT                    | V <sub>CE</sub> =10V, I <sub>C</sub> =300mA |         | 420  |     | MHz   |
| Output Capacitance                      | Cob                   | V <sub>CB</sub> =10V, f=1MHz                |         | 9    |     | pF    |
| Collector to Emitter Saturation Voltage | V <sub>CE</sub> (sat) | I <sub>C</sub> =1A, I <sub>B</sub> =50mA    |         | 150  | 300 | mV    |
| Base to Emitter Saturation Voltage      | V <sub>BE</sub> (sat) | I <sub>C</sub> =1A, I <sub>B</sub> =50mA    |         | 0.94 | 1.2 | V     |
| Collector to Base Breakdown Voltage     | V(BR)CBO              | I <sub>C</sub> =10μA, I <sub>E</sub> =0A    | 80      |      |     | V     |
| Collector to Emitter Breakdown Voltage  | V(BR)CES              | I <sub>C</sub> =100μA, R <sub>BE</sub> =0Ω  | 80      |      |     | V     |
| Collector to Emitter Breakdown Voltage  | V(BR)CEO              | I <sub>C</sub> =1mA, R <sub>BE</sub> =∞     | 50      |      |     | V     |
| Emitter to Base Breakdown Voltage       | V(BR)EBO              | I <sub>E</sub> =10μA, I <sub>C</sub> =0A    | 6       |      |     | V     |
| Turn-ON Time                            | ton                   |   |         | 35   |     | ns    |
| Storage Time                            | t <sub>stg</sub>      | See specified Test Circuit                  |         | 330  | _   | ns    |
| Fall Time                               | tf                    |   |         | 40   |     | ns    |

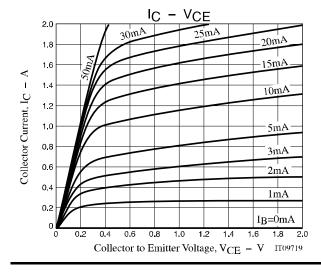
# **Switching Time Test Circuit**

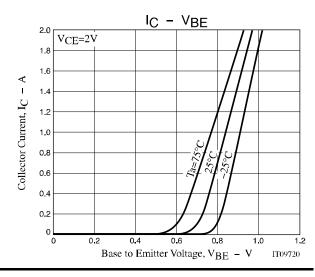


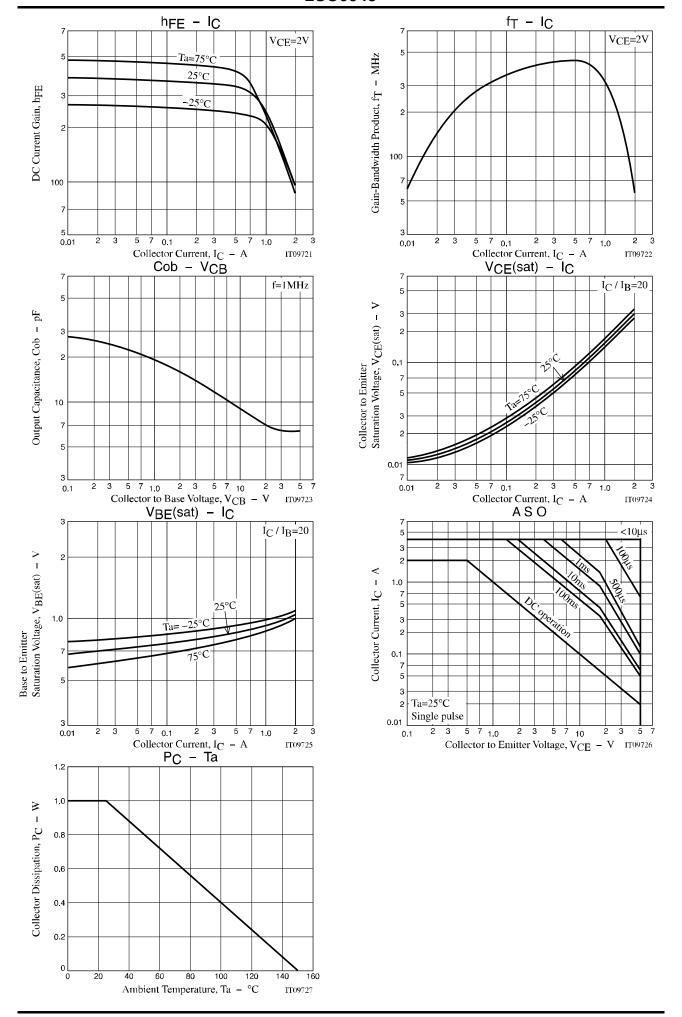
 $I_{C}=10I_{B1}=-10I_{B2}=700mA$ 

## **Ordering Information**

| Device     | Package | Shipping      | Memo    |
|------------|---------|---------------|---------|
| 2SC6043    | MD      | 500pcs./bag   | Dh. E   |
| 2SC6043-AE | MP      | 1,000pcs./box | Pb Eree |

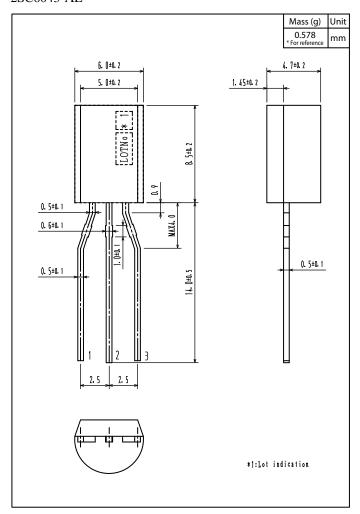






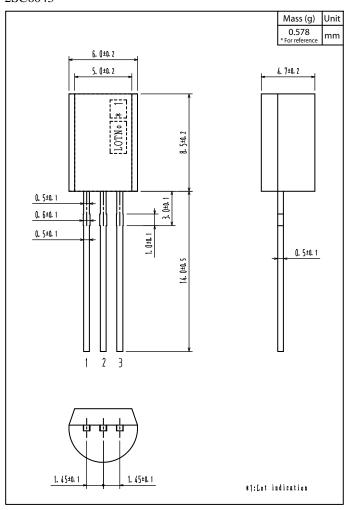
## **Outline Drawing**

2SC6043-AE



### **Outline Drawing**

2SC6043



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