# 2SD2662

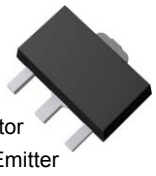
**NPN 1.5A 30V Middle Power Transistor**

Datasheet

| Parameter | Value |
|---|---|
| $V_{CEO}$ | 30V |
| $I_C$ | 1.5A |

## ●Outline

MPT3

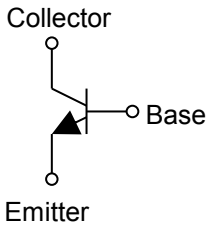



2SD2662
(SC-62)
<SOT-89>

## ●Features

1) Suitable for Middle Power Driver
2) Complementary PNP Types : 2SB1698
3) Low $V_{CE(sat)}$
   $V_{CE(sat)}$=0.35V(Max.)
   ($I_C$/$I_B$=1A/50mA)
4) Lead Free/RoHS Compliant.

## ●Inner circuit




## ●Applications

Motor driver , LED driver
Power supply

## ●Packaging specifications

| Part No. | Package | Package size (mm) | Taping code | Reel size (mm) | Tape width (mm) | Basic ordering unit (pcs) | Marking |
|---|---|---|---|---|---|---|---|
| 2SD2662 | MPT3 | 4540 | T100 | 180 | 12 | 1,000 | FZ |

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

| Parameter | | Symbol | Values | Unit |
|---|---|---|---|---|
| Collector-base voltage | | $V_{CBO}$ | 30 | V |
| Collector-emitter voltage | | $V_{CEO}$ | 30 | V |
| Emitter-base voltage | | $V_{EBO}$ | 6 | V |
| Collector current | DC | $I_C$ | 1.5 | A |
| | Pulsed | $I_{CP}$ *1 | 3.0 | A |
| Power dissipation | | $P_D$ *2 | 0.5 | W |
| | | $P_D$ *3 | 2.0 | W |
| Junction temperature | | $T_j$ | 150 | °C |
| Range of storage temperature | | $T_{stg}$ | −55 to +150 | °C |

*1 Pw=1ms , single pulse
*2 Each terminal mounted on a reference land
*3 Mounted on a ceramic board (40×40×0.7mm)

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

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Collector-emitter breakdown voltage | $BV_{CEO}$ | $I_C$ = 1mA | 30 | - | - | V |
| Collector-base breakdown voltage | $BV_{CBO}$ | $I_C$ = 10μA | 30 | - | - | V |
| Emitter-base breakdown voltage | $BV_{EBO}$ | $I_E$ = 10μA | 6 | - | - | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$ = 30V | - | - | 100 | nA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$ = 6V | - | - | 100 | nA |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$ = 1A, $I_B$ = 50mA | - | 160 | 350 | mV |
| DC current gain | $h_{FE}$ | $V_{CE}$ = 2V, $I_C$ = 100mA | 270 | - | 680 | - |
| Transition frequency | $f_T$ | $V_{CE}$ = 2V, $I_E$ = −100mA f=100MHz | - | 330 | - | MHz |
| Output capacitance | $C_{ob}$ | $V_{CB}$ = 10V, $I_E$ = 0A f = 1MHz | - | 11 | - | pF |

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## ●Electrical characteristic curves(Ta = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

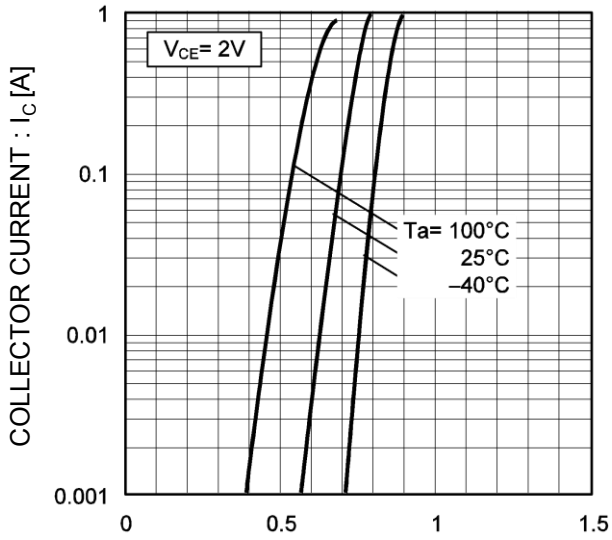



Fig.2 Typical Output Characteristics

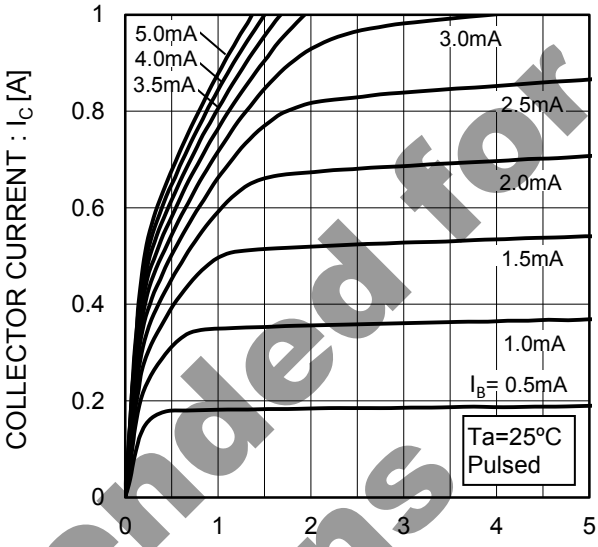



Fig.3 DC Current Gain vs. Collector Current(I)

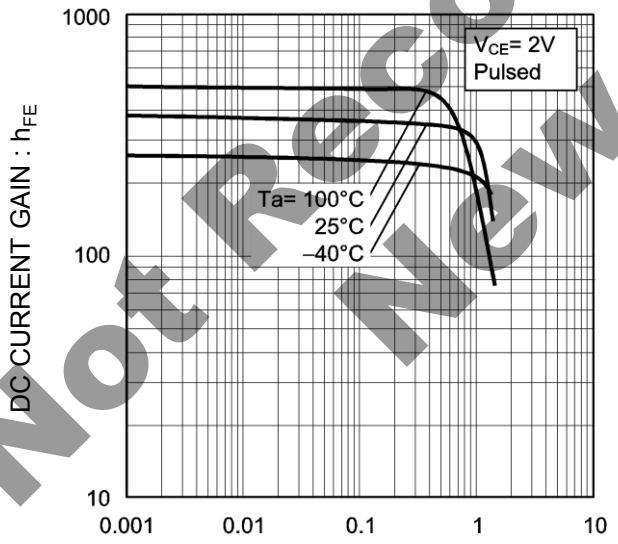
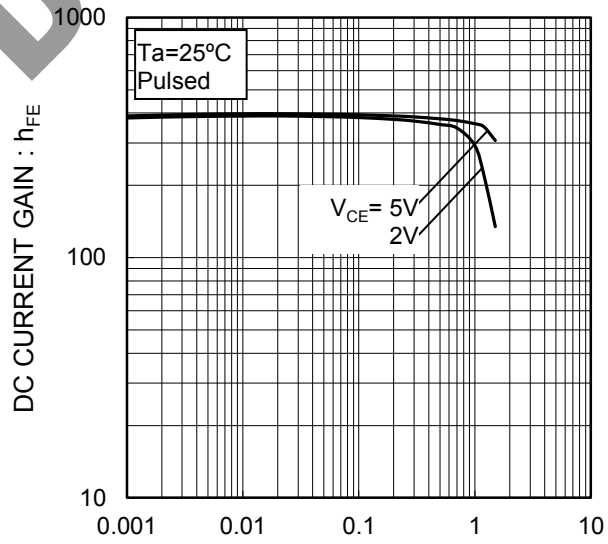



Fig.4 DC Current Gain vs. Collector Current(II)




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## ●**Electrical characteristic curves**(Ta = 25°C)

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

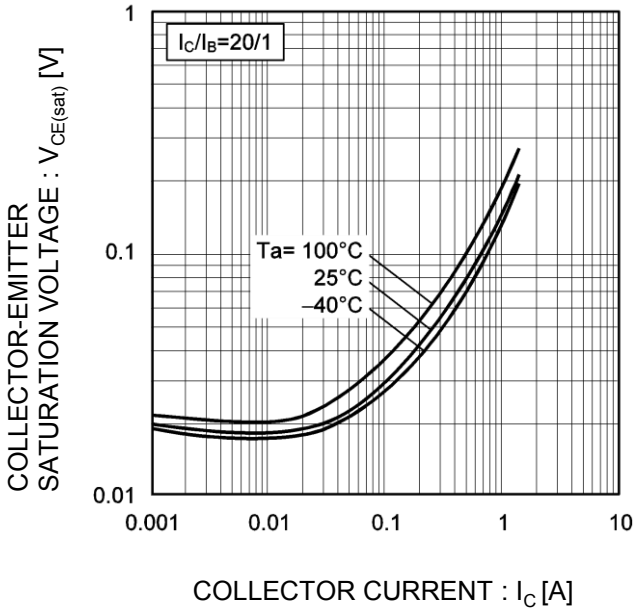



Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

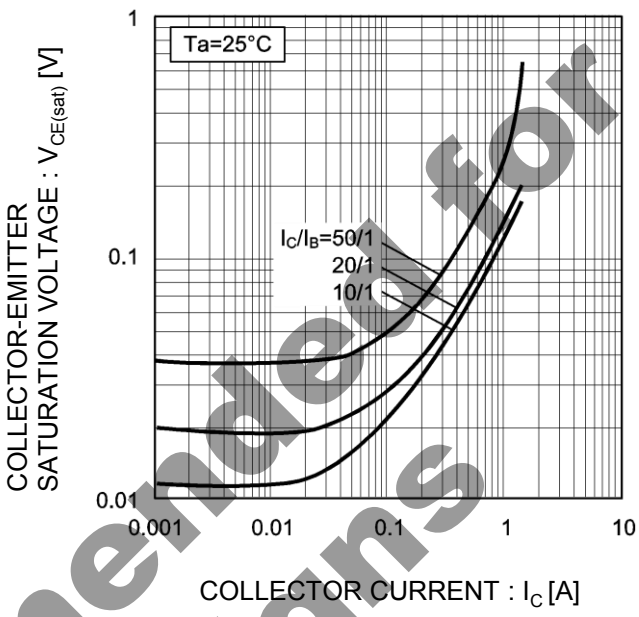



Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

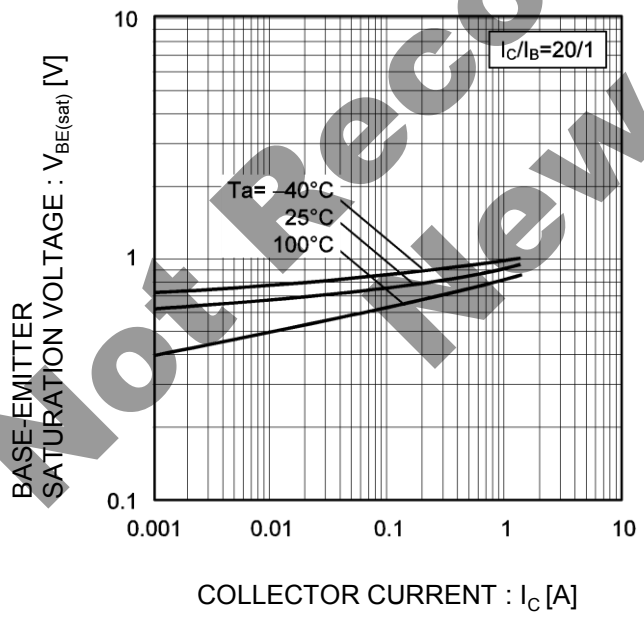
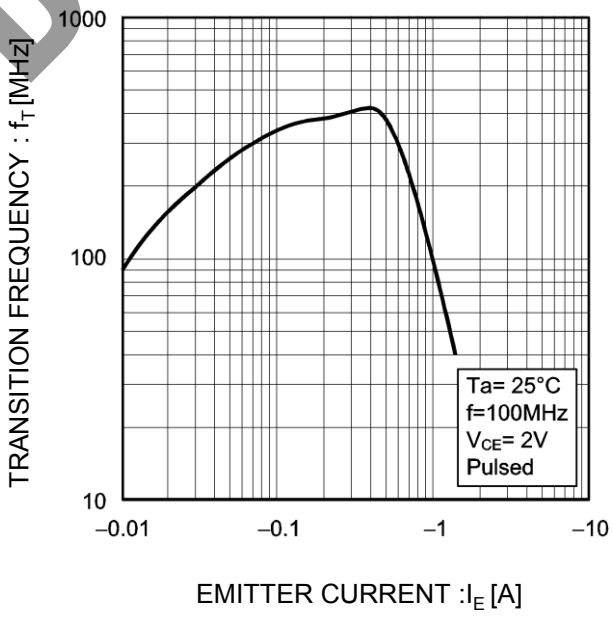



Fig.8 Gain Bandwidth Product vs. Emitter Current




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## ●**Electrical characteristic curves**(Ta = 25°C)

Fig.9 Emitter input capacitance vs. Emitter-Base Voltage
Collector output capacitance vs. Collector-Base Voltage

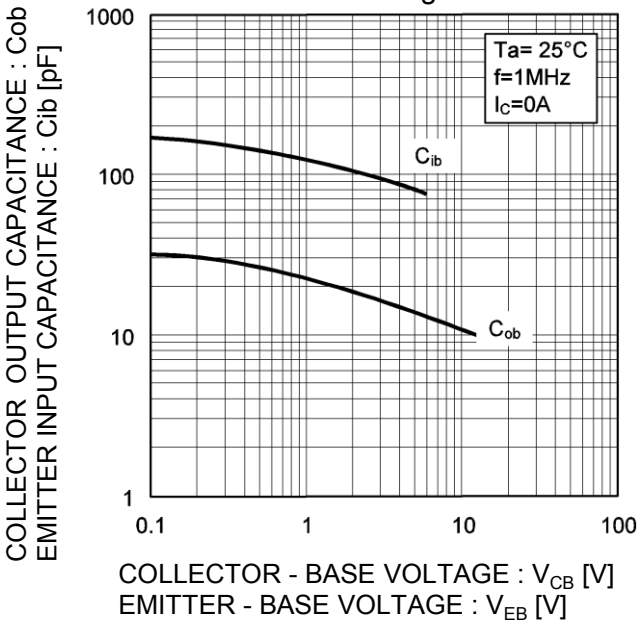
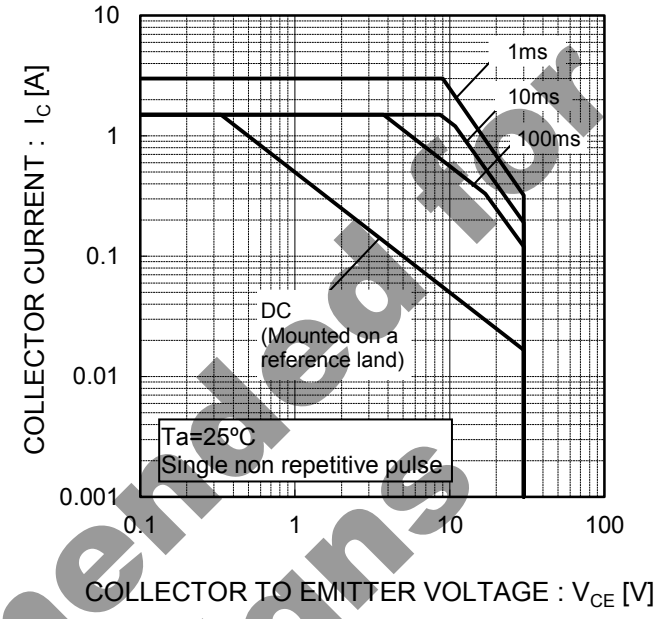



Fig.10 Safe Operating Area



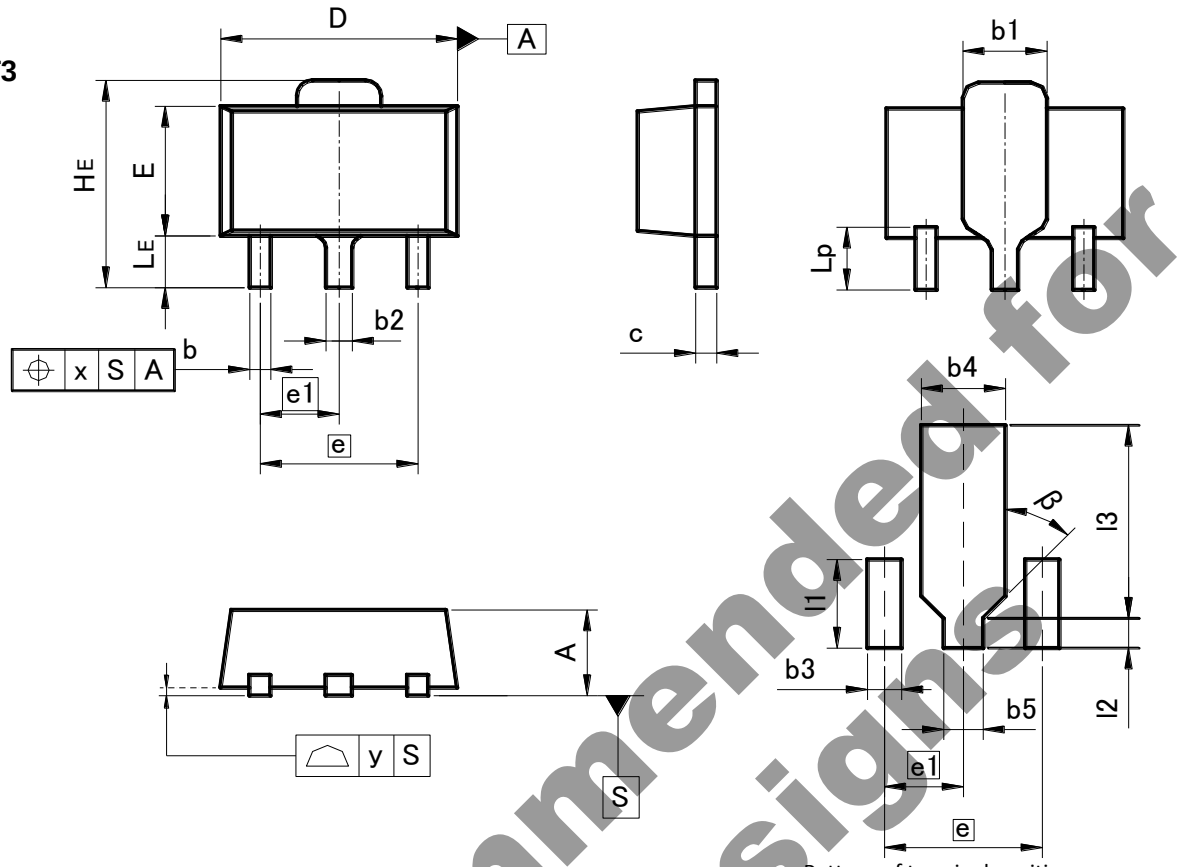

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●**Dimensions** (Unit : mm)

**MPT3**




Pattern of terminal position areas
[Not a recommended pattern of soldering pads]

| DIM | MILIMETERS | | INCHES | |
|---|---|---|---|---|
| | MIN | MAX | MIN | MAX |
| A | 1.40 | 1.50 | 0.055 | 0.059 |
| b | 0.30 | 0.50 | 0.012 | 0.020 |
| b1 | 1.50 | 1.70 | 0.059 | 0.067 |
| b2 | 0.40 | 0.60 | 0.016 | 0.024 |
| c | 0.35 | 0.50 | 0.014 | 0.020 |
| D | 4.40 | 4.70 | 0.173 | 0.185 |
| E | 2.40 | 2.70 | 0.094 | 0.106 |
| e | 3.00 | | 0.118 | |
| e1 | 1.50 | | 0.059 | |
| HE | 3.70 | 4.30 | 0.146 | 0.169 |
| LE | 0.80 | 1.20 | 0.031 | 0.047 |
| Lp | 1.01 | 1.41 | 0.040 | 0.056 |
| x | – | 0.15 | – | 0.006 |
| y | – | 0.10 | – | 0.004 |

| DIM | MILIMETERS | | INCHES | |
|---|---|---|---|---|
| | MIN | MAX | MIN | MAX |
| b3 | – | 0.65 | – | 0.026 |
| b4 | – | 1.70 | – | 0.067 |
| b5 | – | 0.75 | – | 0.030 |
| l1 | – | 1.71 | – | 0.067 |
| l2 | – | 0.58 | – | 0.023 |
| l3 | – | 3.72 | – | 0.146 |
| β | 45° | | 45° | |

Dimension in mm / inches

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