

Power transistor (60V, 3A)

2SC5825

● **Features**

- 1) High speed switching.
(Tf : Typ. : 30ns at Ic = 3A)
- 2) Low saturation voltage, typically
(Typ. : 200mV at Ic = 2A, Ib = 0.2mA)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2072.

● **Applications**

Low frequency amplifier
High speed switching

● **Structure**

NPN Silicon epitaxial planar transistor

● **Packaging specifications**

| Type | Package | Taping |
|---------|------------------------------|--------|
| | Code | TL |
| | Basic ordering unit (pieces) | 2500 |
| 2SC5825 | | ○ |

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

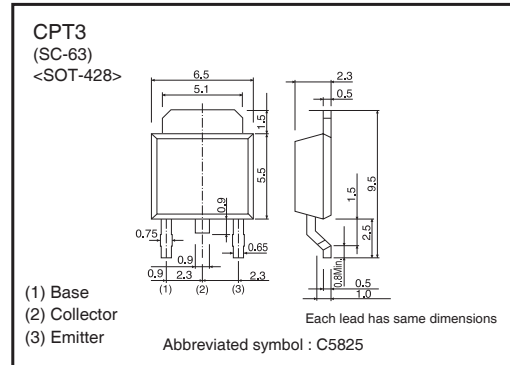
| Parameter | Symbol | Limits | Unit |
|------------------------------|------------------|-----------------|--------|
| Collector-base voltage | V _{CBO} | 60 | V |
| Collector-emitter voltage | V _{CEO} | 60 | V |
| Emitter-base voltage | V _{EBO} | 6 | V |
| Collector current | Continuous | I _C | 3 A |
| | Pulsed | I _{CP} | 6 A *1 |
| Power dissipation | P _C | 1.0 | W *2 |
| | | 10.0 | W *3 |
| Junction temperature | T _J | 150 | °C |
| Range of storage temperature | T _{stg} | -55 to 150 | °C |

*1 Pw=100ms

*2 Each terminal mounted on a recommended land

*3 Tc=25°C

● **Dimensions (Unit : mm)**



●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|--------------------------------------|---------------|------|------|------|---------|--|
| Collector-emitter breakdown voltage | BV_{CEO} | 60 | – | – | V | $I_C=1mA$ |
| Collector-base breakdown voltage | BV_{CBO} | 60 | – | – | V | $I_C=100\mu A$ |
| Emitter-base breakdown voltage | BV_{EBO} | 6 | – | – | V | $I_E=100\mu A$ |
| Collector cut-off current | I_{CBO} | – | – | 1.0 | μA | $V_{CB}=40V$ |
| Emitter cut-off current | I_{EBO} | – | – | 1.0 | μA | $V_{EB}=4V$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | – | 200 | 500 | mV | $I_C=2A$ $I_B=200mA$ |
| DC current gain | h_{FE} | 120 | – | 390 | – | $V_{CE}=2V$ $I_C=100mA$ |
| Transition frequency | f_T | – | 200 | – | MHz | $V_{CE}=10V$ $I_E=-100mA$ $f=10MHz$ |
| Corrector output capacitance | C_{ob} | – | 20 | – | pF | $V_{CB}=10V$ $I_E=0mA$ $f=1MHz$ |
| Turn-on time | T_{on} | – | 50 | – | ns | $I_C=3A$ $I_{B1}=300mA$ $I_{B2}=-300mA$ $V_{CC}\approx 25V$ |
| Storage time | T_{stg} | – | 150 | – | ns | |
| Fall time | T_f | – | 30 | – | ns | |

*1 Non repetitive pulse

*2 See Switching characteristics measurement circuits

●hFE RANK

| Q | R |
|---------|---------|
| 120–270 | 180–390 |

●Electrical characteristic curves

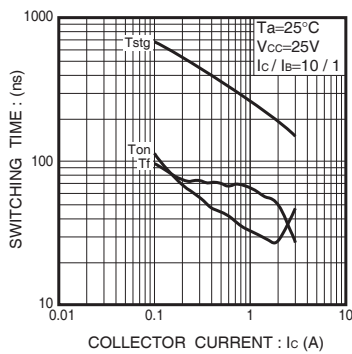


Fig.1 Switching Time

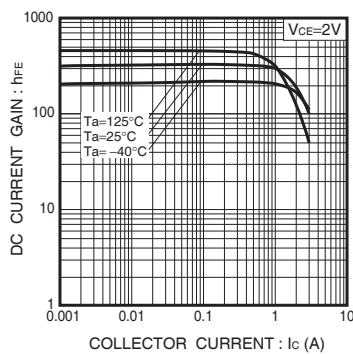


Fig.2 DC Current Gain vs. Collector Current (I)

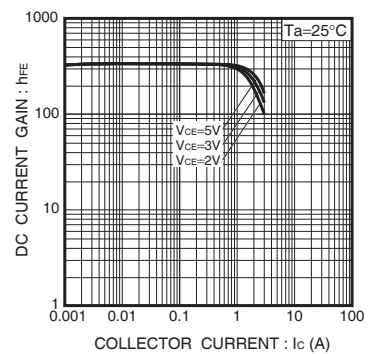


Fig.3 DC Current Gain vs. Collector Current (II)

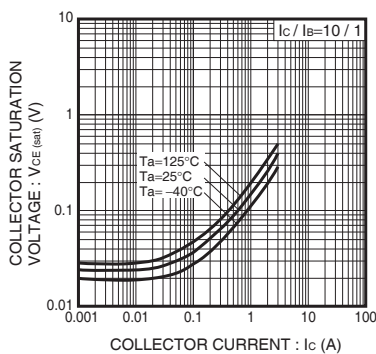


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (I)

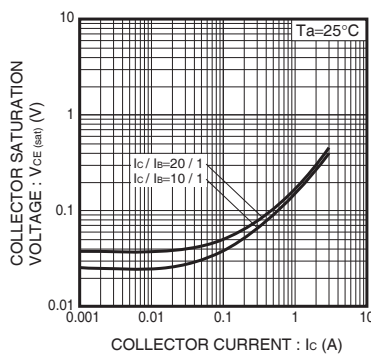


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (II)

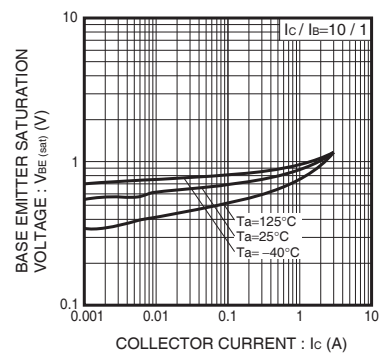


Fig.6 Base-Emitter Saturation Voltage vs. Collector Current

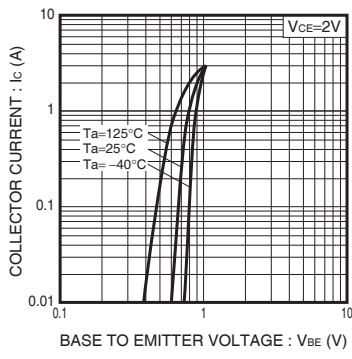


Fig.7 Grounded Emitter Propagation Characteristics

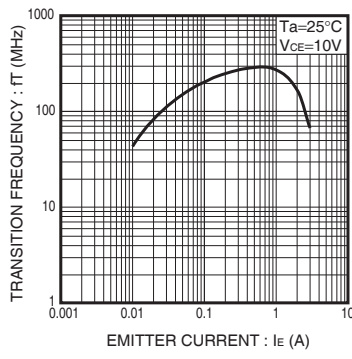


Fig.8 Transition Frequency

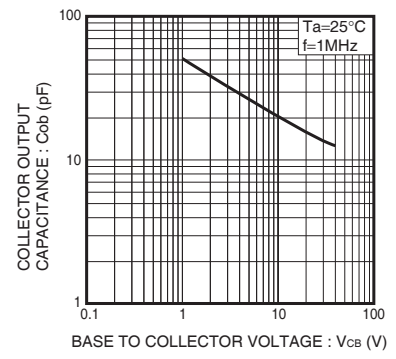
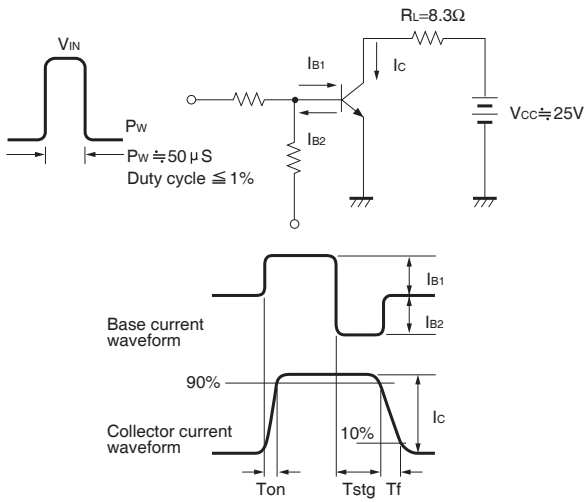


Fig.9 Collector Output Capacitance

● Switching characteristics measurement circuits



Notes

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