Ordering number:EN3708

NPN Epitaxial Planar Silicon Transistor

# 2SC4675

## 20V/8A Switching Applications

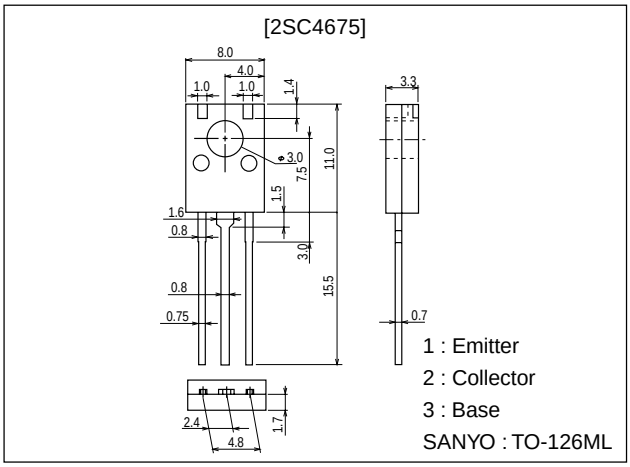
## Features

- Adoption of MBIT process.
- Low saturation voltage.
- Fast switching speed.
- Large current capacity.

## Package Dimensions

unit:mm

2042B




## Specifications

### Absolute Maximum Ratings at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector-to-Base Voltage | $V_{CBO}$ | | 30 | V |
| Collector-to-Emitter Voltage | $V_{CEO}$ | | 20 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | 5 | V |
| Collector Current | $I_C$ | | 8 | A |
| Collector Current (Pulse) | $I_{CP}$ | | 12 | A |
| Base Current | $I_B$ | | 1.5 | A |
| Collector Dissipation | $P_C$ | | 1.5 | W |
| | | Tc=25˚C | 10 | W |
| Junction Temperature | Tj | | 150 | ˚C |
| Storage Temperature | Tstg | | –55 to +150 | ˚C |

### Electrical Characteristics at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=20V, $I_E$=0 | | | 1 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=4V, $I_C$=0 | | | 1 | μA |
| DC Current Gain | $h_{FE}1$ | $V_{CE}$=2V, $I_C$=500mA | 100* | | 400* | |
| | $h_{FE}2$ | $V_{CE}$=2V, $I_C$=6A | 70 | | | |

* : The 2SC4675 is classified by 500mA $h_{FE}$ as follows.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 100 | R | 200 | 140 | S | 280 | 200 | T | 400 |

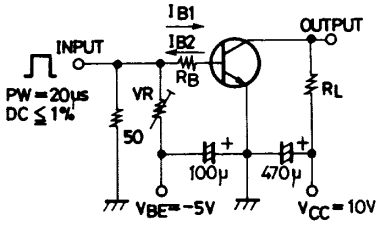



SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

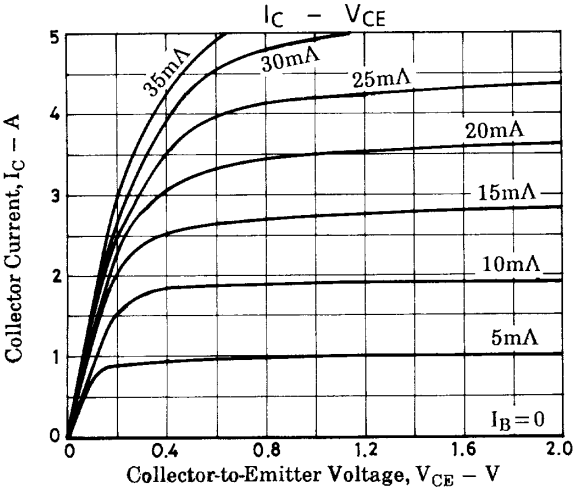
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=2V, $I_C$=500mA | | 250 | | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=10V, f=1MHz | | 60 | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=5A, $I_B$=250mA | | 220 | 400 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C$=5A, $I_B$=250mA | | 1 | 1.3 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=10μA, $I_E$=0 | 30 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=1mA, $R_{BE}$=∞ | 20 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$=10μA, $I_C$=0 | 5 | | | V |
| Turn-ON Time | $t_{on}$ | See specified test circuit. | | 30 | | ns |
| Storage Time | $t_{stg}$ | See specified test circuit. | | 250 | | ns |
| Fall Time | $t_f$ | See specified test circuit. | | 15 | | ns |

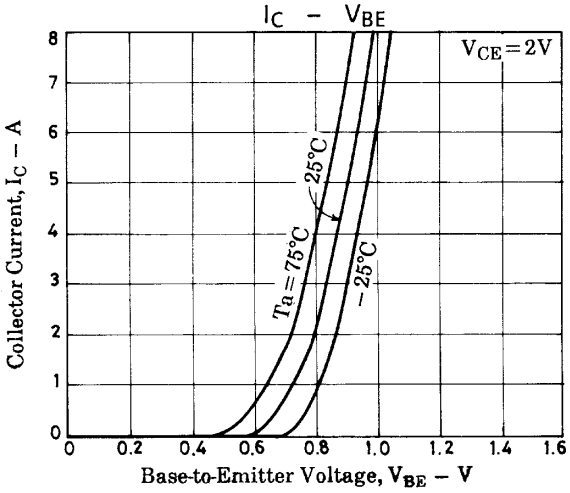
## Switching Time Test Circuit

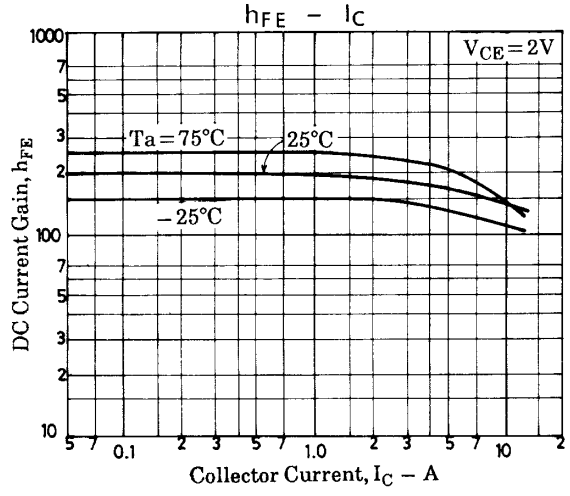


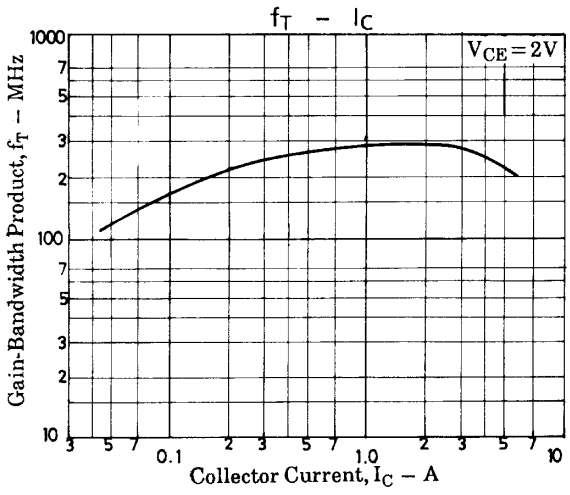

$20I_{B1} = -20I_{B2} = I_C = 5A$

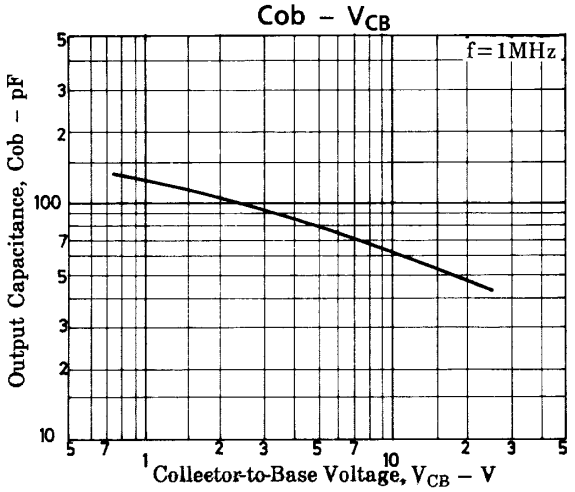
Unit (resistance : Ω, capacitance : F)

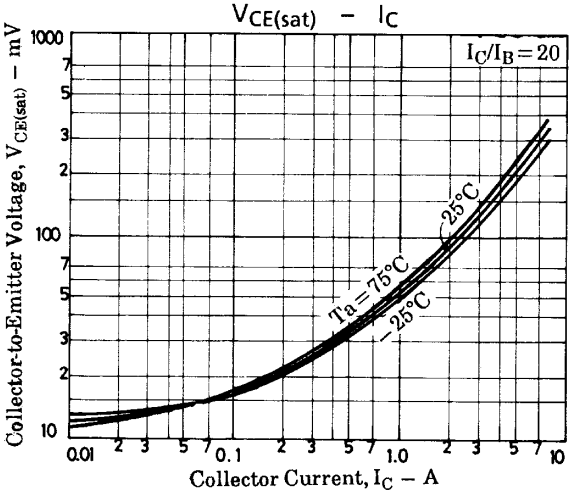


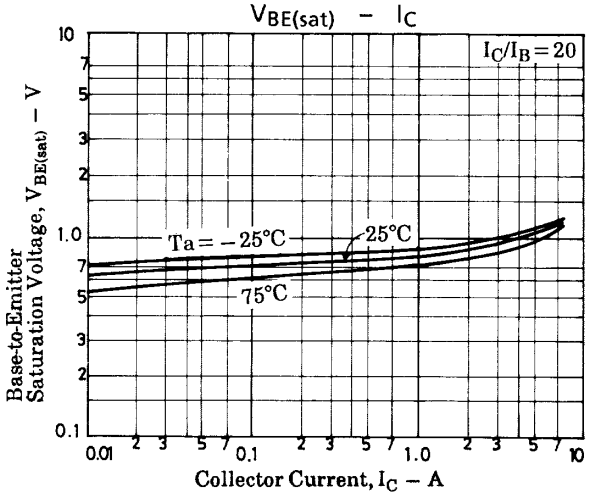



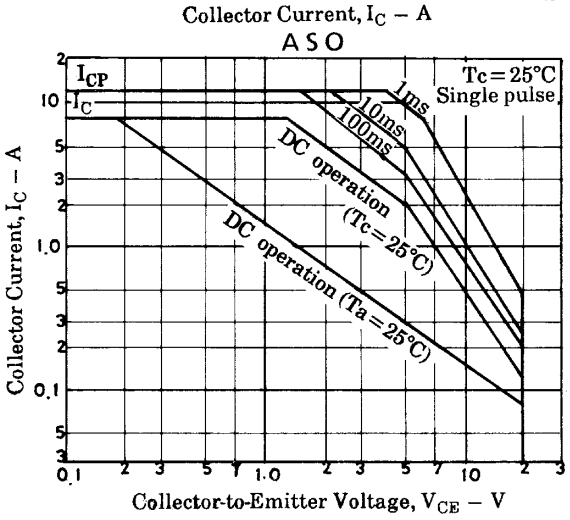



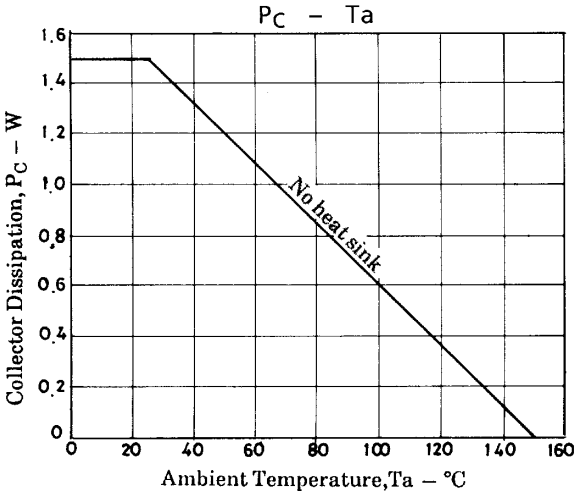



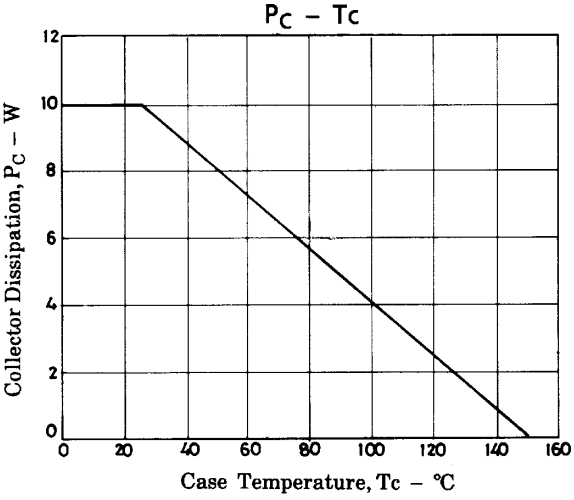

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Colleetor-to-Base Voltage, VCB – V


VCE(sat) – IC
IC/IB=20
Collector-to-Emitter Voltage, VCE(sat) – mV
Ta=75°C
25°C
–25°C
Collector Current, IC – A


VBE(sat) – IC
IC/IB=20
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Ta=–25°C
25°C
75°C
Collector Current, IC – A


ASO
ICP
IC
Tc=25°C
Single pulse
1ms
10ms
100ms
DC operation (Tc=25°C)
DC operation (Ta=25°C)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V


PC – Ta
No heat sink
Collector Dissipation, PC – W
Ambient Temperature,Ta – °C


PC – Tc
Collector Dissipation, PC – W
Case Temperature, Tc – °C