



**CHENMKO ENTERPRISE CO.,LTD**

*Lead free devices*

**SURFACE MOUNT**

**Low Ferquency NPN Transistor**

**VOLTAGE 12 Volts CURRENT 0.5 Ampere**

**2SC5663PT**

**APPLICATION**

\* For switching,for muting.

**FEATURE**

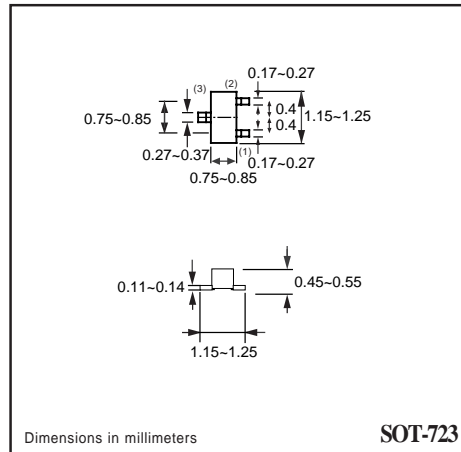
- \* Small surface mounting type. (SOT-723)
- \* High current
- \* Collector saturation voltage is low.  
 $V_{CE(sat)} \leq 250\text{mA}$   
 At  $I_C=200\text{mA}/I_B=10\text{mA}$

**CONSTRUCTION**

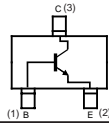
\* NPN Silicon Transistor

**MARKING**

\* 31



**CIRCUIT**



**MAXIMUM RATINGS** ( At  $T_A = 25^\circ\text{C}$  unless otherwise noted )

| RATINGS                       | CONDITION                            | SYMBOL    | MIN. | MAX. | UNITS            |
|-------------------------------|--------------------------------------|-----------|------|------|------------------|
| Collector - Base Voltage      | Open Emitter                         | $V_{CB0}$ | -    | 15   | Volts            |
| Collector - Emitter Voltage   | Open Base                            | $V_{CE0}$ | -    | 12   | Volts            |
| Collector Current DC          |                                      | $I_C$     | -    | 500  | mAmps            |
| Peak Collector Current        |                                      | $I_{CM}$  | -    | 1000 | mAmps            |
| Total Power Dissipation       | $T_A \leq 25^\circ\text{C}$ ; Note 1 | $P_{TOT}$ | -    | 150  | mW               |
| Storage Temperature           |                                      | $T_{STG}$ | -55  | +150 | $^\circ\text{C}$ |
| Junction Temperature          |                                      | $T_J$     | -    | +150 | $^\circ\text{C}$ |
| Operating Ambient Temperature |                                      | $T_{AMB}$ | -55  | +150 | $^\circ\text{C}$ |

**Note**

1. Transistor mounted on ceramic substrate 50mmX50mmX0.8t.

2004-06

## RATING CHARACTERISTICS ( 2SC5663PT )

### THERMAL CHARACTERISTICS CHARACTERISTICS

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

| SYMBOL      | PARAMETER                            | CONDITIONS  | MIN. | Typ. | MAX. | UNIT          |
|-------------|--------------------------------------|---|------|------|------|---------------|
| $I_{CBO}$   | collector cut-off current            | $V_{CB}=15\text{V}$   | –    | –    | 0.1  | $\mu\text{A}$ |
| $BV_{CBO}$  | collector-base breakdown voltage     | $I_C = 10\mu\text{A}$   | 15   | –    | –    | V             |
| $BV_{CEO}$  | collector-emitter breakdown voltage  | $I_C = 1\text{mA}$  | 12   | –    | –    | V             |
| $BV_{EBO}$  | emitter-base breakdown voltage       | $I_E = 10\mu\text{A}$   | 6    | –    | –    | V             |
| $h_{FE}$    | DC current transfer ratio            | $V_{CE}=2\text{V}$ , $I_C=10\text{mA}$                              | 270  | –    | 680  |               |
| $V_{CEsat}$ | collector-emitter saturation voltage | $I_C/I_B=200\text{mA}/10\text{mA}$                                  | –    | 90   | 250  | mV            |
| $C_{ob}$    | collector output capacitance         | $I_E = 0$ ; $V_{CB} = 10\text{V}$ ; $f = 1\text{ MHz}$              | –    | 7.5  | –    | pF            |
| $f_T$       | transition frequency                 | $I_E = -10\text{ mA}$ ; $V_{CE} = 2\text{ V}$ ; $f = 30\text{ MHz}$ | –    | 320  | –    | MHz           |

#### Note

1. Pulse test:  $t_p \leq 300\ \mu\text{s}$ ;  $\delta \leq 0.02$ .

## RATING CHARACTERISTIC CURVES ( 2SC5663PT )

### ● Electrical characteristic curves

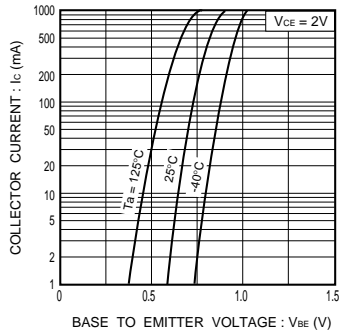


Fig.1 Grounded emitter propagation characteristics

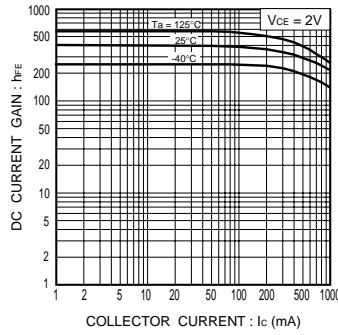


Fig.2 DC current gain vs. collector current

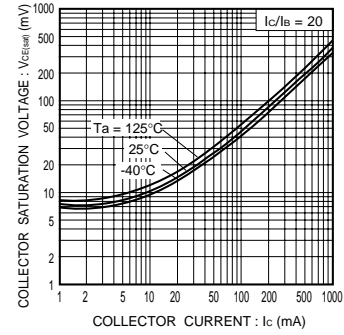


Fig.3 Collector-emitter saturation voltage vs. collector current ( I )

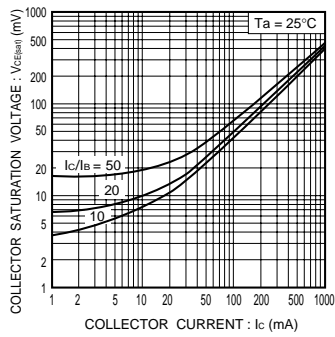


Fig.4 Collector-emitter saturation voltage vs. collector current ( II )

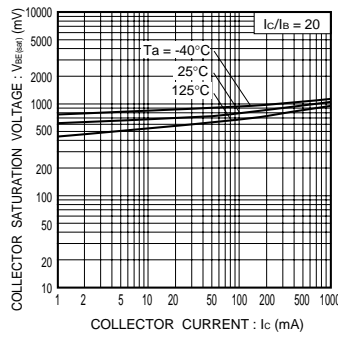


Fig.5 Base-emitter saturation voltage vs. collector current

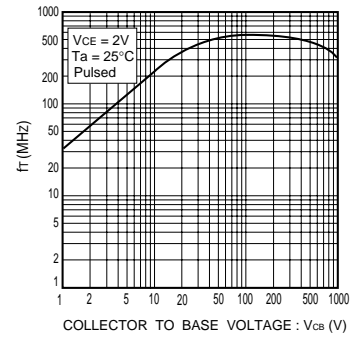


Fig.6 Collector output capacitance  
Emitter input capacitance vs. base voltage

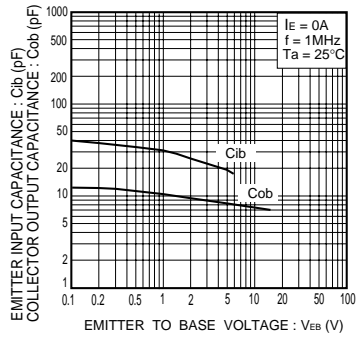


Fig.7 Collector output capacitance vs collector-base voltage  
Emitter input capacitance vs emitter-base voltage