



**CHENMKO ENTERPRISE CO.,LTD**

Halogens free devices

**SURFACE MOUNT**  
**NPN Digital Silicon Transistor**

VOLTAGE 50 Volts CURRENT 100 mAmpere

**CHDTC144GUGP**

**APPLICATION**

\* Switching circuit, Inverter, Interface circuit, Driver circuit.

**FEATURE**

- \* Small surface mounting type. (SC-70/SOT-323)
- \* High current gain.
- \* Suitable for high packing density.
- \* Low collector-emitter saturation.
- \* High saturation current capability.
- \* Internal isolated NPN transistors in one package.
- \* Built in bias resistor(R1=47kΩ, Typ. )

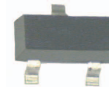
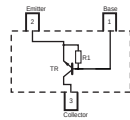
**CONSTRUCTION**

- \* One NPN transistors and bias of thin-film resistors in one package.

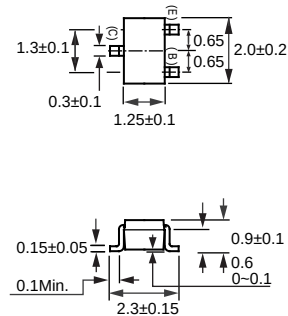
**MARKING**

GUC

**CIRCUIT**



**SC-70/SOT-323**



Dimensions in millimeters

**SC-70/SOT-323**

**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System .

| SYMBOL               | PARAMETER                   | CONDITIONS                       | VALUE    | UNIT |
|----------------------|-----------------------------|----------------------------------|----------|------|
| V <sub>CBO</sub>     | Collector-Base voltage      |                                  | 50       | V    |
| V <sub>CEO</sub>     | Collector-Emitter voltage   |                                  | 50       | V    |
| V <sub>EB0</sub>     | Emitter-Base voltage        |                                  | 5        | V    |
| I <sub>C(Max.)</sub> | Collector current           |                                  | 100      | mA   |
| P <sub>D</sub>       | Power dissipation           | T <sub>amb</sub> ≤ 25 °C, Note 1 | 200      | mW   |
| T <sub>STG</sub>     | Storage temperature         |                                  | -55 +150 | °C   |
| T <sub>J</sub>       | Junction temperature        |                                  | -55 +150 | °C   |
| R <sub>θJ-S</sub>    | Thermal resistance , Note 1 | junction - soldering point       | 140      | °C/W |

**Note**

1. Transistor mounted on an FR4 printed-circuit board.

## RATING CHARACTERISTIC ( CHDTC144GUGP )

### CHARACTERISTICS

T<sub>amb</sub> = 25 °C unless otherwise specified.

| SYMBOL               | PARAMETER                            | CONDITIONS                                               | MIN. | TYP. | MAX. | UNIT |
|----------------------|--------------------------------------|----------------------------------------------------------|------|------|------|------|
| BV <sub>CBO</sub>    | Collector-Base breakdown voltage     | I <sub>C</sub> =50uA                                     | 50.0 | –    | –    | V    |
| BV <sub>CEO</sub>    | Collector-Emitter breakdown voltage  | I <sub>C</sub> =1mA                                      | 50.0 | –    | –    | V    |
| BV <sub>EBO</sub>    | Emitter-Base breakdown voltage       | I <sub>E</sub> =160uA                                    | 5.0  | –    | –    | V    |
| V <sub>CE(sat)</sub> | Collector-Emitter Saturation voltage | I <sub>C</sub> =10mA; I <sub>B</sub> =0.5mA              | –    | –    | 0.3  | V    |
| I <sub>CBO</sub>     | Collector-Base current               | V <sub>CB</sub> =50V                                     | –    | –    | 0.5  | uA   |
| I <sub>EBO</sub>     | Emitter-Base current                 | V <sub>EB</sub> =4V                                      | 65   | –    | 130  | uA   |
| h <sub>FE</sub>      | DC current gain                      | I <sub>C</sub> =5mA; V <sub>CE</sub> =5.0V               | 68   | –    | –    |      |
| R <sub>1</sub>       | Input resistor                       |                                                          | 32.9 | 47   | 61.1 | KΩ   |
| f <sub>T</sub>       | Transition frequency                 | I <sub>E</sub> =-5mA, V <sub>CE</sub> =10.0V<br>f=100MHz | –    | 250  | –    | MHz  |

### Note

1.Pulse test: t<sub>p</sub>≤300uS; δ ≤0.02.