



# CHENMKO ENTERPRISE CO.,LTD

## SURFACE MOUNT General Purpose Transistor

VOLTAGE 50 Volts CURRENT 0.15 Ampere

2SC2412WPT

### APPLICATION

\* Small Signal Amplifier .

### FEATURE

- \* Surface mount package. (SC-70/SOT-323)
- \* Low saturation voltage V
- \* Low cob. Cob=2.0pF(Typ); $C_{cs}^{(sat)}=-0.4V(max.)$ (Ic=50mA)
- \* Pc= 150mW (mounted on ceramic substrate).
- \* High saturation current capability.

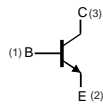
### CONSTRUCTION

- \* NPN Silicon Transistor
- \* Epitaxial planner type

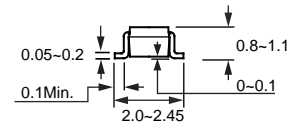
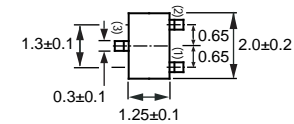
### MARKING

- \* HFE(Q):RE
- \* HFE(R):RF
- \* HFE(S):RG

### CIRCUIT



SC-70/SOT-323



Dimensions in millimeters

SC-70/SOT-323

### MAXIMUM RATINGS ( At TA = 25°C unless otherwise noted )

| RATINGS                       | CONDITION                     | SYMBOL           | MIN. | MAX. | UNITS |
|-------------------------------|-------------------------------|------------------|------|------|-------|
| Collector - Base Voltage      | Open Emitter                  | V <sub>CB0</sub> | -    | 60   | Volts |
| Collector - Emitter Voltage   | Open Base                     | V <sub>CE0</sub> | -    | 50   | Volts |
| Emitter - Base Voltage        | Open Collector                | V <sub>EB0</sub> | -    | 7    | Volts |
| Collector Current DC          |                               | I <sub>c</sub>   | -    | 150  | mAmps |
| Peak Collector Current        |                               | I <sub>CM</sub>  | -    | 150  | mAmps |
| Peak Base Current             |                               | I <sub>BM</sub>  | -    | 15   | mAmps |
| Total Power Dissipation       | T <sub>A</sub> ≤ 25°C; Note 1 | P <sub>TOT</sub> | -    | 250  | mW    |
| Storage Temperature           |                               | T <sub>STG</sub> | -55  | +150 | °C    |
| Junction Temperature          |                               | T <sub>J</sub>   | -    | +150 | °C    |
| Operating Ambient Temperature |                               | T <sub>AMB</sub> | -55  | +150 | °C    |

### Note

1. Transistor mounted on ceramic substrate 50mmX50mmX0.8t.
2. Measured at Pulse Width 300 us, Duty Cycle 2%.

## RATING CHARACTERISTICS ( 2SC2412WPT )

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

| PARAMETERS                           | CONDITION  | SYMBOL      | MIN. | TYPE | MAX. | UNITS         |
|--------------------------------------|--|-------------|------|------|------|---------------|
| Collector Cut-off Current            | $I_E=0; V_{CB}=60\text{V}$                               | $I_{CBO}$   | -    | -    | 0.1  | $\mu\text{A}$ |
| Emitter Cut-off Current              | $I_C=0; V_{EB}=7\text{V}$                                | $I_{CEO}$   | -    | -    | 0.1  | $\mu\text{A}$ |
| DC Current Gain                      | $V_{CE}=6\text{V}$ ; Note 1<br>$I_C=1\text{mA}$ ; Note 2 | $h_{FE}$    | 120  | -    | 560  |               |
| Collector-Emitter Saturation Voltage | $I_C=50\text{mA}; I_B=5\text{mA}$                        | $V_{CEsat}$ | -    | -    | 0.4  | Volts         |
| Base-Emitter Saturatio Voltage       | $I_C=50\text{mA}; I_B=5\text{mA}$                        | $V_{BEsat}$ | -    | -    | 1.1  | mVolts        |
| Output Collector Capacitance         | $I_E=I_C=0; V_{CB}=12\text{V}; f=1\text{MHz}$            | $C_{ob}$    | -    | 2    | 3.5  | $\text{pF}$   |
| Transition Frequency                 | $I_C=2\text{mA}; V_{CE}=12\text{V}; f=100\text{MHz}$     | $f_T$       | -    | 180  | -    | $\text{MHz}$  |

**Note :**

1. Pulse test:  $t_p \leq 300\mu\text{Sec}$ ;  $\delta \leq 0.02$ .
2.  $h_{FE}$ : Classification Q: 120 to 270, R: 180 to 390, S: 270 to 560

## RATING CHARACTERISTIC CURVES ( 2SC2412WPT )

Fig.1 Grounded emitter propagation characteristics

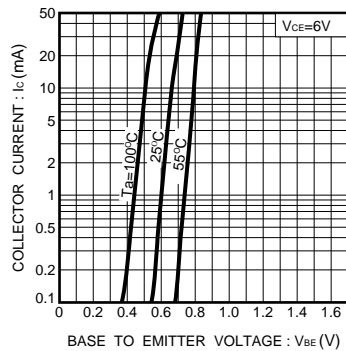


Fig.2 Grounded emitter output characteristics (1)

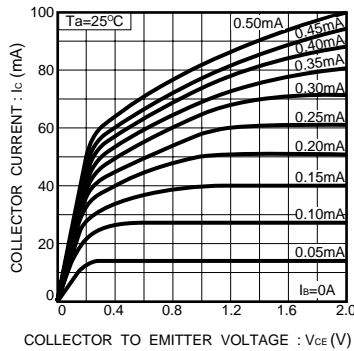
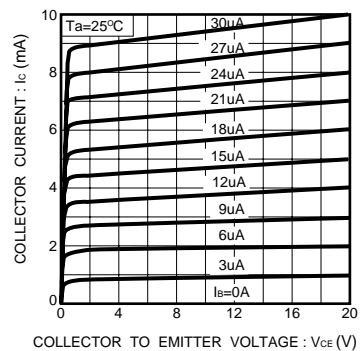


Fig.3 Grounded emitter output characteristics (2)



## RATING CHARACTERISTIC CURVES ( 2SC2412WPT )

Fig.4 DC current gain vs. collector current (1)

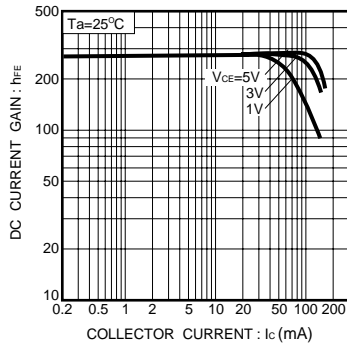


Fig.5 DC current gain vs. collector current (2)

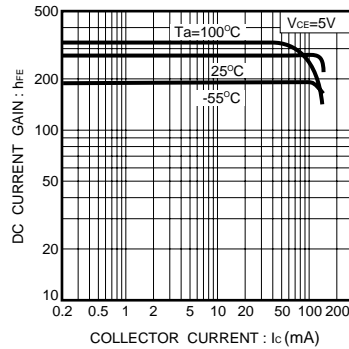


Fig. 6 Collector-emitter saturation voltage vs. collector current

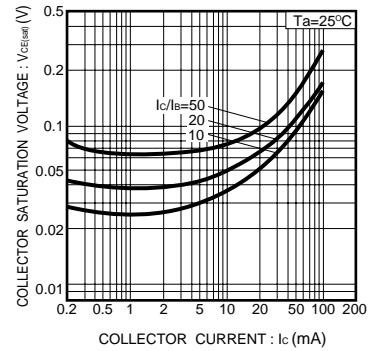


Fig.7 Collector-emitter saturation voltage vs. collector current (1)

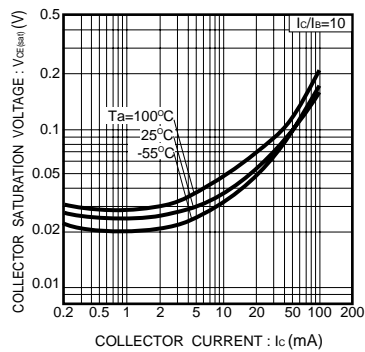


Fig.8 Collector-emitter saturation voltage vs. collector current (2)

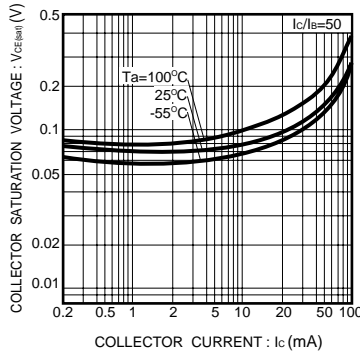


Fig.9 Gain bandwidth product vs. emitter current

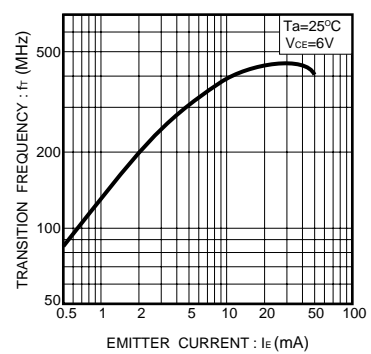


Fig.10 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

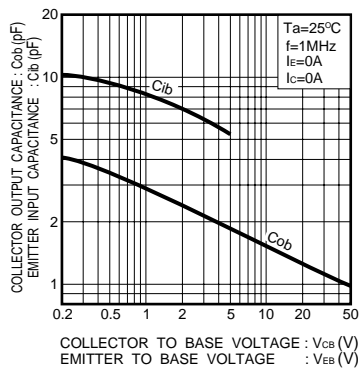


Fig.11 Base-collector time constant vs. emitter current

