



**CHENMKO ENTERPRISE CO.,LTD**

Lead free devices

**SURFACE MOUNT  
General Purpose Transistor**

VOLTAGE 50 Volts CURRENT 0.15 Ampere

**2SC2412MPT**

**APPLICATION**

\* Small Signal Amplifier .

**FEATURE**

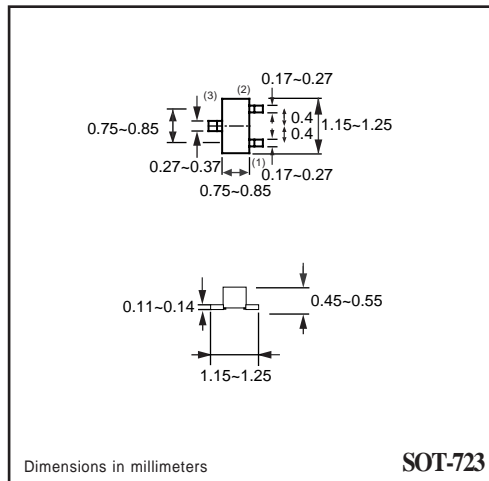
- \* Small surface mounting type. (SOT-723)
- \* Low saturation voltage  $V_{CE(sat)}=0.4V(max.)(I_c=50mA)$
- \* Low cob.  $C_{ob}=2.0pF(Typ.)$
- \*  $P_c= 150mW$  (mounted on ceramic substrate).
- \* High saturation current capability.

**CONSTRUCTION**

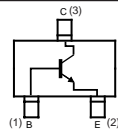
- \* NPN Silicon Transistor
- \* Epitaxial planner type

**MARKING**

- \* HFE(Q):33
- \* HFE(R):34
- \* HFE(S):35



**CIRCUIT**



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

RATINGS	CONDITION	SYMBOL	MIN.	MAX.	UNITS
Collector - Base Voltage	Open Emitter	$V_{CB0}$	-	60	Volts
Collector - Emitter Voltage	Open Base	$V_{CE0}$	-	50	Volts
Emitter - Base Voltage	Open Collector	$V_{EB0}$	-	7	Volts
Collector Current DC		$I_c$	-	150	mAmps
Peak Collector Current		$I_{CM}$	-	150	mAmps
Peak Base Current		$I_{BM}$	-	15	mAmps
Total Power Dissipation	$T_A \leq 25^{\circ}C$ ; Note 1	$P_{TOT}$	-	150	mW
Storage Temperature		$T_{STG}$	-55	+150	$^{\circ}C$
Junction Temperature		$T_J$	-	+150	$^{\circ}C$
Operating Ambient Temperature		$T_{AMB}$	-55	+150	$^{\circ}C$

**Note**

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

## RATING CHARACTERISTICS ( 2SC2412MPT )

**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 $I_C=1\text{mA}$ ; 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 ( 2SC2412MPT )

Fig.1 Grounded emitter propagation characteristics

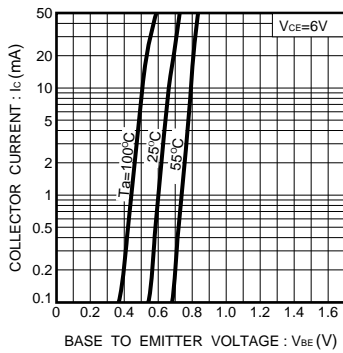


Fig.2 Grounded emitter output characteristics (1)

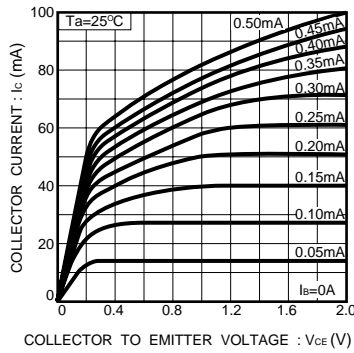
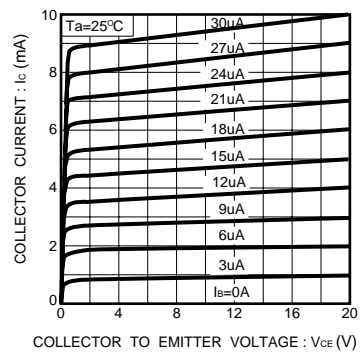


Fig.3 Grounded emitter output characteristics (2)



## RATING CHARACTERISTIC CURVES ( 2SC2412MPT )

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

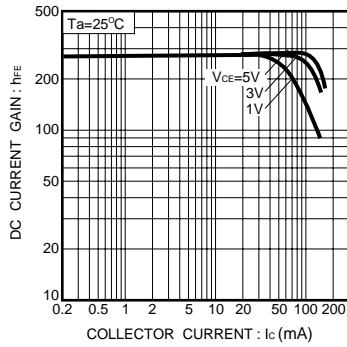


Fig.5 DC current gain vs. collector current (2)

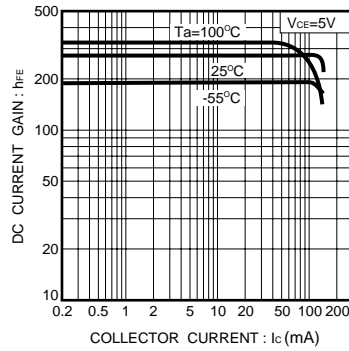


Fig. 6 Collector-emitter saturation voltage vs. collector current

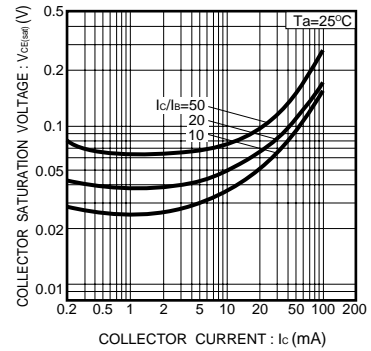


Fig.7 Collector-emitter saturation voltage vs. collector current (1)

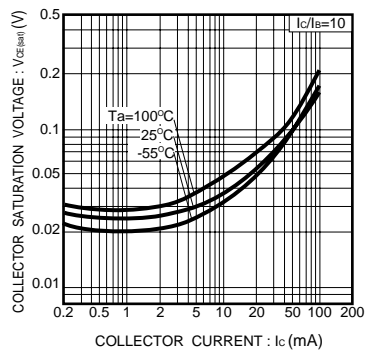


Fig.8 Collector-emitter saturation voltage vs. collector current (2)

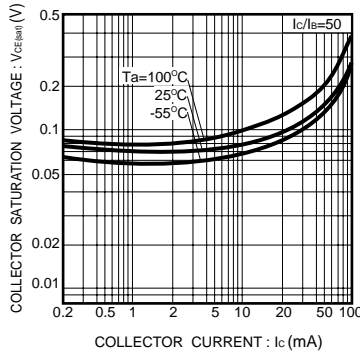


Fig.9 Gain bandwidth product vs. emitter current

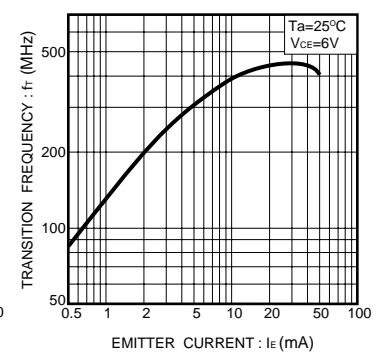


Fig.10 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

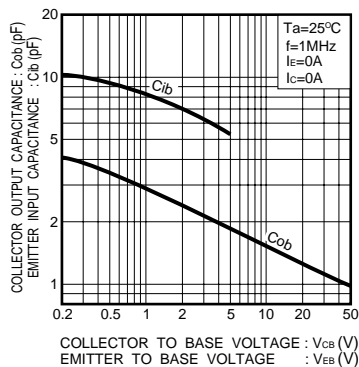


Fig.11 Base-collector time constant vs. emitter current

