



CHENMKO ENTERPRISE CO.,LTD

**SURFACE MOUNT
NPN Switching Transistor**

VOLTAGE 40 Volts CURRENT 0.6 Ampere

CHT04XGP-A

Halogens free devices

APPLICATION

- * Telephony and professional communication equipment.
- * Other switching applications.

FEATURE

- * Small flat package. (SC-62/SOT-89)
- * High current (Max.=600mA).
- * Suitable for high packing density.
- * Low voltage (Max.=40V) .
- * High saturation current capability.
- * Voltage controlled small signal switch.

CONSTRUCTION

- * NPN Switching Transistor

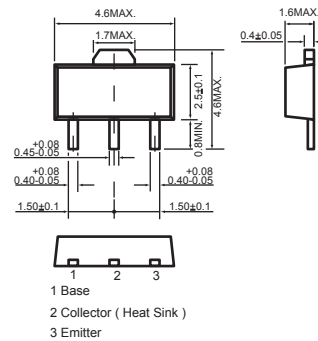
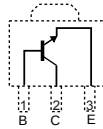
MARKING

- * XAN



SC-62/SOT-89

CIRCUIT



Dimensions in millimeters

SC-62/SOT-89

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CB0}	collector-base voltage	open emitter	—	75	V
V_{CE0}	collector-emitter voltage	open base	—	40	V
V_{EB0}	emitter-base voltage	open collector	—	6	V
I_C	collector current (DC)		—	600	mA
I_{CM}	peak collector current		—	800	mA
I_{BM}	peak base current		—	200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$; note 1	—	1.2	W
T_{stg}	storage temperature		-65	+150	$^{\circ}\text{C}$
T_j	junction temperature		—	150	$^{\circ}\text{C}$
T_{amb}	operating ambient temperature		-65	+150	$^{\circ}\text{C}$

Note

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

RATING CHARACTERISTIC CURVES (CHT04XGP-A)

Thermal Characteristics

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	250	°C/W

Note

- Transistor mounted on an FR4 printed-circuit board.

Characteristics

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 60\text{ V}$	–	10	nA
		$I_C = 0; V_{CB} = 60\text{ V}; T_j = 125\text{ °C}$	–	10	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	–	10	nA
h_{FE}	DC current gain	$I_C = 0.1\text{ mA}; V_{CE} = 10\text{ V}; \text{note 1}$	35	–	
		$I_C = 1.0\text{ mA}; V_{CE} = 10\text{ V}$	50	–	
		$I_C = 10\text{ mA}; V_{CE} = 10\text{ V}$	75	–	
		$I_C = 10\text{ mA}; V_{CE} = 10\text{ V}; T_{amb} = -55\text{ °C}$	35	–	
		$I_C = 150\text{ mA}; V_{CE} = 10\text{ V}$	100	300	
		$I_C = 150\text{ mA}; V_{CE} = 1.0\text{ V}$	50	–	
		$I_C = 500\text{ mA}; V_{CE} = 10\text{ V}$	40	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 150\text{ mA}; I_B = 15\text{ mA}$	–	300	mV
		$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	–	1	V
V_{BEsat}	base-emitter saturation voltage	$I_C = 150\text{ mA}; I_B = 10\text{ mA}$	0.6	1.2	V
		$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	–	2.0	V
C_c	collector capacitance	$I_E = I_E = 0; V_{CB} = 5\text{ V}; f = 1\text{ MHz}$	–	8	pF
C_e	emitter capacitance	$I_C = I_C = 0; V_{BE} = 500\text{ mV}; f = 1\text{ MHz}$	–	25	pF
f_T	transition frequency	$I_C = 20\text{ mA}; V_{CE} = 20\text{ V}; f = 100\text{ MHz}$	300	–	MHz
F	noise figure	$I_C = 100\text{ μA}; V_{CE} = 5\text{ V}; R_S = 1\text{ k}\Omega; f = 1.0\text{ kHz}$	–	4	dB

Switching times (between 10% and 90% levels);

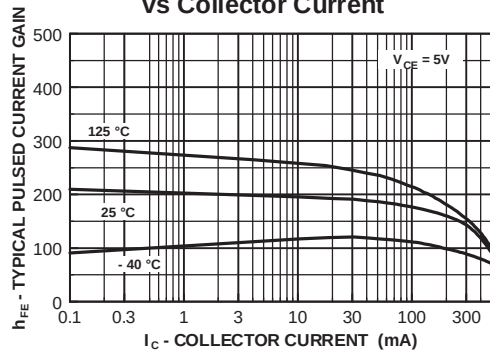
t_{on}	turn-on time	$I_{Con} = 150\text{ mA}; I_{Bon} = 15\text{ mA}; I_{Boff} = -15\text{ mA}$	–	35	ns
t_d	delay time		–	15	ns
t_r	rise time		–	20	ns
t_{off}	turn-off time		–	250	ns
t_s	storage time		–	200	ns
t_f	fall time		–	60	ns

Note

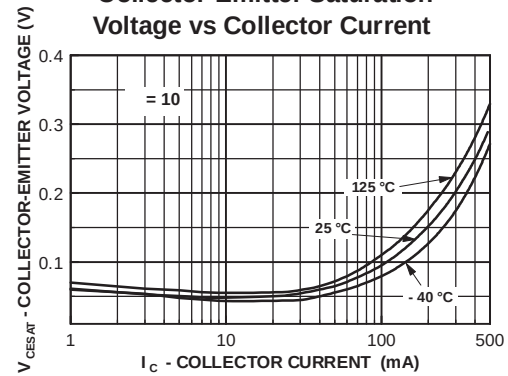
- Pulse test: $t_p \leq 300\text{ μs}; \delta \leq 0.02$.

RATING CHARACTERISTIC CURVES (CHT04XGP-A)

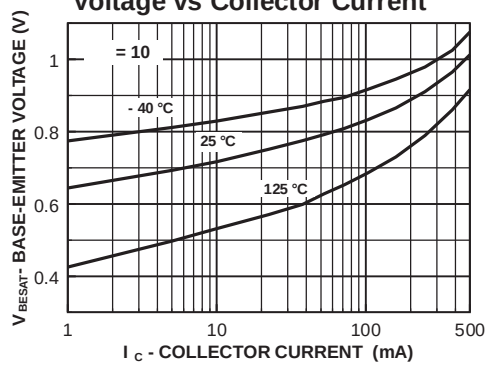
Typical Pulsed Current Gain
vs Collector Current



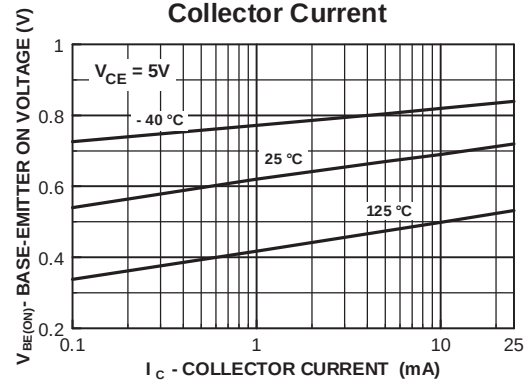
Collector-Emitter Saturation
Voltage vs Collector Current



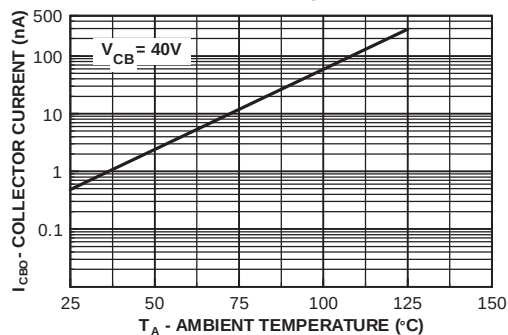
Base-Emitter Saturation
Voltage vs Collector Current



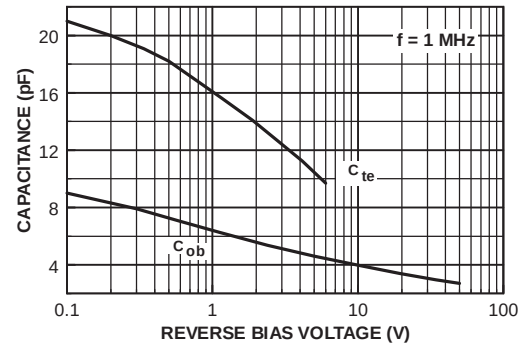
Base-Emitter ON Voltage vs
Collector Current



Collector-Cutoff Current
vs Ambient Temperature

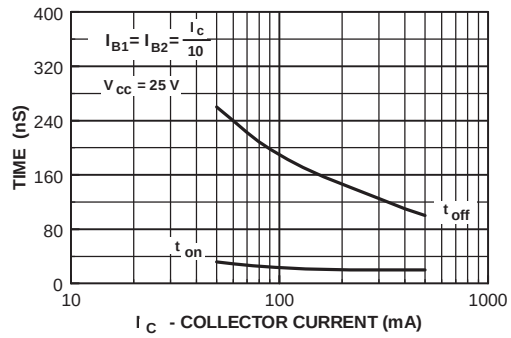


Emitter Transition and Output
Capacitance vs Reverse Bias Voltage

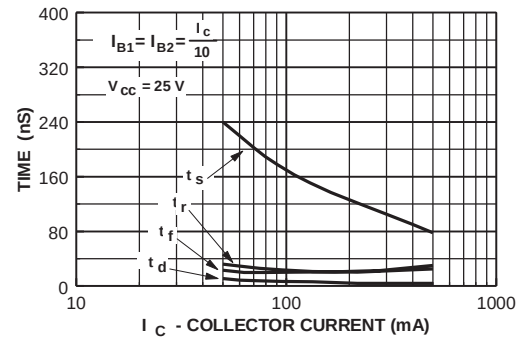


RATING CHARACTERISTIC CURVES (CHT04XGP-A)

Turn On and Turn Off Times
vs Collector Current

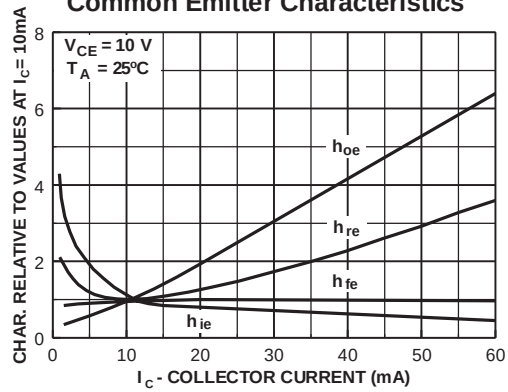


Switching Times
vs Collector Current

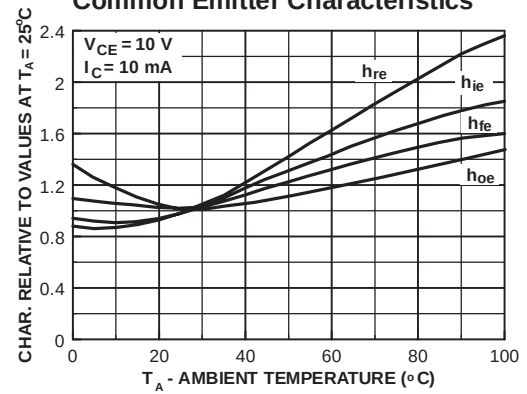


RATING CHARACTERISTIC CURVES (CHT04XGP-A)

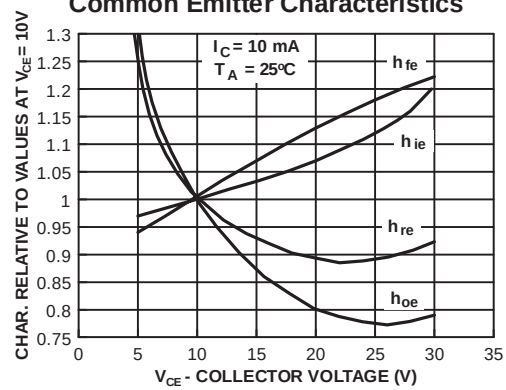
Common Emitter Characteristics



Common Emitter Characteristics

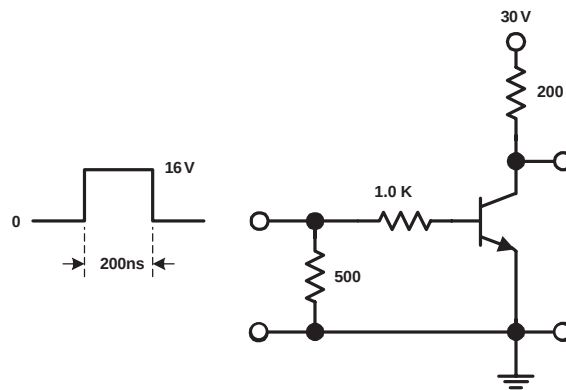


Common Emitter Characteristics

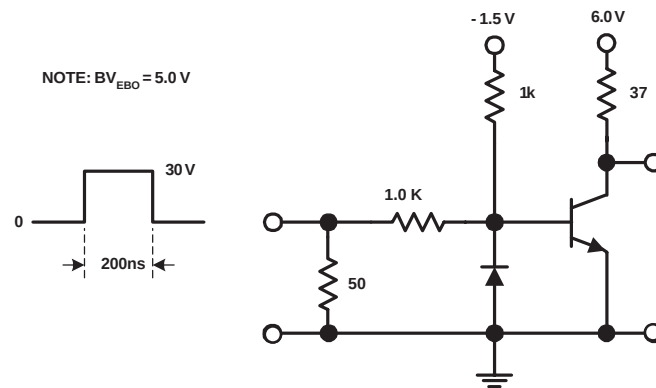


RATING CHARACTERISTIC CURVES (CHT04XGP-A)

Test Circuits



Saturated Turn-On Switching Time



Saturated Turn-Off Switching Time



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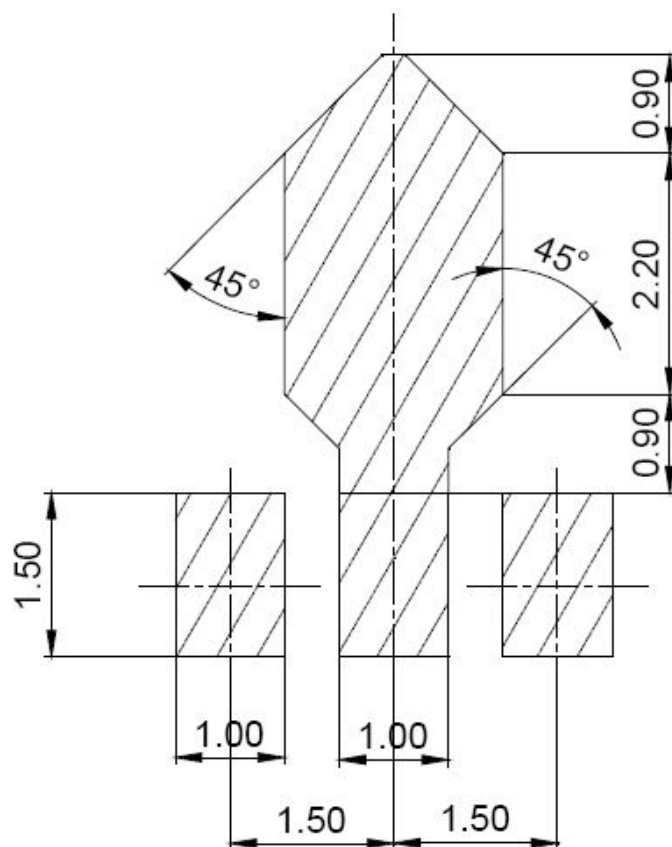
SURFACE MOUNT

RECOMMENDED FOOT PRINT

all dimensions in mm

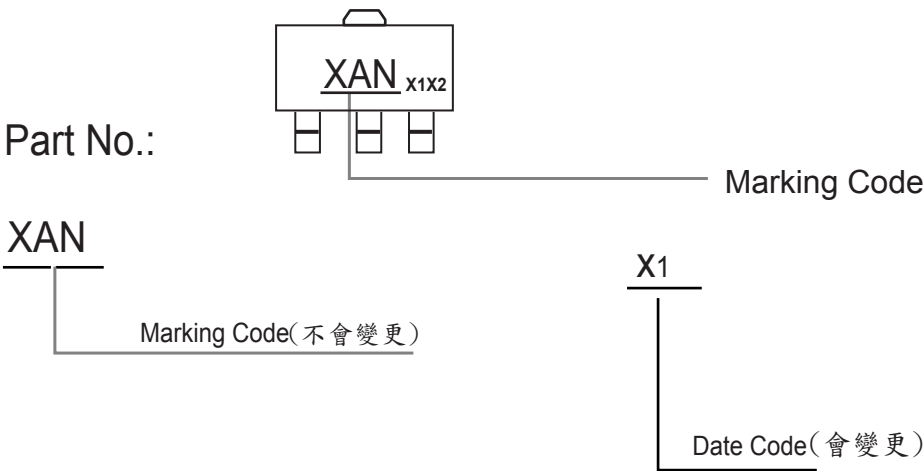
SC-62/SOT-89

SC-62/SOT-89



The Marking and Part No. for CHT04XGP-A
(SC-62)

Marking:



X2 Production line code: (會變更)

X2:" "沒有任何記號表第一條生產線

X2:"2"表第二條生產線

X2:"3"表第三條生產線

X1 Date Code Standard

Date Code	A	B	C	D	E	F	G	H	J	K	L	M
2015Year	JAN.	FEB.	MAR.	APR	MAY	JUNE	JULY	AUG.	SEP.	OCT	NOV.	DEC.

Date Code	N	P	Q	R	S	T	U	V	W	X	Y	Z
2014Year	JAN.	FEB.	MAR.	APR	MAY	JUNE	JULY	AUG.	SEP.	OCT	NOV.	DEC.

CUSTOMER :	APPROVED :	 CHENMKO LTD.
APPROVED :	CHECKED :	
CHECKED :	DRAWN :	
		DRAWING No. :