CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

SURFACE MOUNT
PNP Switching Transistor

VOLTAGE 40 Volts CURRENT 0.2 Ampere

CH3906GP

APPLICATION

* Telephony and proferssional communction equipment.
* Other switching applications.

FEATURE

* Small surface mounting type. (SOT-23)
* Low current (Max.=200mA).
* Suitable for high packing density.
* Low voltage (Max.=40V) .
* High saturation current capability.
* Voltage controlled small signal switch.

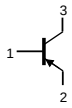
CONSTRUCTION

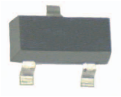
* PNP Switching Transistor

MARKING

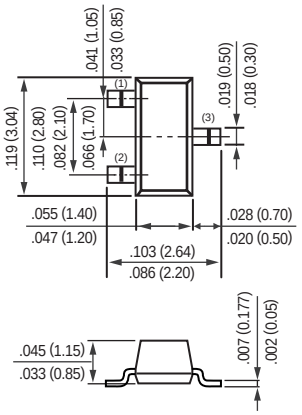
* S2A

CIRCUIT





SOT-23



Dimensions in millimeters

SOT-23

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	-40	V
V_{CEO}	collector-emitter voltage	open base	–	-40	V
V_{EBO}	emitter-base voltage	open collector	–	-5	V
I_C	collector current DC		–	-200	mA
I_{CM}	peak collector current		–	-200	mA
I_{BM}	peak base current		–	-100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	330	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

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

RATING CHARACTERISTIC CURVES (CH3906GP)

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	500	K/W

Note

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

CHARACTERISTICS

T_{amb} = 25 °C unless otherwise speciÞed.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = - 30 V	–	-50	nA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = 6 V	–	-50	nA
h_{FE}	DC current gain	V_{CE} = -1V; note 1			
		I_C = -0.1mA	60	–	
		I_C = -1mA	80	–	
		I_C = -10 mA	100	300	
		I_C = - 50 mA	60	–	
		I_C = -100 mA	30	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = -10 mA; I_B = - 1 mA	–	-250	mV
		I_C = -50 mA; I_B = - 5 mA	–	-400	mV
V_{BEsat}	base-emitter saturation voltage	I_C = -10 mA; I_B = -1mA	-650	-850	mV
		I_C = -50 mA; I_B = - 5 mA	–	-950	mV
C_c	collector capacitance	I_E = i_e = 0; V_{CB} = - 5 V ; f = 1 MHz	–	4.5	pF
C_e	emitter capacitance	I_C = i_c = 0; V_{EB} = -500 mV; f = 1 MHz	–	10	pF
f_T	transition frequency	I_C = 10 mA; V_{CE} = - 20 V ; f = 100 MHz	250	–	MHz
F	noise Þgure	I_C = 100 µA; V_{CE} = - 5 V; R_S = 1 kΩ; f = 10 Hz to 15.7 kHz	–	4	dB
Switching times (between 10% and 90% levels);					
t_{on}	turn-on time	I_{Con} = -10 mA; I_{Bon} = -1 mA; I_{Boff} = 1 mA	–	65	ns
t_d	delay time		–	35	ns
t_r	rise time		–	35	ns
t_{off}	turn-off time		–	300	ns
t_s	storage time		–	225	ns
t_f	fall time		–	75	ns

Note

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

RATING CHARACTERISTIC CURVES (CH3906GP)

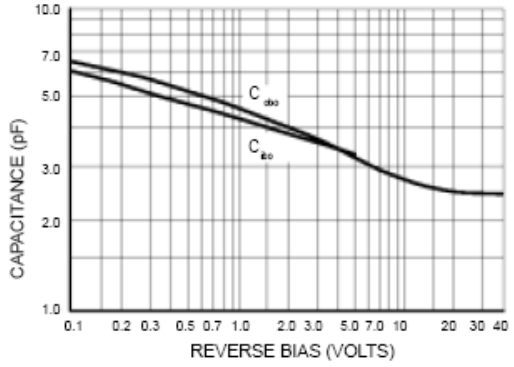


Figure 1. Capacitance

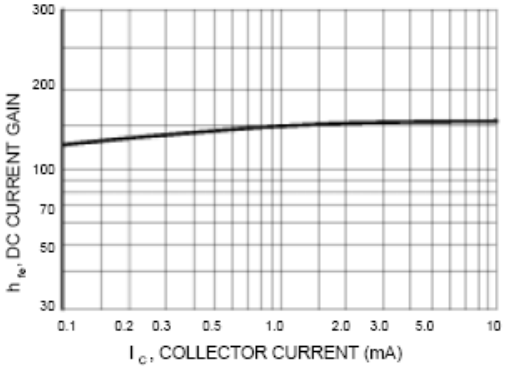


Figure 2. Current Gain

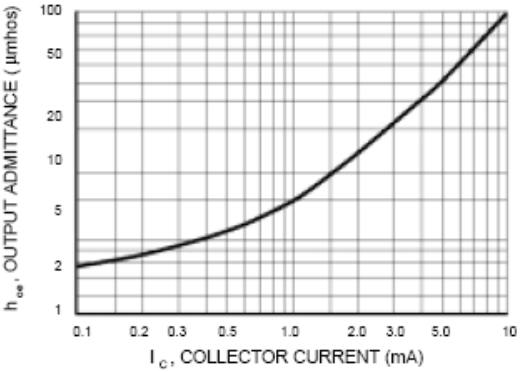


Figure 3. Output Admittance

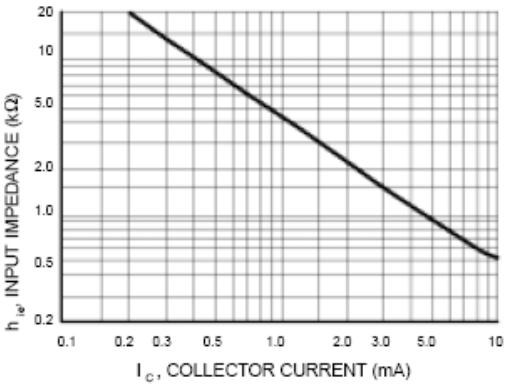


Figure 4. Input Impedance

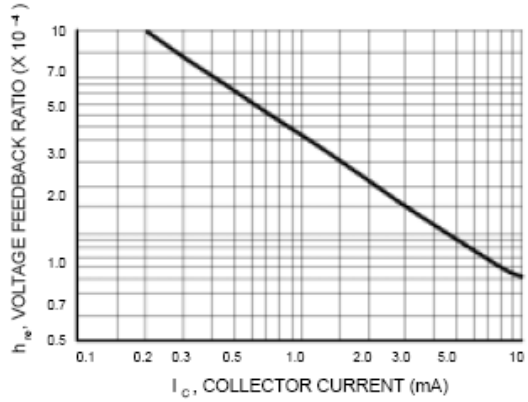


Figure 5. Voltage Feedback Ratio

RATING CHARACTERISTIC CURVES (CH3906GP)

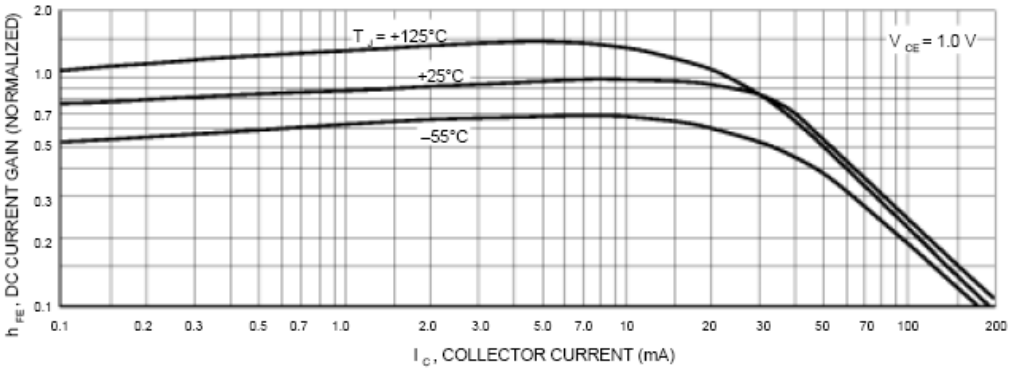


Figure 6. DC Current Gain

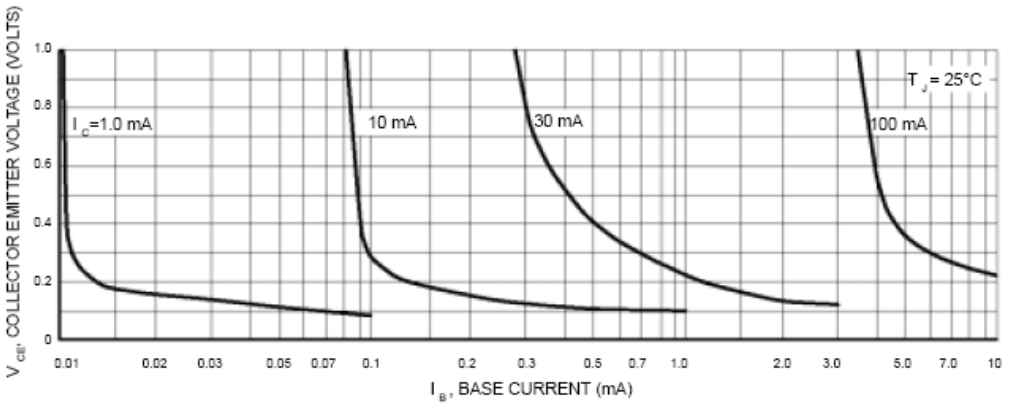


Figure 7. Collector Saturation Region