CHENMKO ENTERPRISE CO.,LTD

CHT4401N1PT

SURFACE MOUNT
NPN Switching Transistor

VOLTAGE 40 Volts CURRENT 0.6 Ampere

Lead free devices

APPLICATION

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

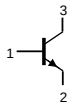
FEATURE

* Small flat package. (FBPT-923)
* Low current (Max.=600mA).
* Suitable for high packing density.
* Low voltage (Max.=40V) .
* High saturation current capability.
* Voltage controlled small signal switch.

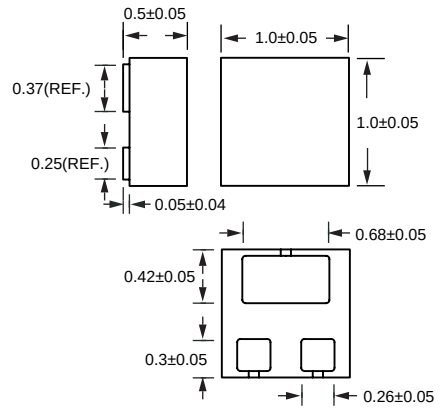
CONSTRUCTION

* NPN Switching Transistor

CIRCUIT



FBPT-923



Dimensions in millimeters

FBPT-923

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	–	60	V
V_{CEO}	collector-emitter voltage	open base	–	40	V
V_{EBO}	emitter-base voltage	open collector	–	6	V
I_C	collector current DC		–	600	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note1	–	100	mW
T_{stg}	storage temperature		–55	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–55	+150	°C

Note

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

RATING CHARACTERISTIC CURVES (CHT4401N1PT)

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	200	°C/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} = 60 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} = 1 V; note 1 I_C = 0.1 mA I_C = 1 mA I_C = 10 mA I_C = 1 50 mA V_{CE} = 2 V;note 2 I_C = 500 mA	 20 40 80 100 40	 – – – 300 –	
V_{CEsat}	collector-emitter saturation voltage	I_C = 150 mA; I_B = 1 5 mA	–	400	mV
		I_C = 500 mA; I_B = 5 0 mA	–	750	mV
V_{BEsat}	base-emitter saturation voltage	I_C = 150 mA; I_B = 15 mA	750	950	mV
		I_C = 500 mA; I_B = 5 0 mA	–	1200	mV
C_c	collector capacitance	I_E = i_e = 0; V_{CB} = 5 V; f = 1 4 0 K Hz	–	6.5	pF
C_e	emitter capacitance	I_C = i_c = 0; V_{BE} = 500 mV; f = 140KHz	–	30	pF
f_T	transition frequency	I_C = 20 mA; V_{CE} = 10 V; f = 100 MHz	250	–	MHz
Switching times (between 10% and 90% levels);					
t_{on}	turn-on time	I_{Con} = 150 mA; I_{Bon} = 15 mA; I_{Boff} = –1 5 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

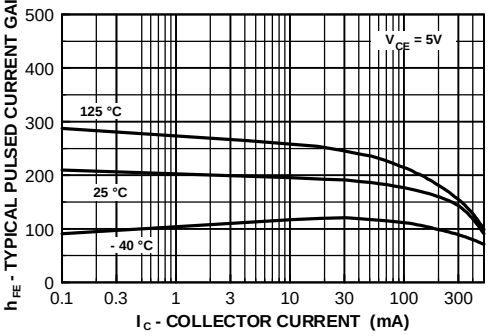
Note

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

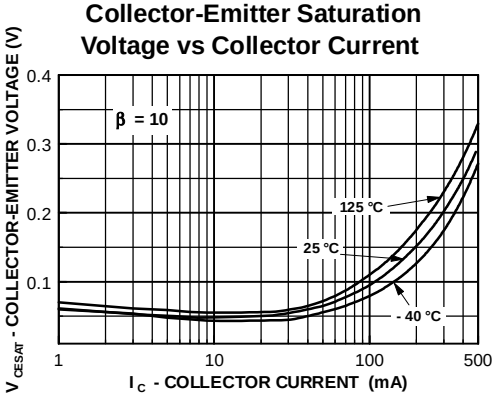
RATING CHARACTERISTIC CURVES (CHT4401N1PT)

Typical Characteristics

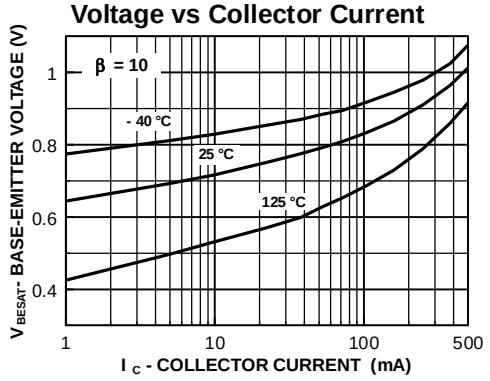
Typical Pulsed Current Gain vs Collector Current



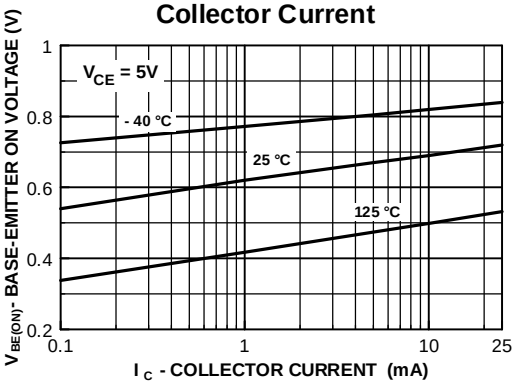
Collector-Emitter Saturation Voltage vs Collector Current



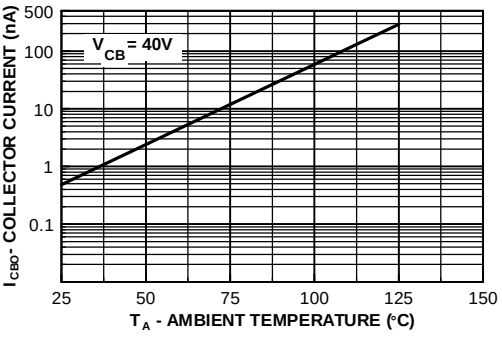
Base-Emitter Saturation Voltage vs Collector Current



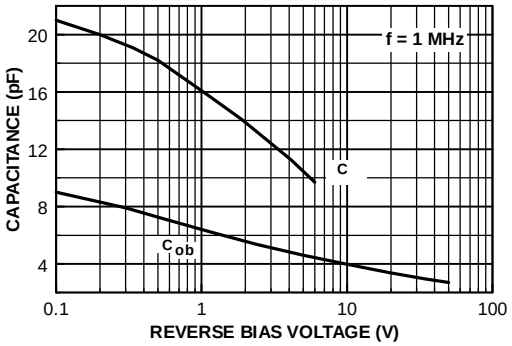
Base-Emitter ON Voltage vs Collector Current



Collector-Cutoff Current vs Ambient Temperature

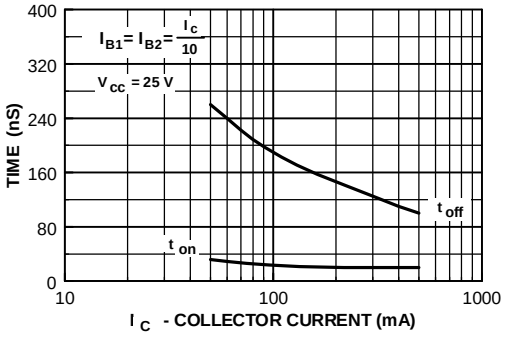


Emitter Transition and Output Capacitance vs Reverse Bias Voltage

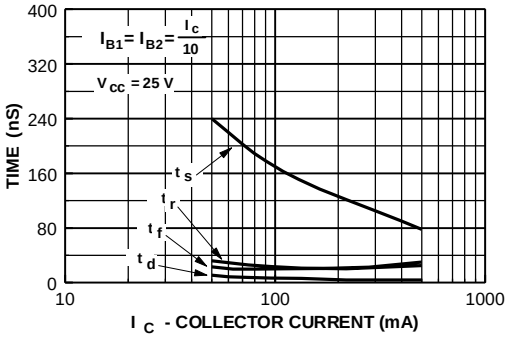


RATING CHARACTERISTIC CURVES (CHT4401N1PT)

Turn On and Turn Off Times vs Collector Current



Switching Times vs Collector Current



Power Dissipation vs Ambient Temperature