



CHENMKO ENTERPRISE CO.,LTD

Lead free devices

**SMALL FLAT
PNP Epitaxial Transistor**

VOLTAGE 50 Volts CURRENT 0.5 Ampere

2SA1020N1PT

APPLICATION

* Power amplifier .

FEATURE

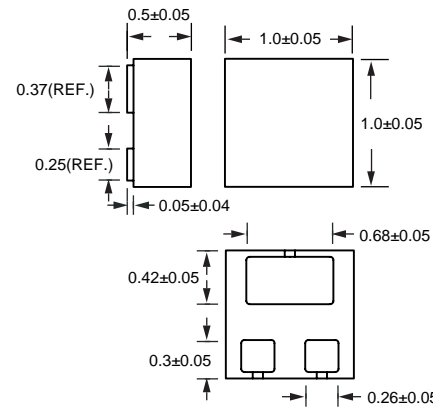
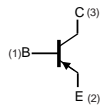
- * Small flat package. (FBPT-923)
- * Low saturation voltage $V_{CE(sat)} = -0.5V$ (max.) ($I_C = -0.5A$)
- * High speed switching time: $t_{stg} = 1.0\mu Sec$ (typ.)
- * High saturation current capability.

CONSTRUCTION

* PNP Switching Transistor

FBPT-923

CIRCUIT



Dimensions in millimeters

FBPT-923

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

RATINGS	CONDITION	SYMBOL	MIN.	MAX.	UNITS
Collector - Base Voltage	Open Emitter	V_{CB0}	-	-50	Volts
Collector - Emitter Voltage	Open Base	V_{CE0}	-	-50	Volts
Emitter - Base Voltage	Open Collector	V_{EB0}	-	-5	Volts
Collector Current DC		I_C	-	-500	mAmps
Peak Collector Current		I_{CM}	-	-1000	mAmps
Peak Base Current		I_{BM}	-	-50	mAmps
Total Power Dissipation	$T_A \leq 25^\circ C$; Note 1	P_{TOT}	-	100	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 PCB 50mmX50mmX0.8t.
2. Measured at Pulse Width 300 us, Duty Cycle 2%.

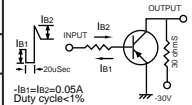
2006-07

RATING CHARACTERISTIC CURVES (2SA1020N1PT)

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

PARAMETERS	CONDITION	SYMBOL	MIN.	TYPE	MAX.	UNITS
Collector Cut-off Current	$I_E=0; V_{CB}=-50\text{V}$	I_{CBO}	-	-	-0.1	μA
Emitter Cut-off Current	$I_C=0; V_{EB}=-5\text{V}$	I_{CEO}	-	-	-0.1	μA
DC Current Gain	$V_{CE}=-2\text{V}$; Note 1 $I_C=-0.5\text{A}$; Note 2 $I_C=-1.0\text{A}$	h_{FE}	70 20	- -	240 -	
Collector-Emitter Saturation Voltage	$I_C=-1\text{A}; I_B=-0.05\text{A}$	V_{CEsat}	-	-	-0.5	Volts
Base-Emitter Saturation Voltage	$I_C=-1\text{A}; I_B=-0.05\text{A}$	V_{BEsat}	-	-	-1.2	mVolts
Collector Capacitance	$I_E=I_C=0; V_{CB}=10\text{V};$ $f=1\text{MHz}$	C_C	-	40	-	pF
Transition Frequency	$I_C=-0.5\text{A}; V_{CE}=-2\text{V};$ $f=100\text{MHz}$	f_T	-	120	-	MHz

SWITCHING TIMES (Between 10% and 90% levels)

PARAMETERS	CONDITION	SYMBOL	MIN.	TYPE	MAX.	UNITS
Turn-on Time	 <p>$I_{B1}=I_{B2}=0.05\text{A}$ Duty cycle $\leq 1\%$</p>	t_{on}	-	0.1	-	μSec
Storage Time		t_s	-	1.0	-	μSec
Fall Time		t_f	-	0.1	-	μSec

Note :

1. Pulse test: $t_p \leq 300\mu\text{Sec}$; $\delta \leq 0.02$.
2. $h_{FE}(1)$ Classification O: 70 to 140, Y: 120 to 240

RATING CHARACTERISTIC CURVES (2SA1020N1PT)

Typical Electrical Characteristics

Figure 1. $V_{CE} - I_c$

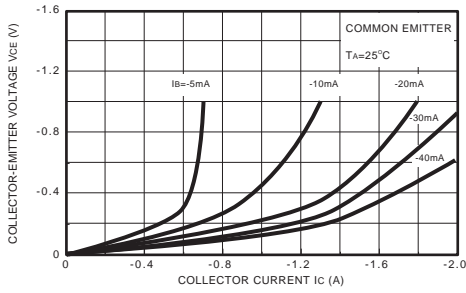


Figure 2. $V_{CE} - I_c$

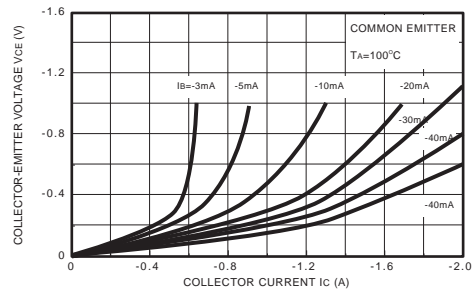


Figure 3. $V_{CE} - I_c$

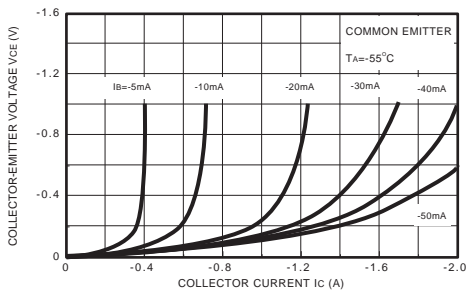


Figure 4. $h_{FE} - I_c$

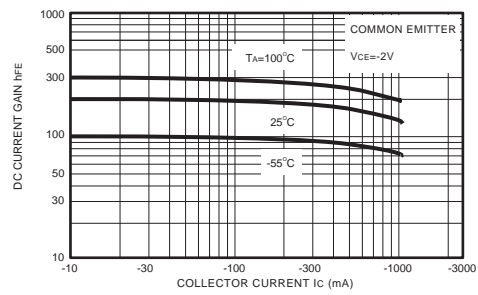


Figure 5. $V_{CE(sat)} - I_c$

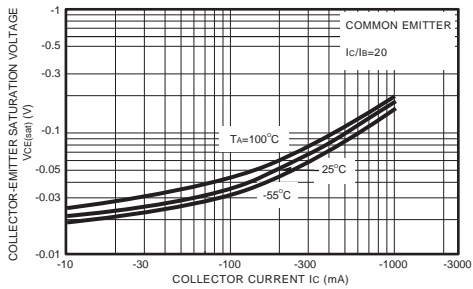
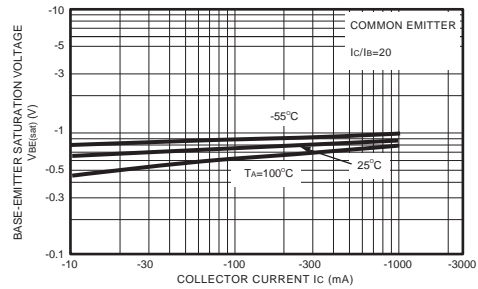


Figure 6. $V_{BE(sat)} - I_c$



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Typical Electrical Characteristics

Figure 7. $I_c - V_{BE}$

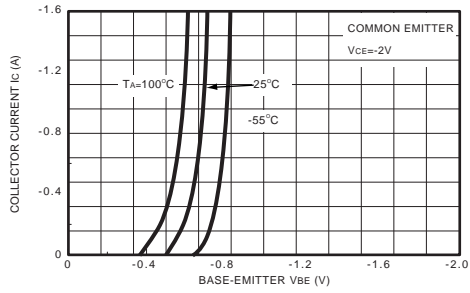


Figure 8. $P_c - T_A$

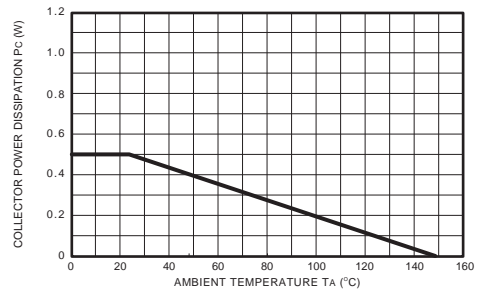


Figure 9. Safe Operation Area

