



SANYO Semiconductors

DATA SHEET

CPH3121 / CPH3221

— PNP / NPN Epitaxial Planar Silicon Transistors
DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, flash.

Features

- Adoption of MBIT processes.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm).
- High allowable power dissipation.

Specifications () : CPH3121

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-) 15	V
Collector-to-Emitter Voltage	V _{CEO}		(-) 12 15	V
Emitter-to-Base Voltage	V _{EBO}		(-) 5	V
Collector Current	I _C		(-) 3	A
Collector Current (Pulse)	I _{CP}		(-) 5	A
Base Current	I _B		(-) 600	mA
Collector Dissipation	P _C	Mounted on a ceramic board (600mm ² X0.8mm)	0.9	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		- 55 to $+150$	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CB0}	V _{CB} =(-) 12 V, I _E =0			(-) 0.1	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =(-) 4 V, I _C =0			(-) 0.1	μA
DC Current Gain	h _{FE}	V _{CE} =(-) 2 V, I _C =(-) 500 mA	200		560	
Gain-Bandwidth Product	f _T	V _{CE} =(-) 2 V, I _C =(-) 500 mA		(380) 350		MHz
Output Capacitance	C _{ob}	V _{CB} =(-) 10 V, f=1MHz		(40) 23		pF

Marking : CPH3121 : AS, CPH3221 : CS

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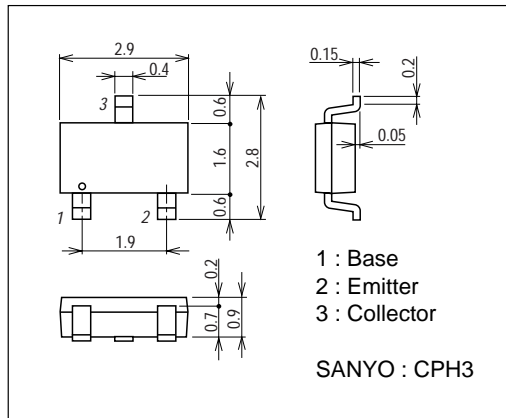
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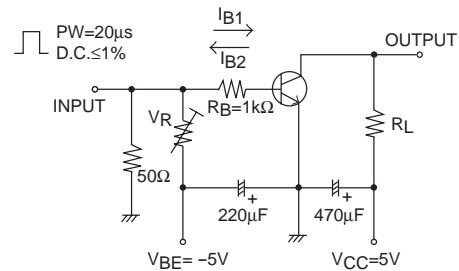
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)1.5A, I_B=(-)30mA$		(-110)115	(-165)175	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)1.5A, I_B=(-)30mA$		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-)15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-12)15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-)5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		(30)30		ns
Storage Time	t_{stg}	See specified Test Circuit.		(90)210		ns
Fall Time	t_f	See specified Test Circuit.		(14)11		ns

Package Dimensions

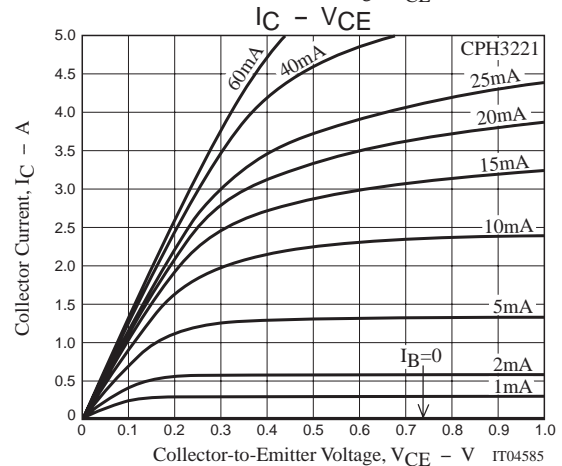
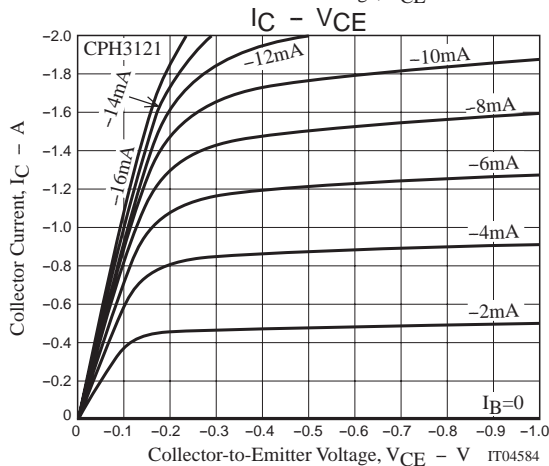
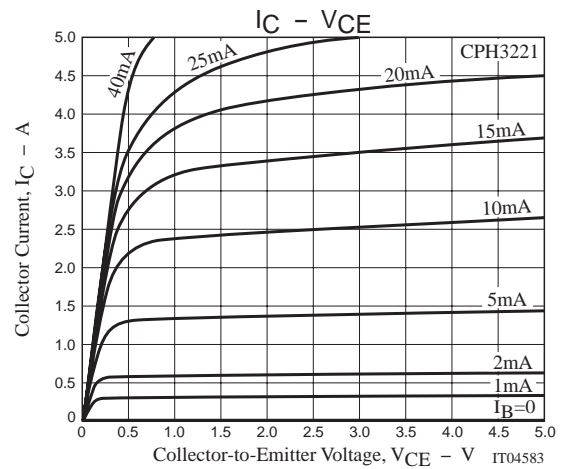
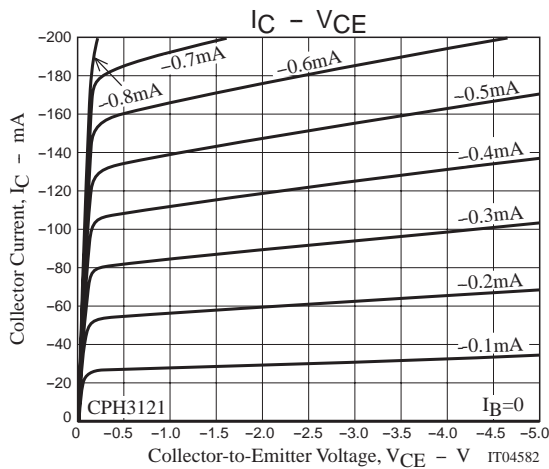
unit : mm
2150A



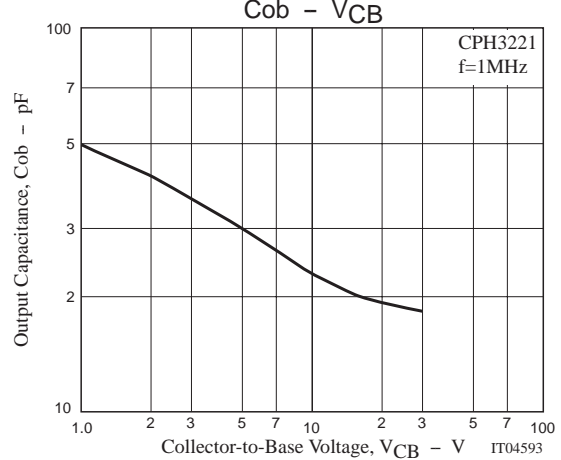
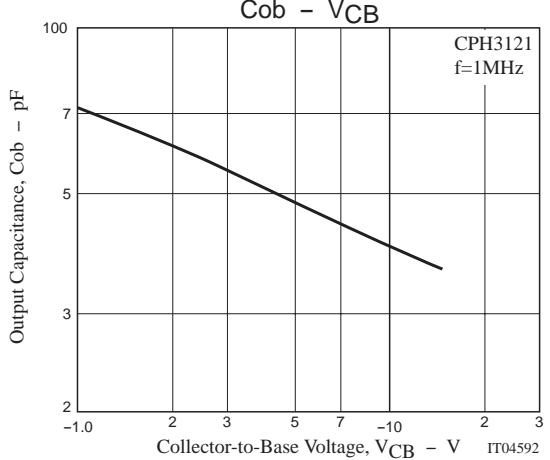
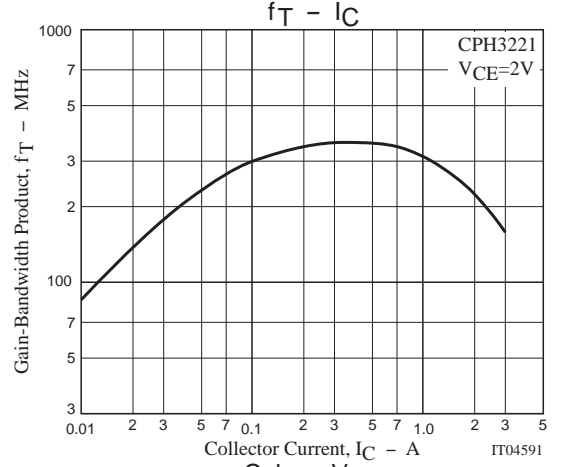
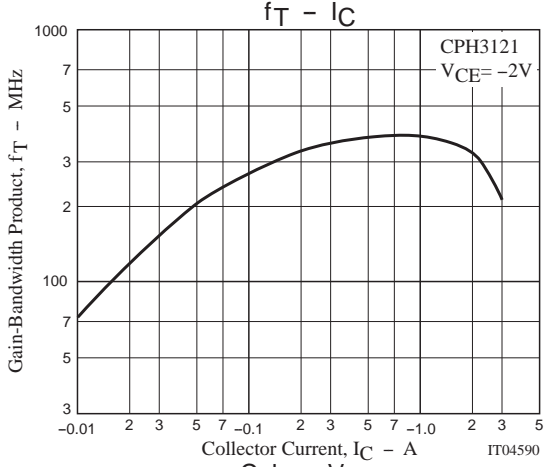
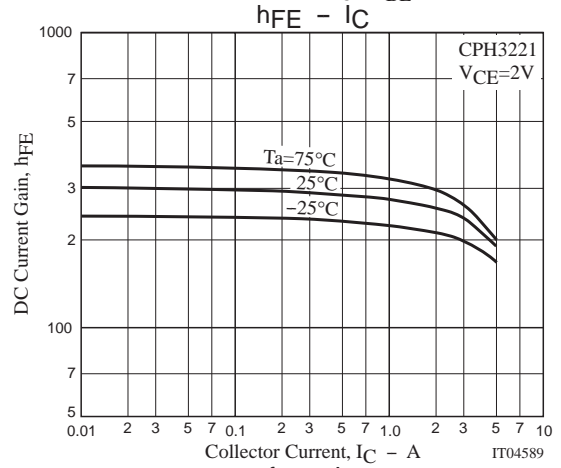
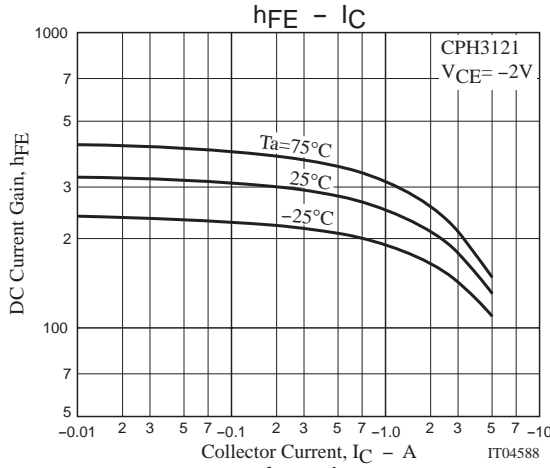
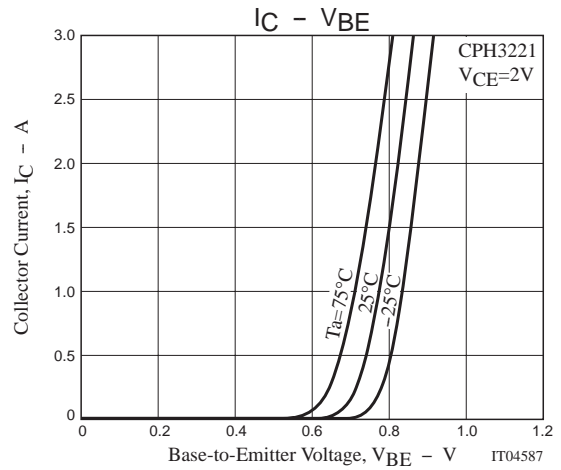
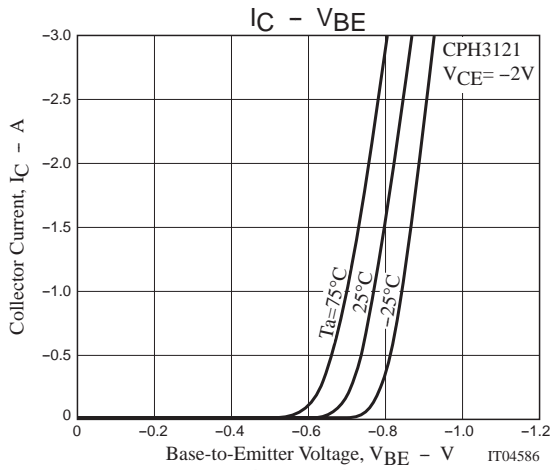
Switching Time Test Circuit

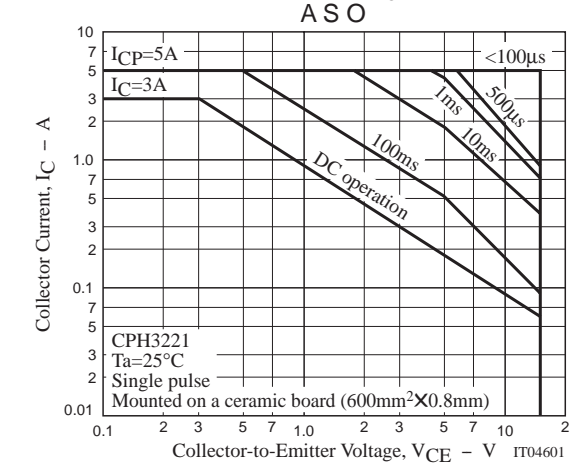
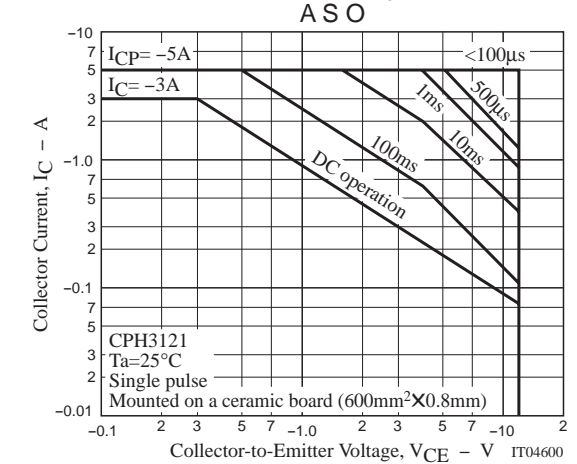
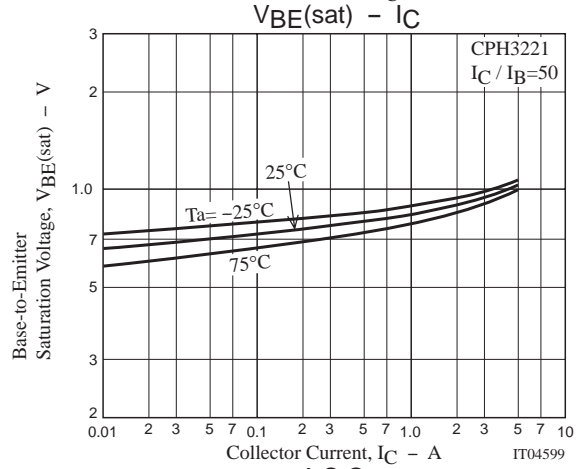
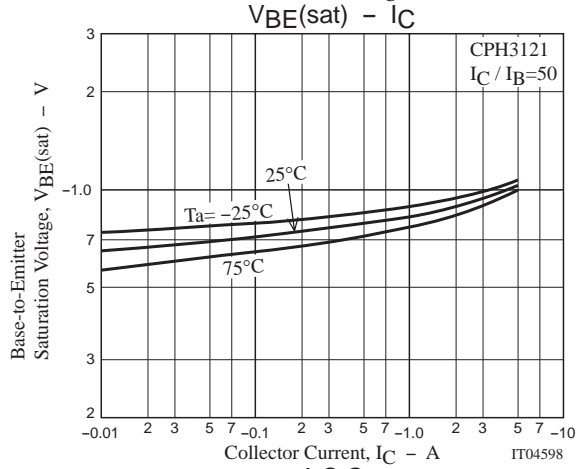
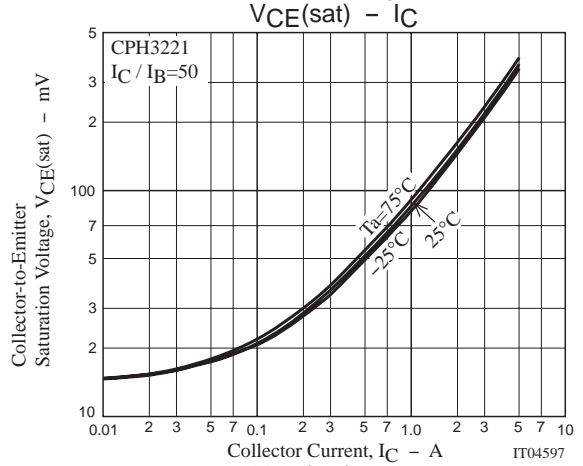
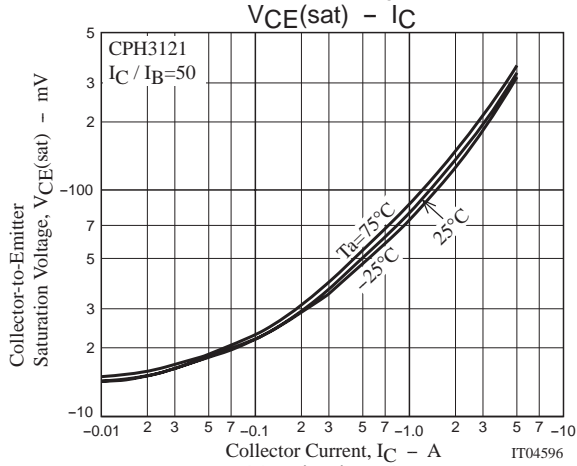
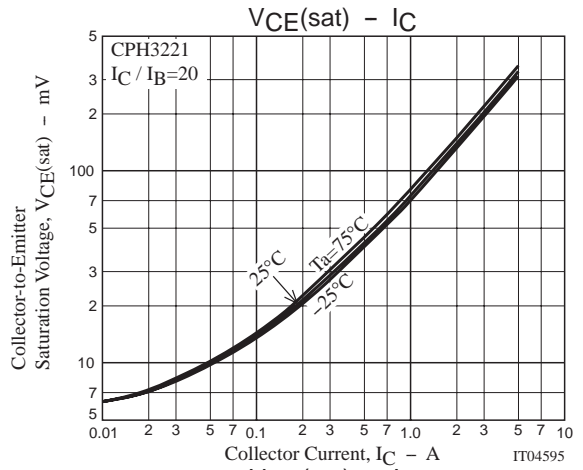
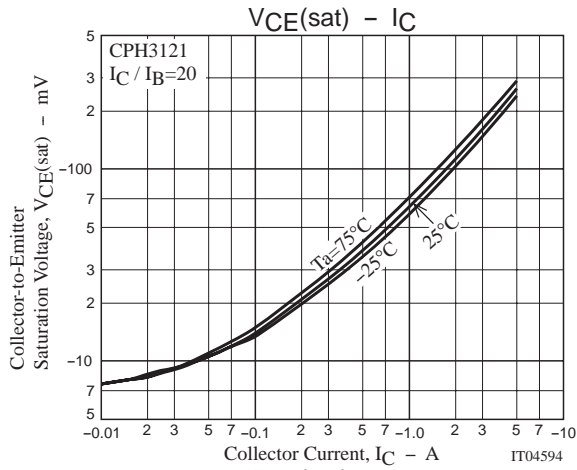


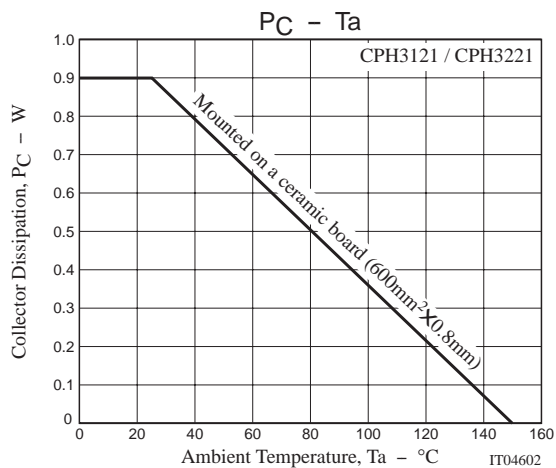
$I_C = 20I_{B1} = -20I_{B2} = 1.5A$
For PNP, the polarity is reversed.



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