



SANYO Semiconductors

DATA SHEET

CPH3123 / CPH3223 — PNP / NPN Epitaxial Planar Silicon Transistors

High-Current Switching Applications

Applications

- DC-DC converter, 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 () : CPH3123

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		(-50)100	V
Collector-to-Emitter Voltage	VCEs		(-50)100	V
Collector-to-Emitter Voltage	VCEO		(-)50	V
Emitter-to-Base Voltage	VEBO		(-)6	V
Collector Current	IC		(-)3	A
Collector Current (Pulse)	ICP		(-)6	A
Base Current	IB		(-)600	mA
Collector Dissipation	PC	Mounted on a ceramic board (600mm ² X0.8mm)	0.9	W
Junction Temperature	TJ		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V _{CB} =(-)40V, I _E =0			(-)1	μA
Emitter Cutoff Current	IEBO	V _{EB} =(-)4V, I _C =0			(-)1	μA
DC Current Gain	h _{FE}	V _{CE} =(-)2V, I _C =(-)100mA	200		560	
Gain-Bandwidth Product	f _T	V _{CE} =(-)10V, I _C =(-)500mA		(390)380		MHz
Output Capacitance	Cob	V _{CB} =(-)10V, f=1MHz		(24)13		pF

Marking : CPH3123 : AU, CPH3223 : CU

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CPH3123 / CPH3223

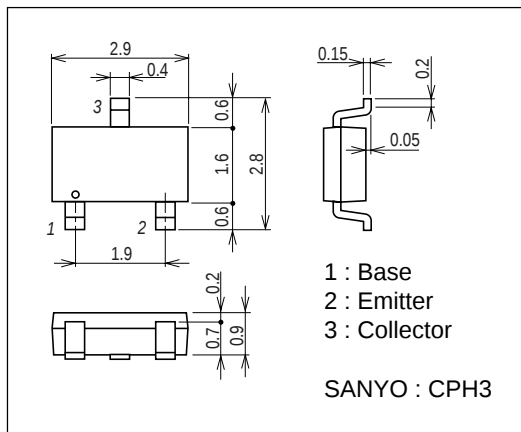
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)1A, I_B=(-)50mA$		(-115)90	(-230)130	mV
		$I_C=(-)2A, I_B=(-)100mA$		(-240)160	(-650)240	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2A, I_B=(-)100mA$		(-0.88)	(-1.2)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-50)100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=(-)100\mu A, R_{BE}=0$	(-50)100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-50)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-6)			V
Turn-ON Time	t_{on}	See specified Test Circuit.		(30)35		ns
Storage Time	t_{stg}	See specified Test Circuit.		(230)300		ns
Fall Time	t_f	See specified Test Circuit.		(18)25		ns

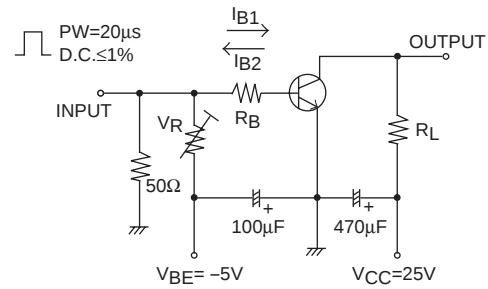
Package Dimensions

unit : mm

2150A

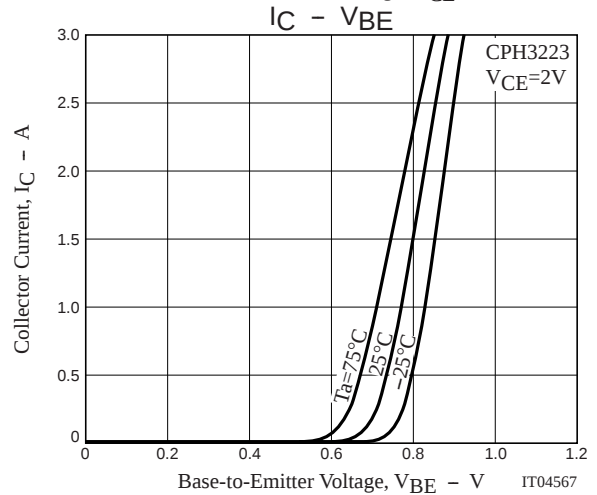
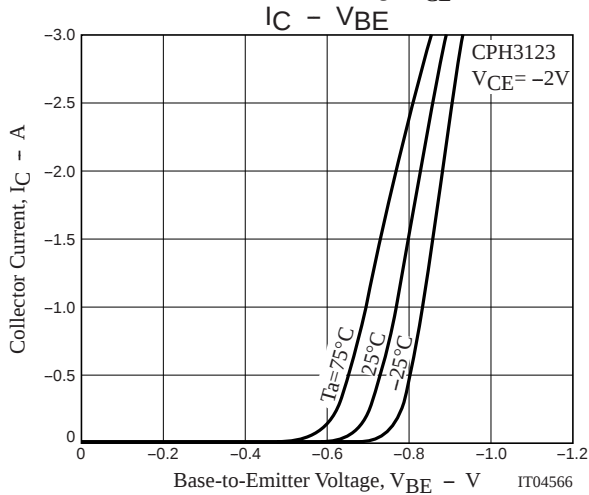
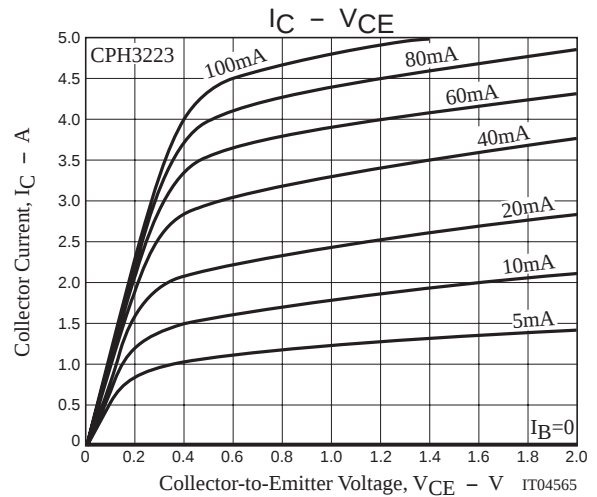
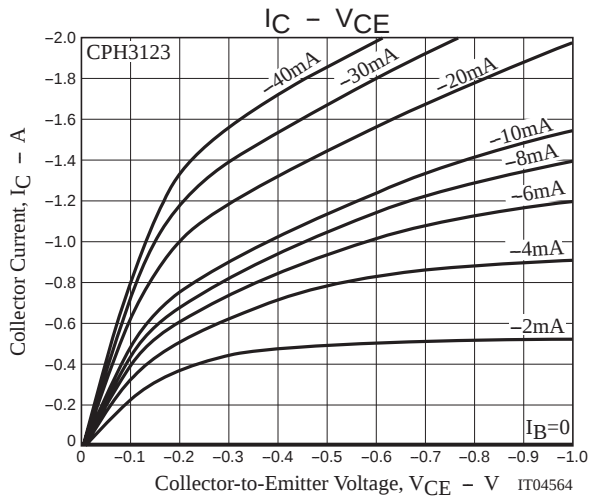


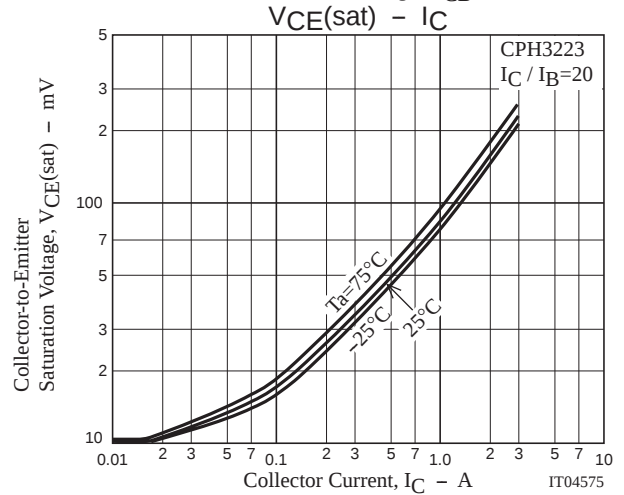
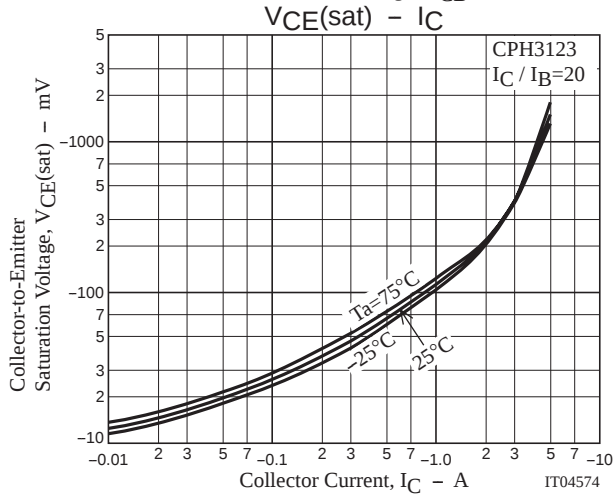
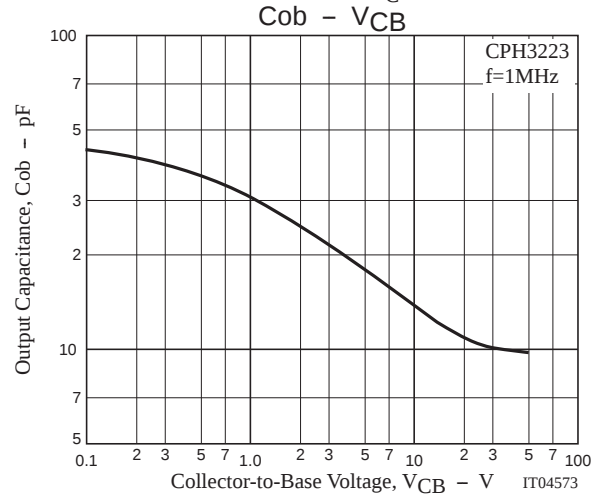
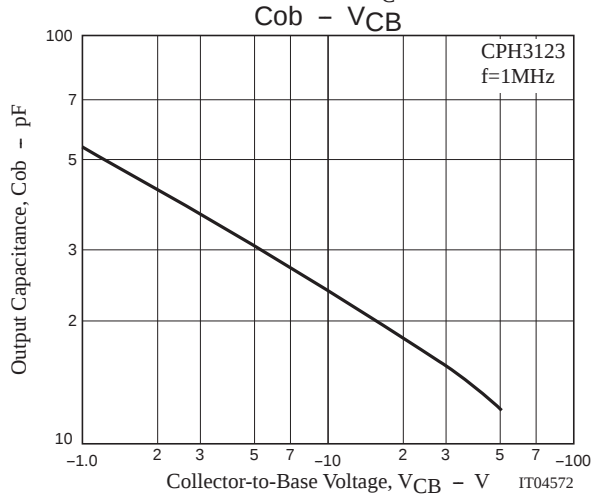
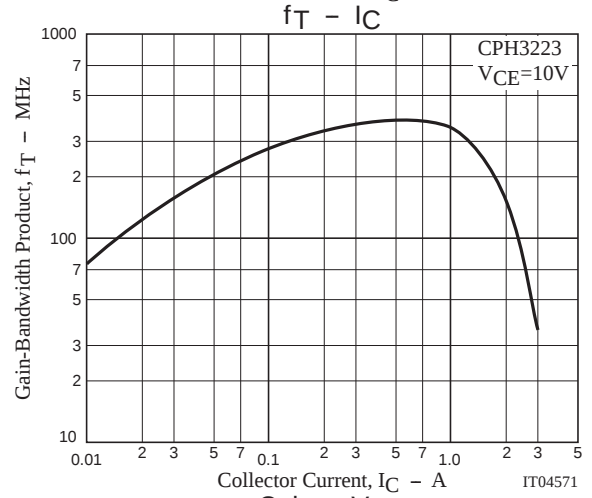
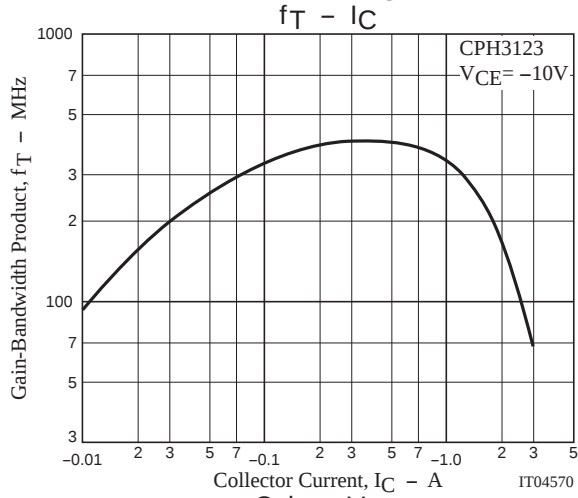
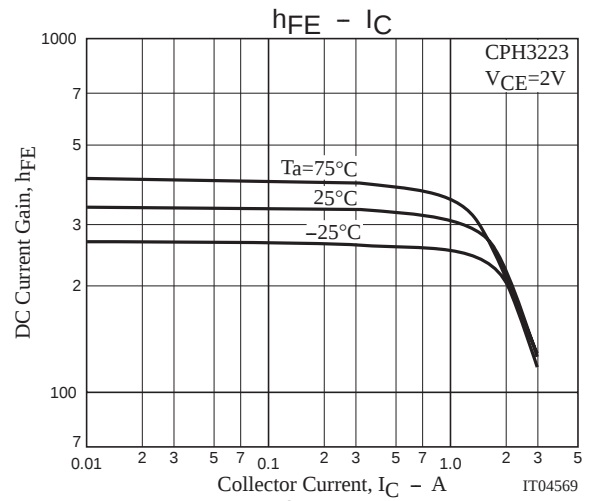
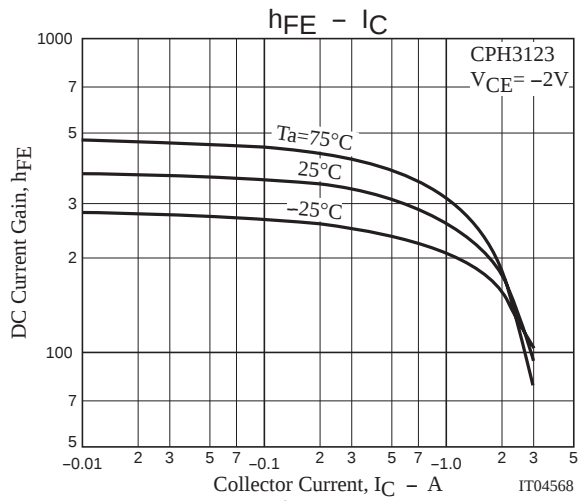
Switching Time Test Circuit

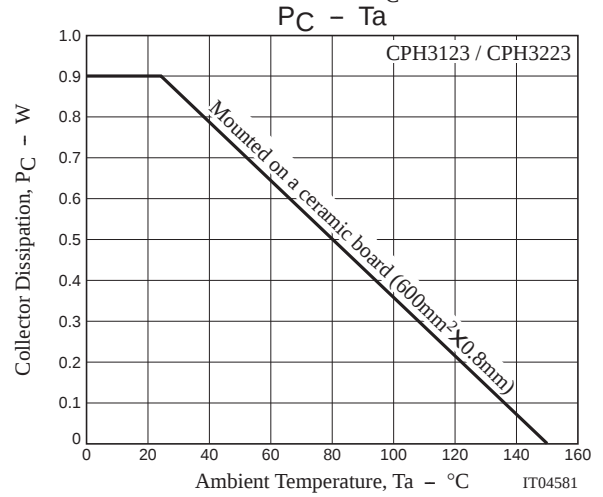
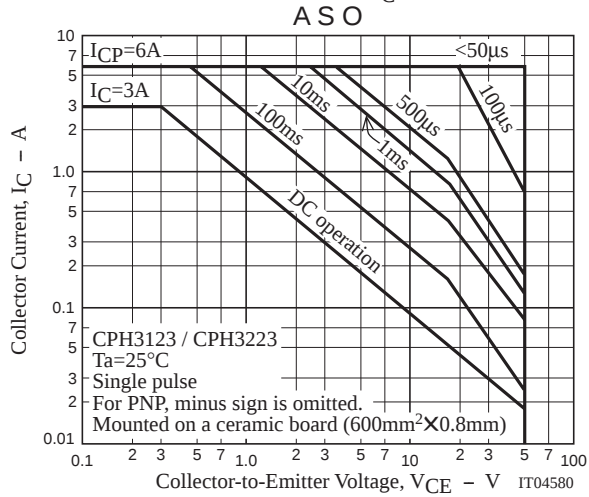
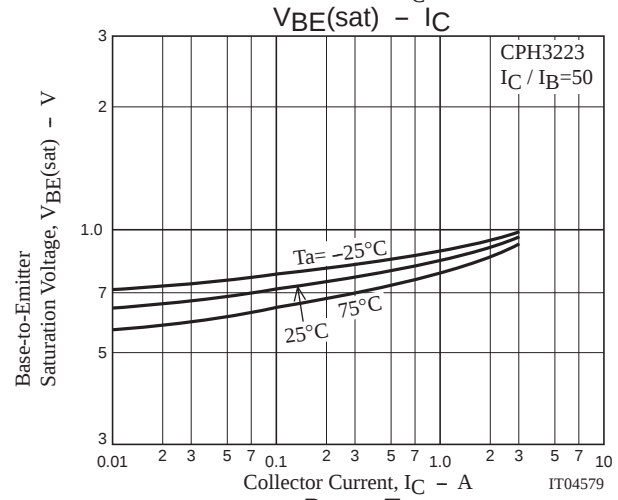
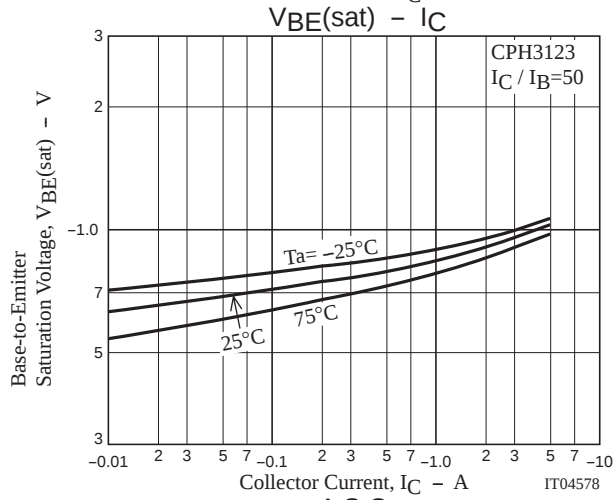
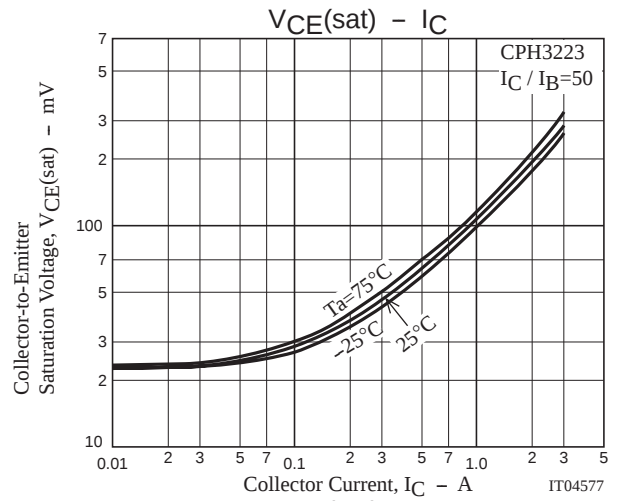
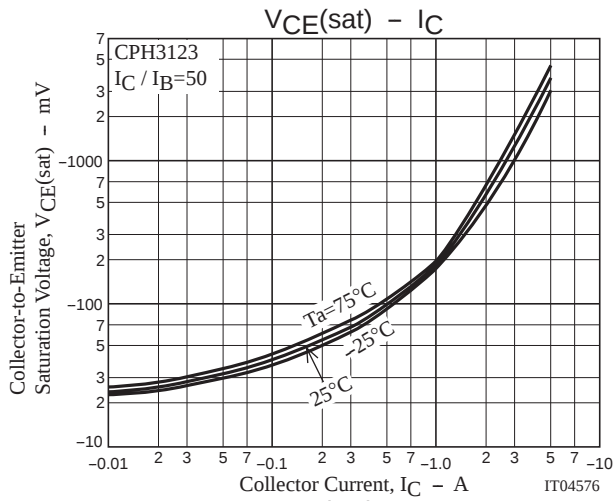


$$I_C = 10I_{B1} = -10I_{B2} = 1A$$

For PNP, the polarity is reversed.







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