

**CPH3110/3210****DC/DC Converter Applications****Applications**

- Relay drivers, lamp drivers, motor drivers, and strobes.

Features

- Adoption of MBIT processes.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- Ultrasmall-sized package permitting applied sets to be made small and slim (0.9mm).
- High allowable power dissipation.

() : PNP

Specifications**Absolute Maximum Ratings** at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-30)40	V
Collector-to-Emitter Voltage	V_{CEO}		(-30)40	V
Emitter-to-Base Voltage	V_{EBO}		(-6)	V
Collector Current	I_C		(-5)	A
Collector Current (Pulse)	I_{CP}		(-7)	A
Base Current	I_B		(-1.2)	A
Collector Dissipation	P_C	Mounted on a ceramic board (600mm ² ×0.8mm)	0.9	W
Junction Temperature	T_J		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)30\text{V}, I_E=0$			(-0.1)	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}, I_C=0$			(-0.1)	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)2\text{V}, I_C=(-)500\text{mA}$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10\text{V}, I_C=(-)500\text{mA}$		(250)		MHz
				290		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		(52)40		pF

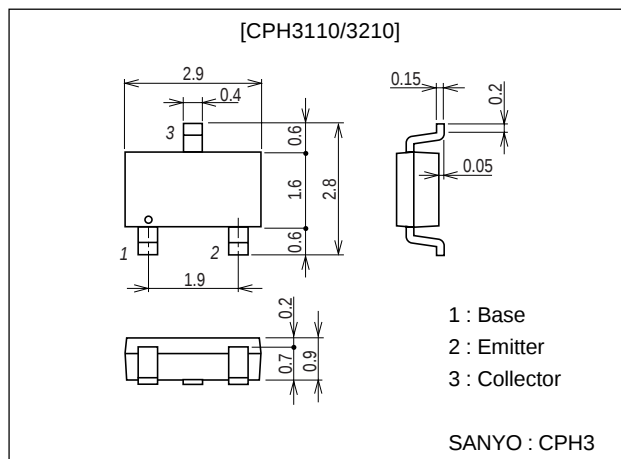
Marking : CPH3110 : AK, CPH3210 : CK

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Package Dimensions

unit:mm

2150A



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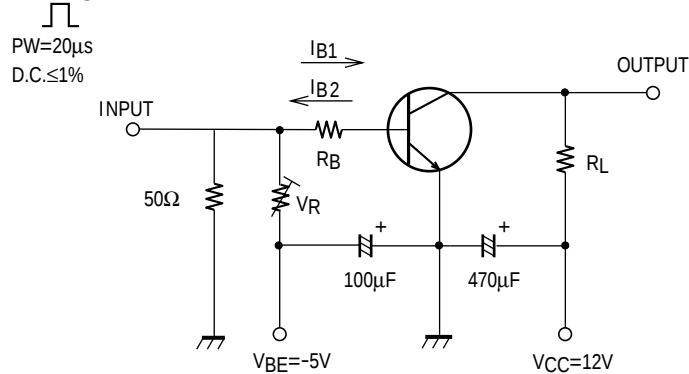
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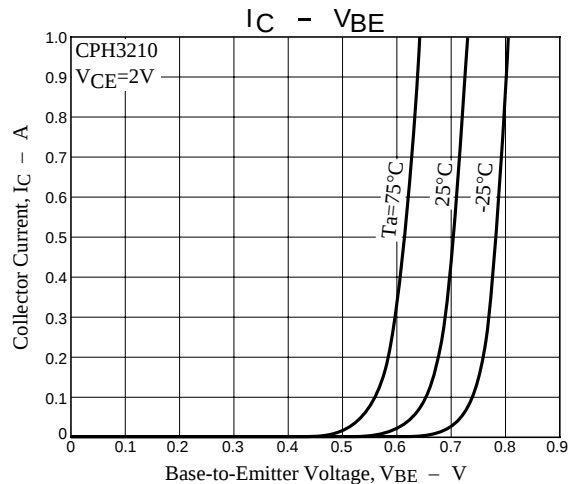
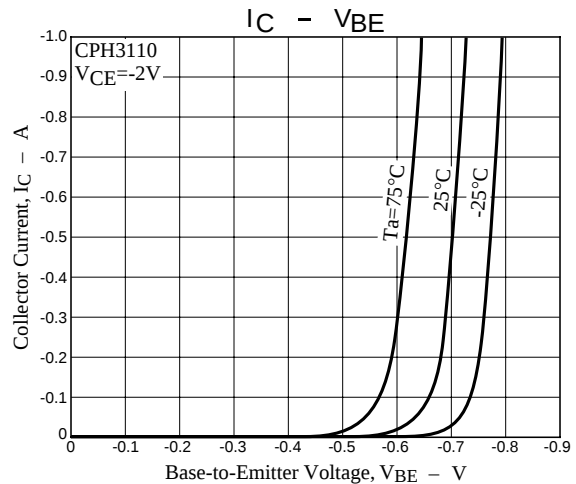
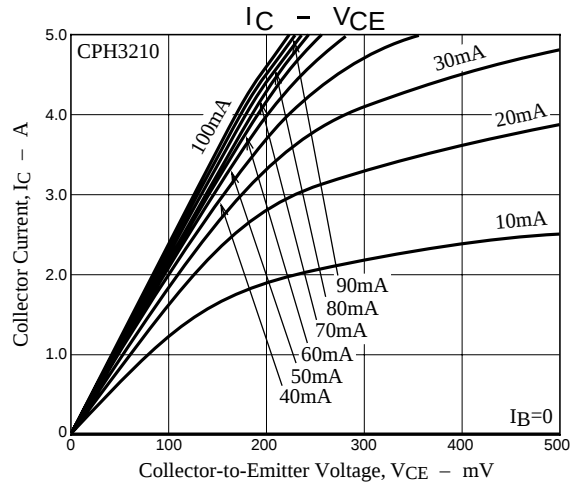
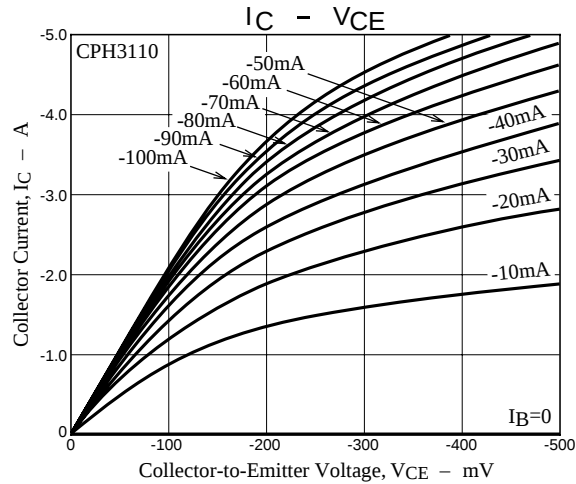
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)2.5A, I_B=(-)50mA$		(-140)	(-210)	mV
				110	165	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2.5A, I_B=(-)50mA$		(-0.81)	(-1.2)	V
				0.82		V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$		(-30)		V
				40		V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$		(-)30		V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_C=(-)10\mu A, I_C=0$		(-)6		V
Turn-ON Time	t_{on}	See specified test circuit.		(30)30		ns
Storage Time	t_{stg}	See specified test circuit.		(190)		ns
				320		ns
Turn-OFF Time	t_f	See specified test circuit.		(17)14		ns

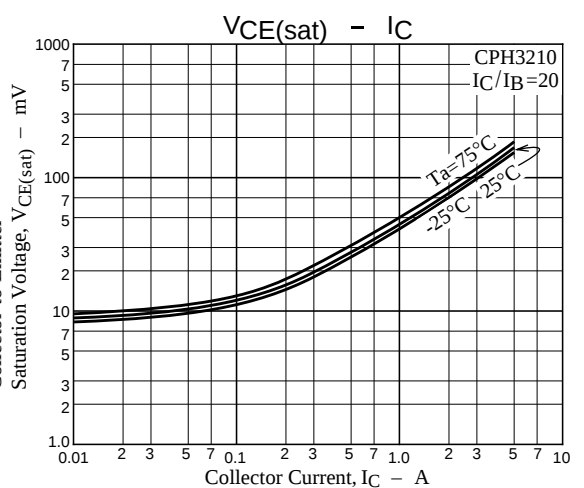
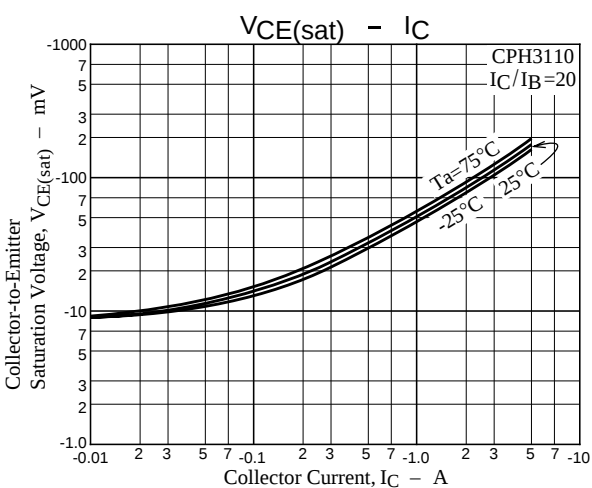
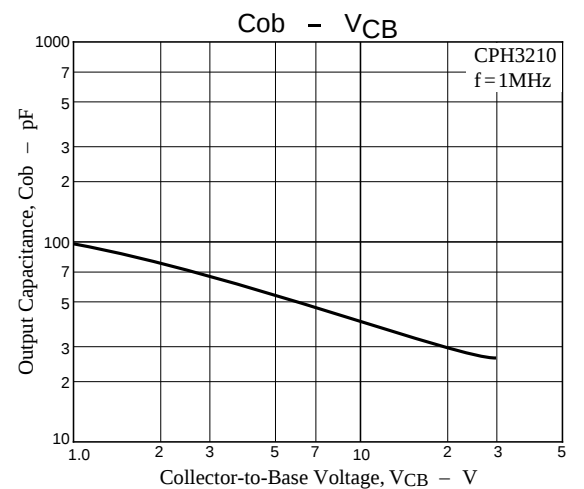
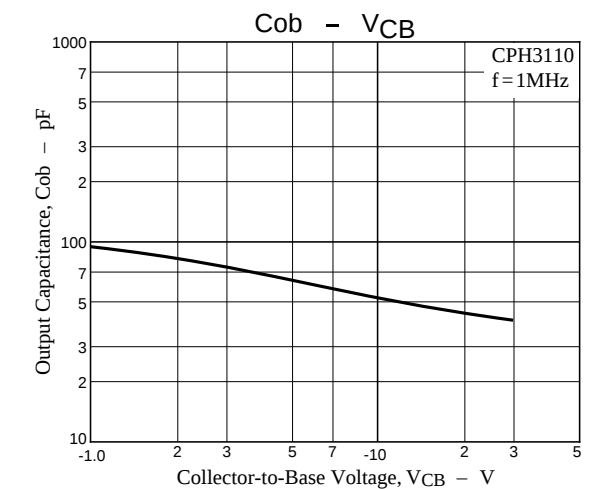
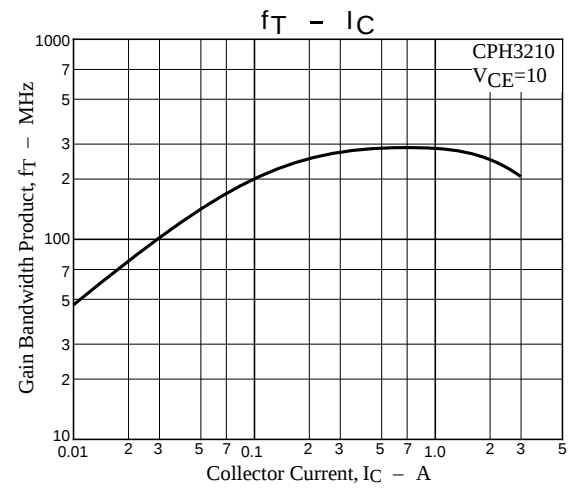
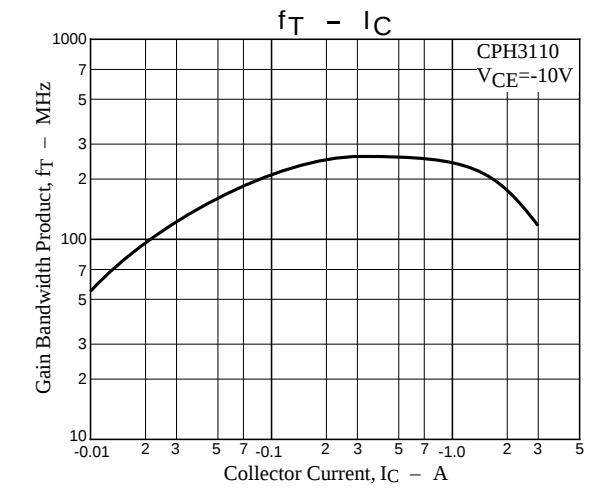
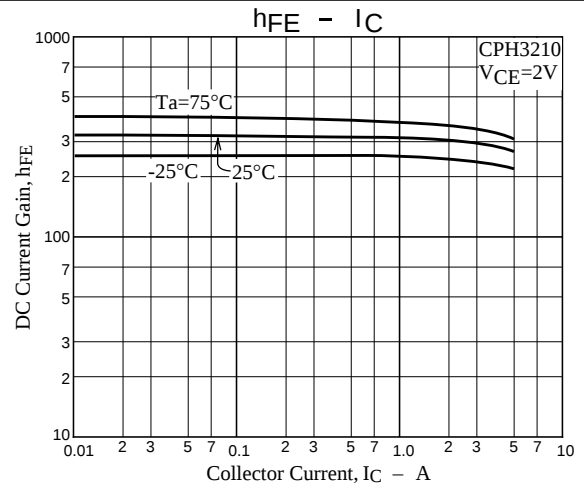
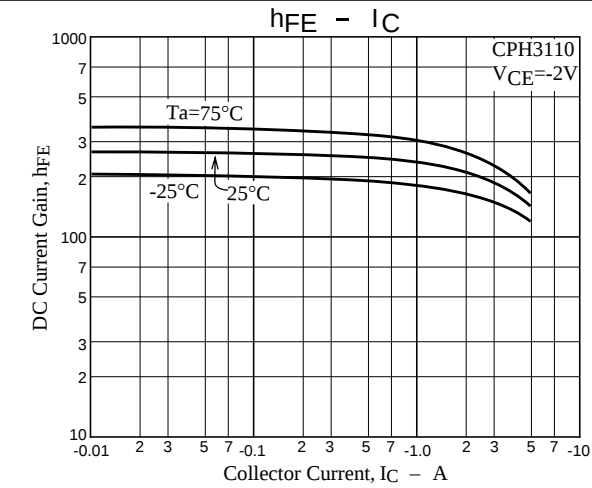
Switching Time Test Circuit



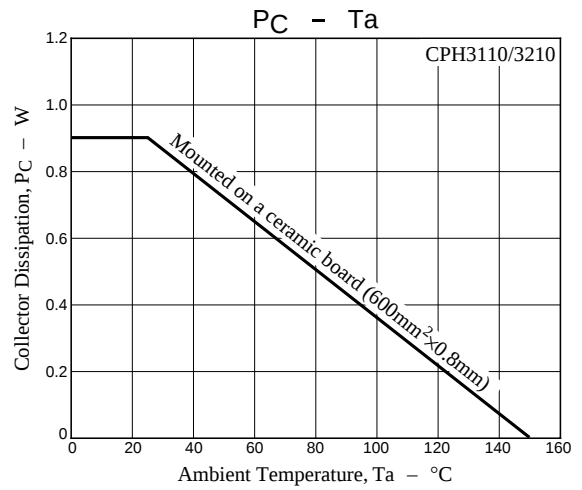
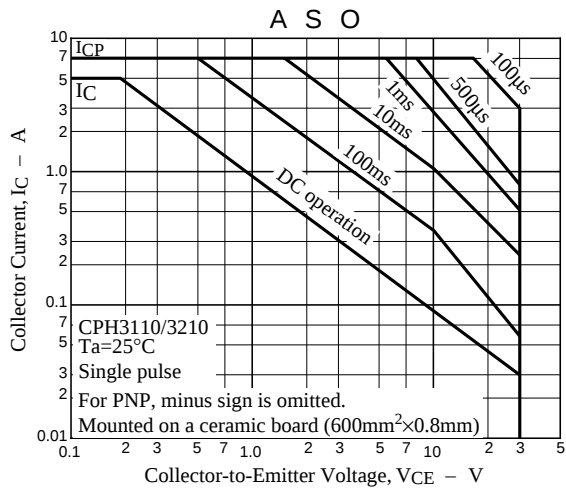
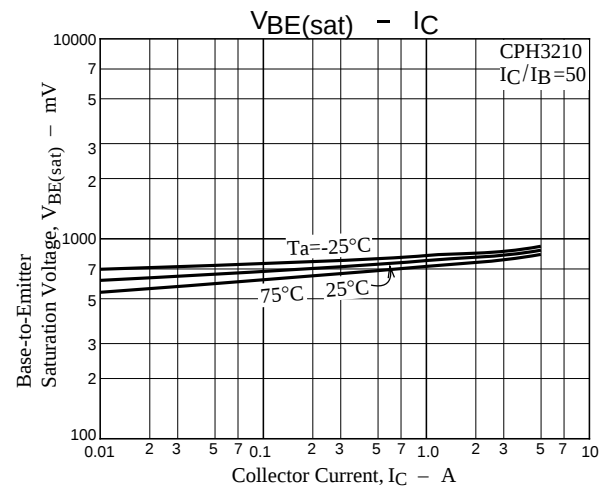
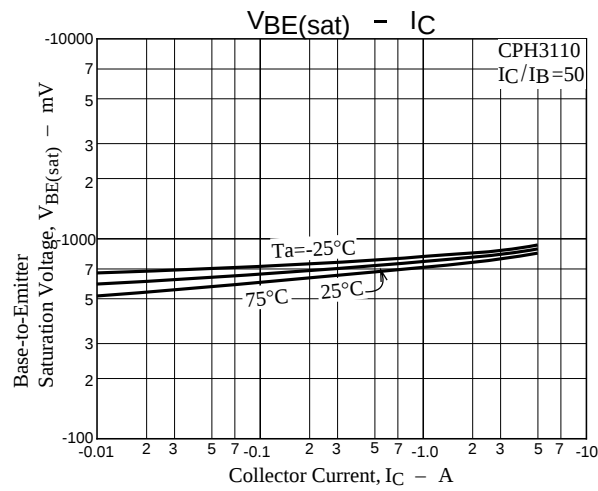
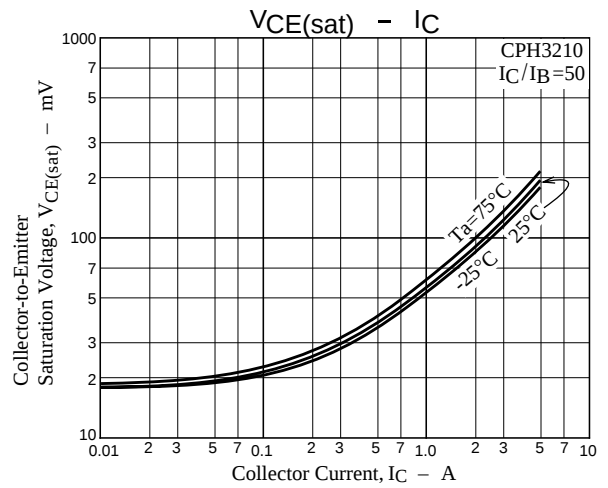
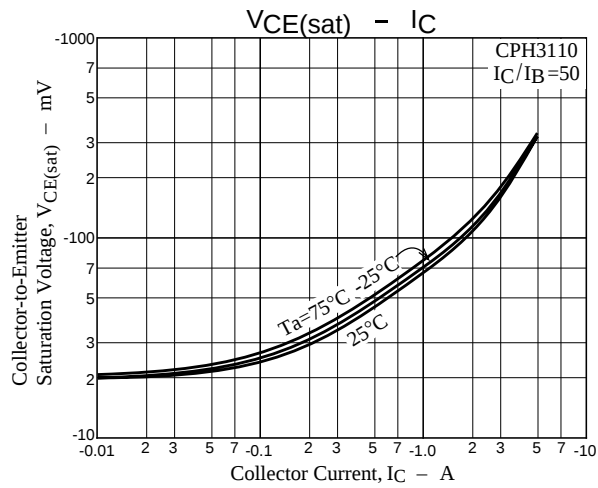
$20I_{B1}=-20I_{B2}=I_C=2.5A$
(For PNP, the polarity is reversed.)



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