



CPH3114/CPH3214

DC/DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers.

Features

- Adoption of MBIT processes.
- Large 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

() : CPH3114

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-)15	V
Collector-to-Emitter Voltage	V_{CEO}		(-)15	V
Emitter-to-Base Voltage	V_{EBO}		(-)5	V
Collector Current	I_C		(-)1.5	A
Collector Current (Pulse)	I_{CP}		(-)3	A
Base Current	I_B		(-)300	mA
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}	$V_{CB}=(-)12\text{V}, I_E=0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}, I_C=0$			(-)0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)2\text{V}, I_C=(-)100\text{mA}$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)2\text{V}, I_C=(-)300\text{mA}$		(350)		MHz
				450		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		(17)9		pF

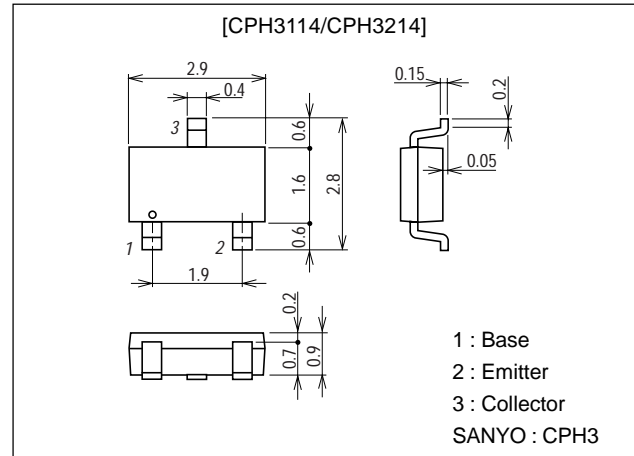
Marking : CPH3114 : AP, CPH3214 : CP

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Package Dimensions

unit:mm

2150A



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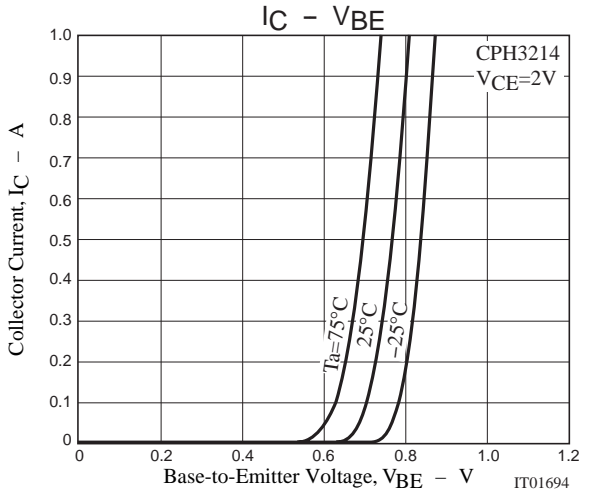
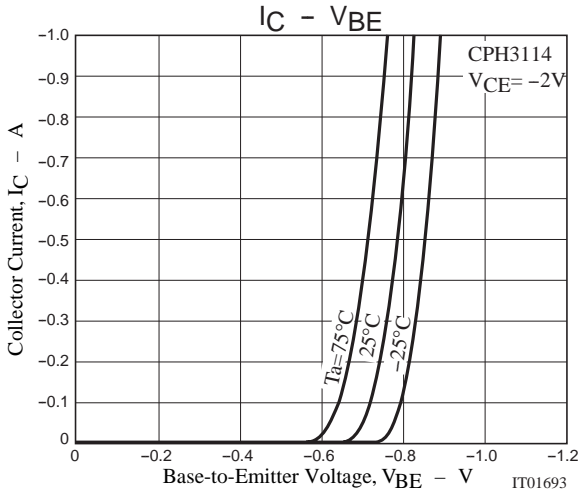
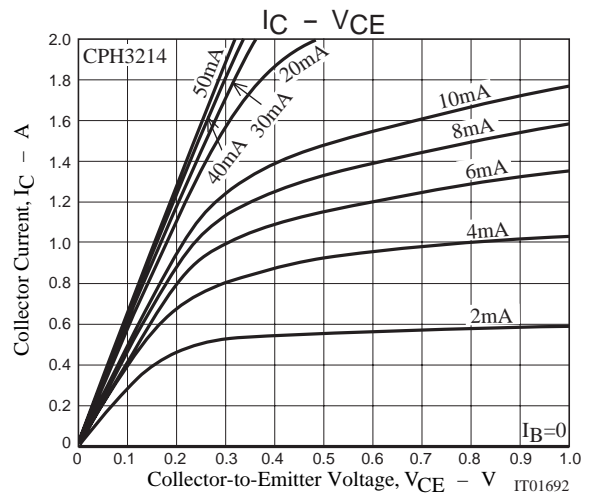
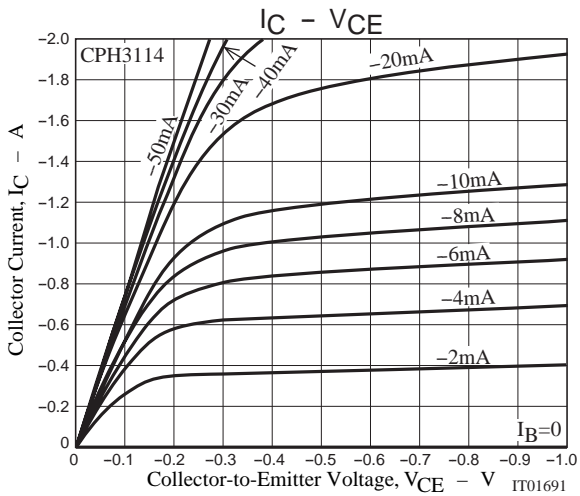
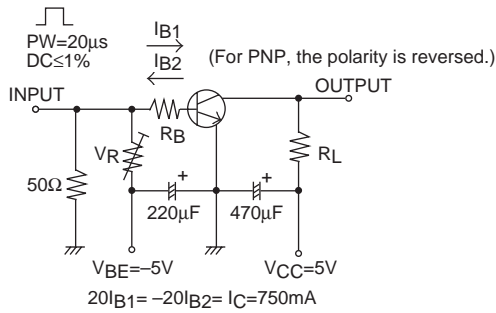
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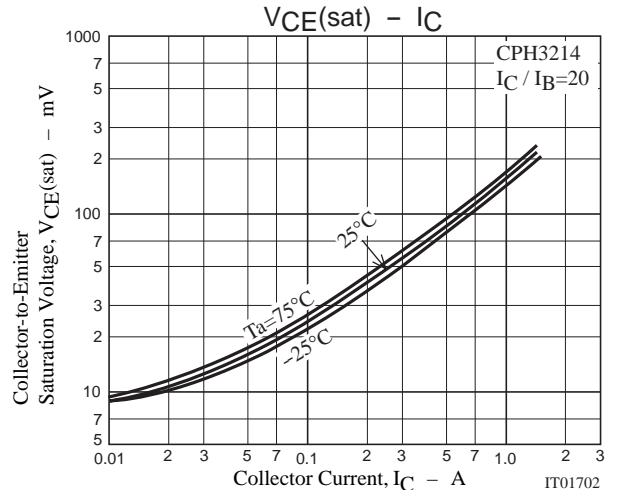
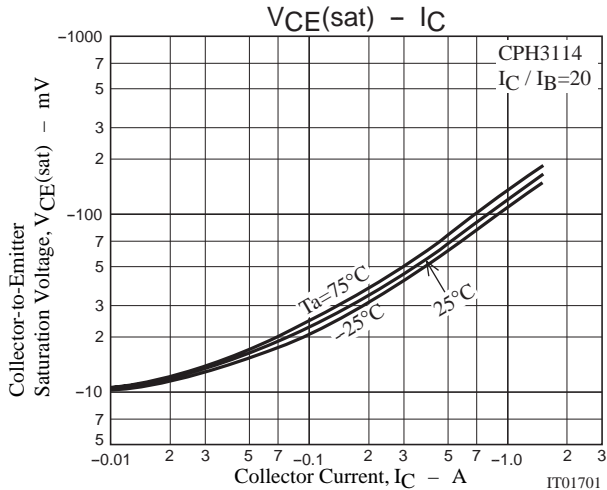
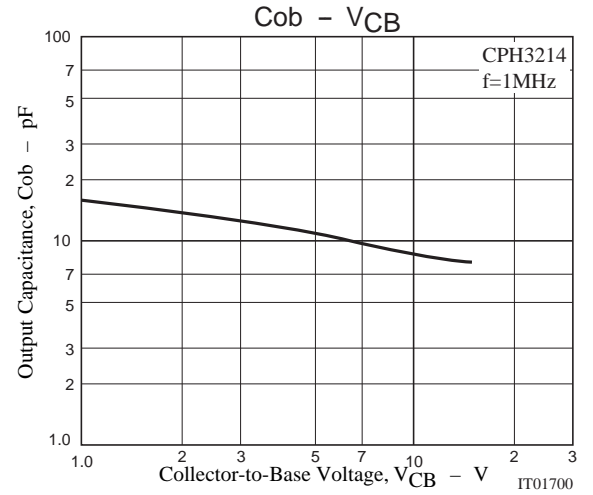
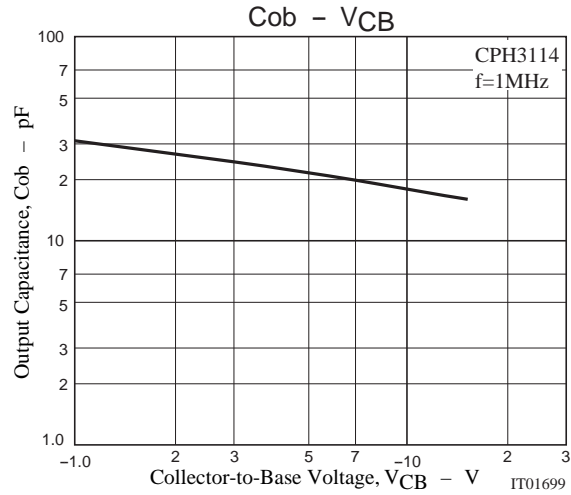
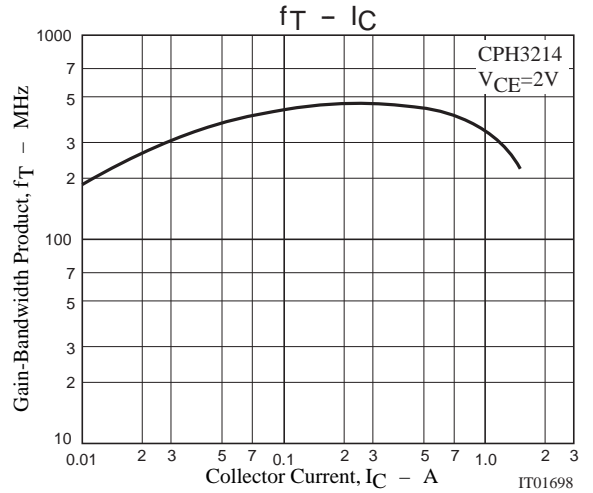
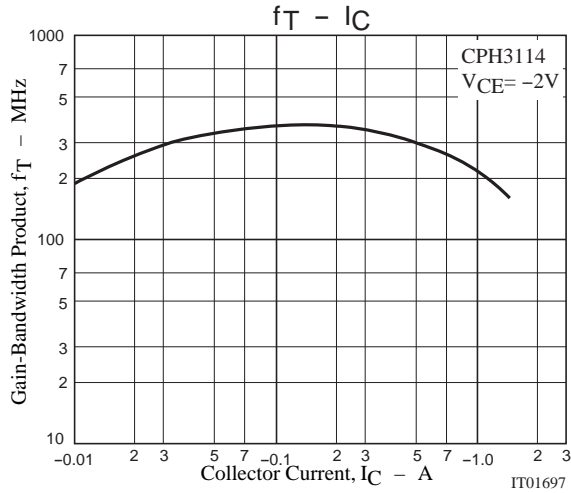
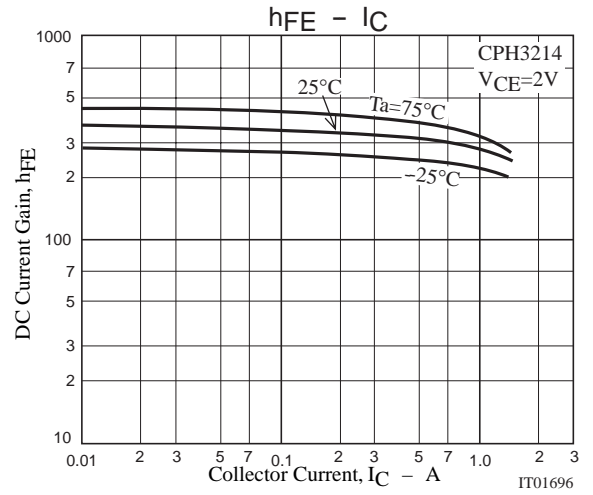
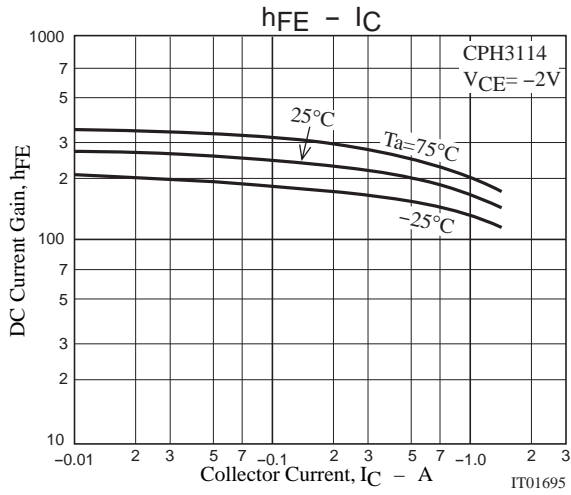
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)750\text{mA}, I_B=(-)15\text{mA}$		(-120)	(-180)	mV
				130	200	mV
		$I_C=(-)1.5\text{mA}, I_B=(-)30\text{mA}$		(-210)	(-320)	mV
			240	360	mV	
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)750\text{mA}, I_B=(-)15\text{mA}$		(-0.85)	(-1.2)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0$	(-15)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	(-15)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}, I_C=0$	(-5)			V
Turn-ON Time	t_{on}	See specified test circuit.		(50)40		ns
Storage Time	t_{stg}	See specified test circuit.		(90)		ns
				180		ns
Fall Time	t_f	See specified test circuit.		(15)20		ns

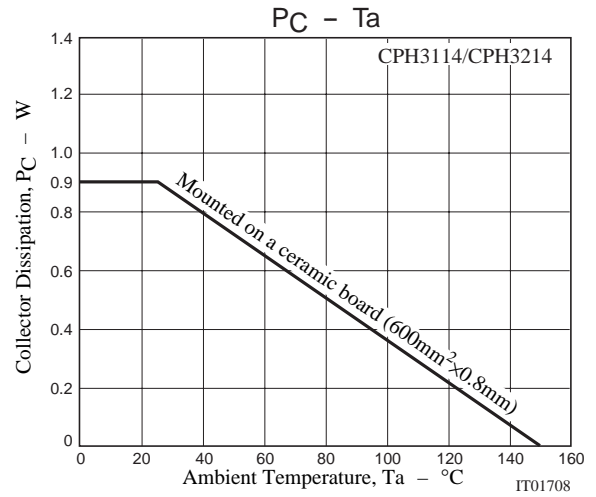
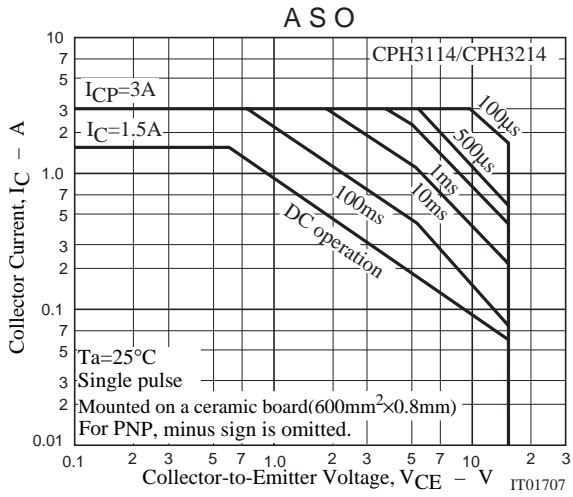
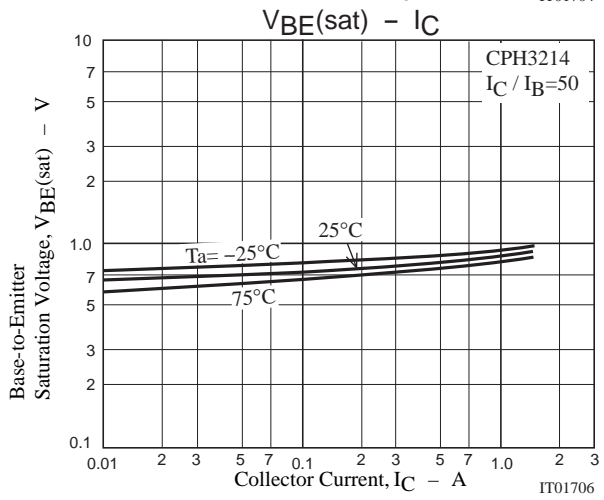
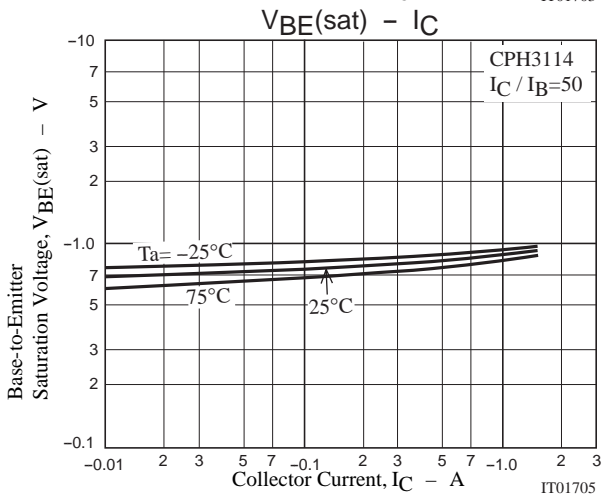
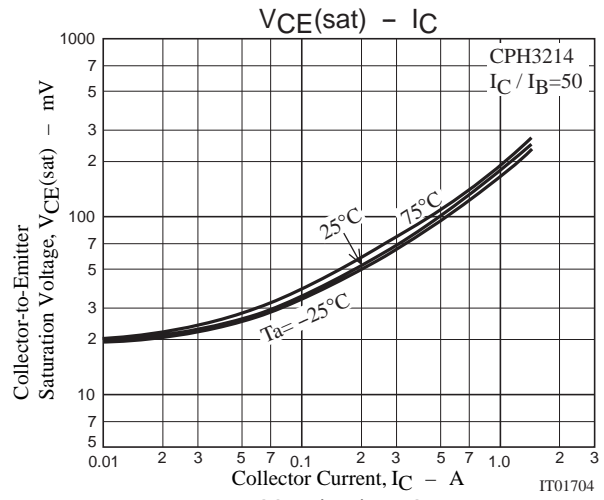
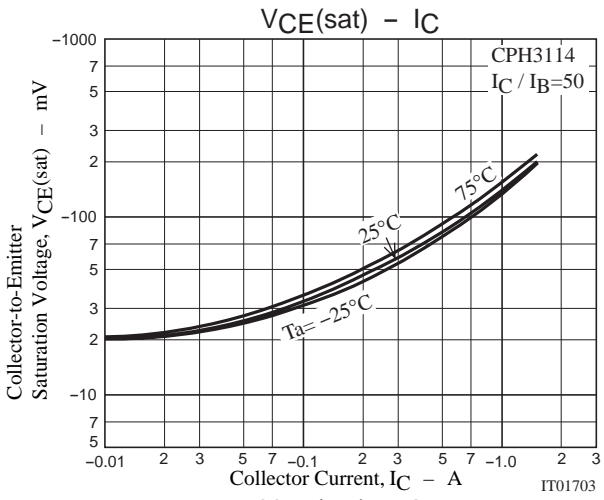
Switching Time Test Circuit



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