



# CPH3101/3201

## DC/DC Converter Applications

### Applications

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

### Features

- Adoption of FBET and 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.
- High allowable power dissipation.

( ) : CPH3101

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-)-30	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)-30	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)-6	V
Collector Current	$I_C$		(-)-2	A
Collector Current (Pulse)	$I_{CP}$		(-)-4	A
Base Current	$I_B$		(-)-400	mA
Collector Dissipation	$P_C$	Mounted on a ceramic board (600mm <sup>2</sup> ×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	$I_{CBO}$	$V_{CB}=(-)20\text{V}, I_E=0$			(-)-0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)3\text{V}, I_C=0$			(-)-0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE}=(-)2\text{V}, I_C=(-)100\text{mA}$	200		400	
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$		150		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		19(32)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)1.5\text{A}, I_B=(-)75\text{mA}$		180	400	mV
				(-)-350	(-)-600	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)1.5\text{A}, I_C=(-)75\text{mA}$		(-)-0.85	(-)-1.2	V

Marking : CPH3101 : AA, CPH3201 : CA

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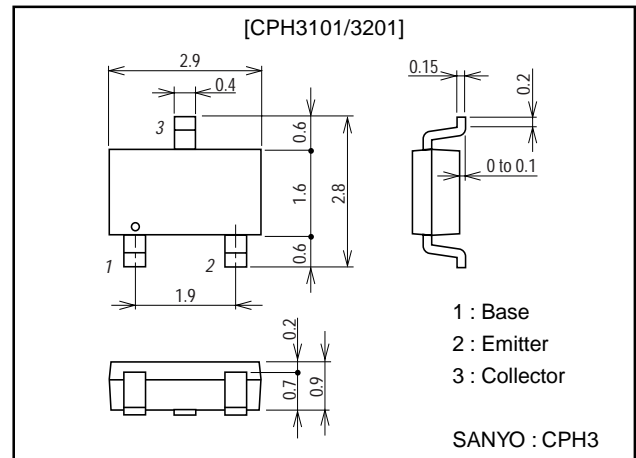
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### Package Dimensions

unit:mm

2150

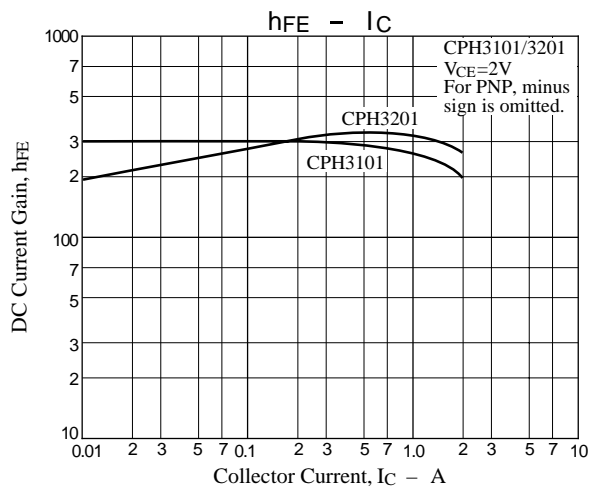
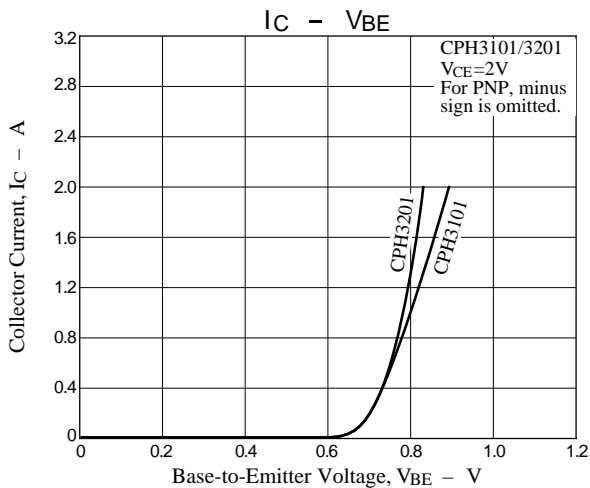
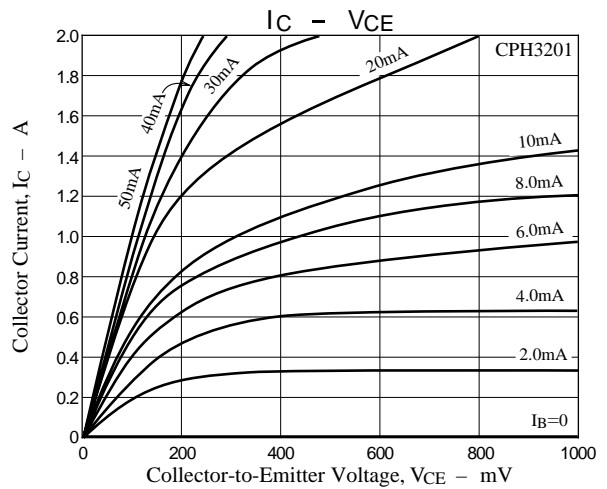
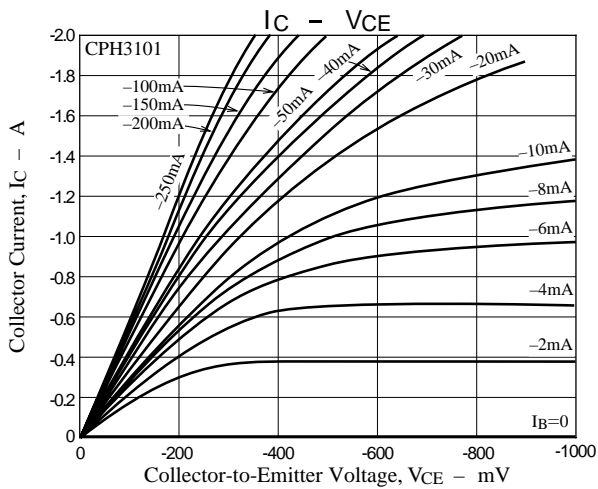
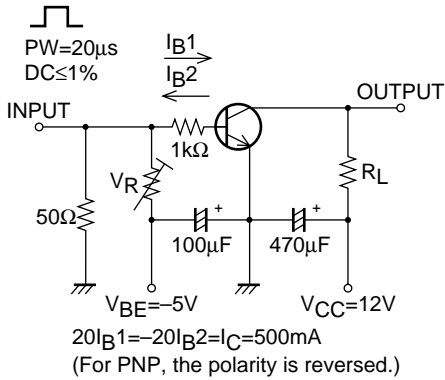


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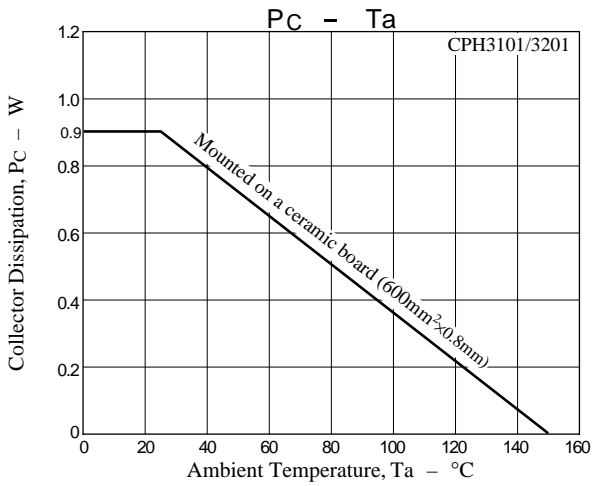
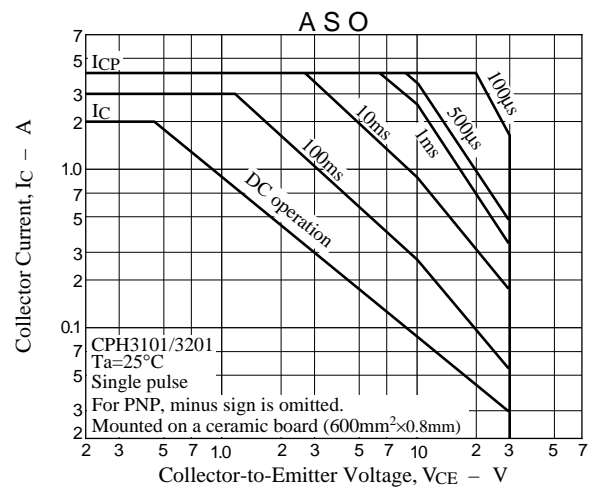
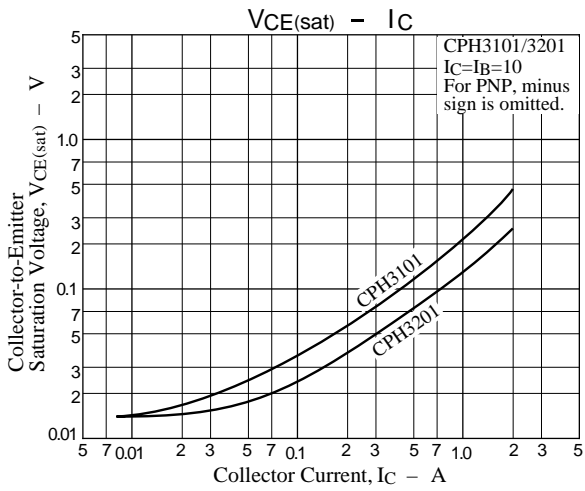
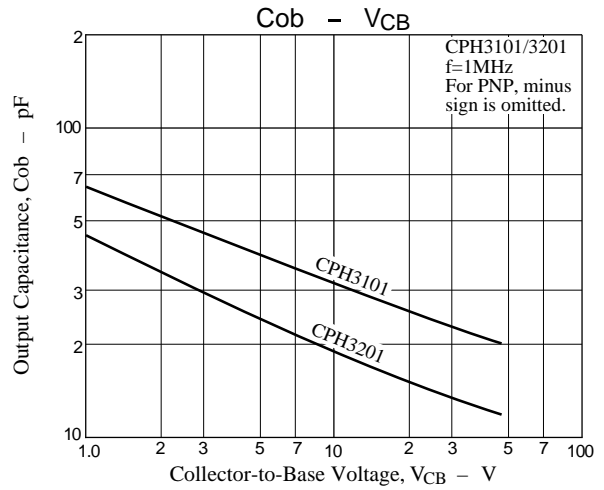
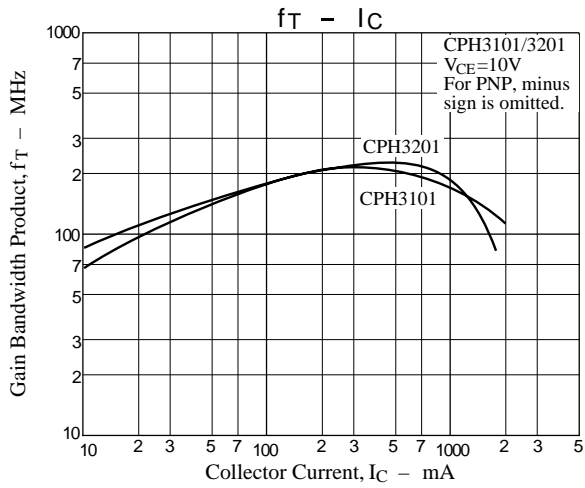
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-)30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_C = (-)10\mu A, I_C = 0$	(-)6			V
Turn-ON Time	$t_{on}$	See specified test circuit.		60(60)		ns
Storage Time	$t_{stg}$	See specified test circuit.		500		ns
				(350)		ns
Turn-OFF Time	$t_f$	See specified test circuit.		25(25)		ns

## Switching Time Test Circuit



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