

**SANYO****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	$V_{CB0}$		(-)-30	V
Collector-to-Emitter Voltage	$V_{CE0}$		(-)-30	V
Emitter-to-Base Voltage	$V_{EB0}$		(-)-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	$\beta_{FE}$	$V_{CE} = (-)2\text{V}, I_C = (-)100\text{mA}$	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	$V_{BE(sat)}$	$I_C = (-)1.5\text{A}, I_B = (-)75\text{mA}$		(-)-0.85	(-)-1.2	V

Marking: CPH3101 : AA, CPH3201 : CA

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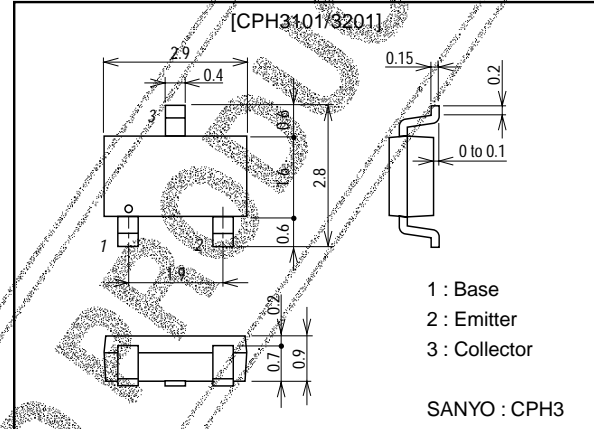
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**Package Dimensions**

unit:mm

2150



1 : Base  
2 : Emitter  
3 : Collector

SANYO : CPH3

**SANYO Electric Co.,Ltd. Semiconductor Company**

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

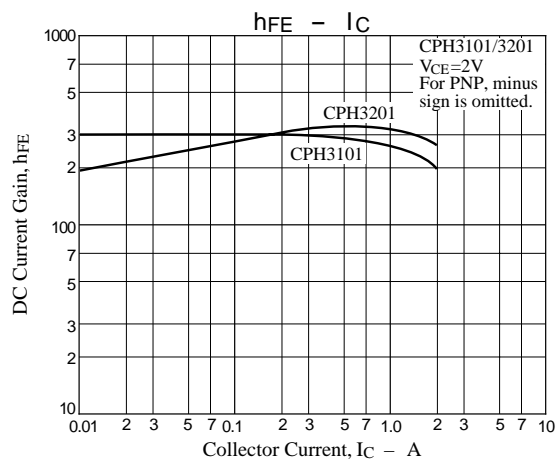
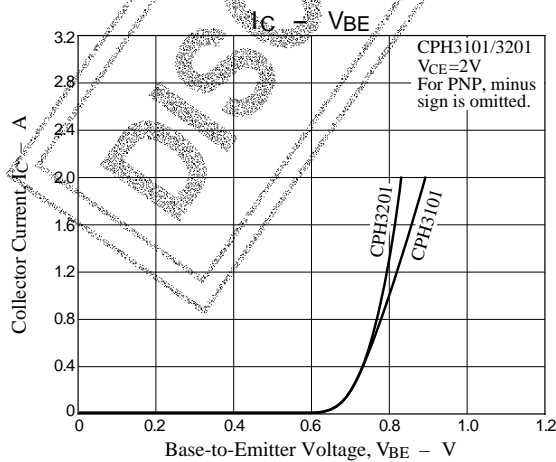
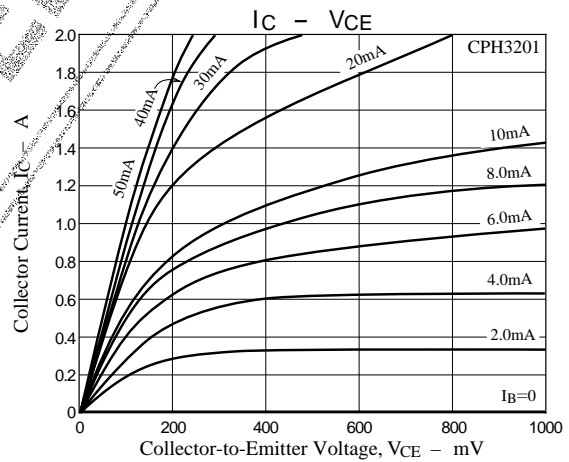
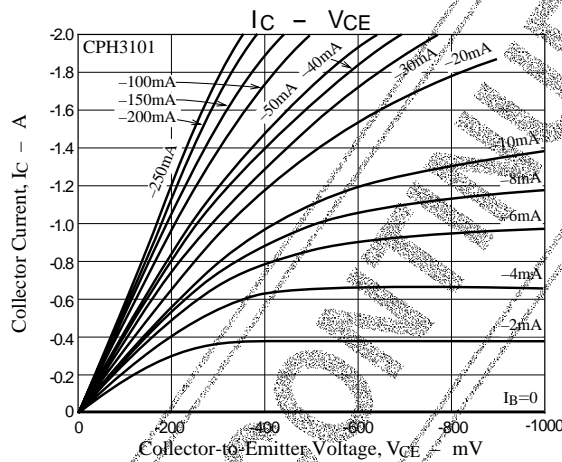
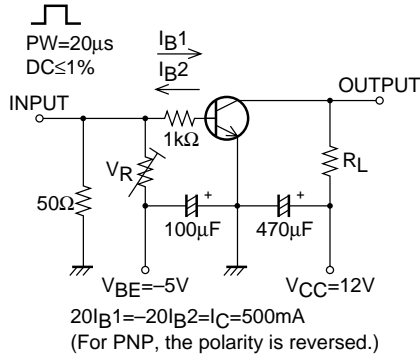
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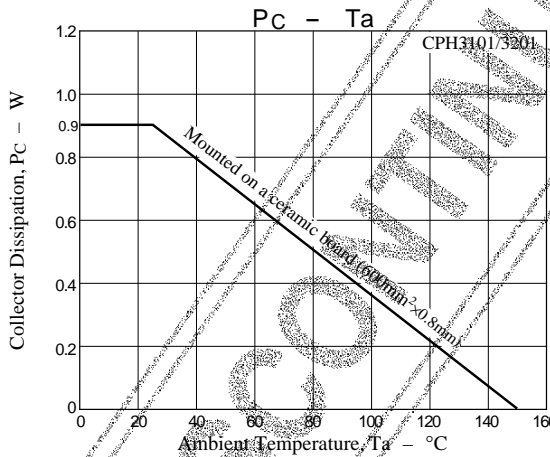
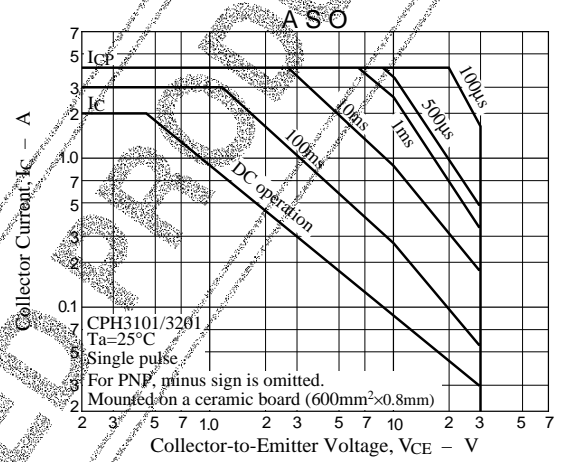
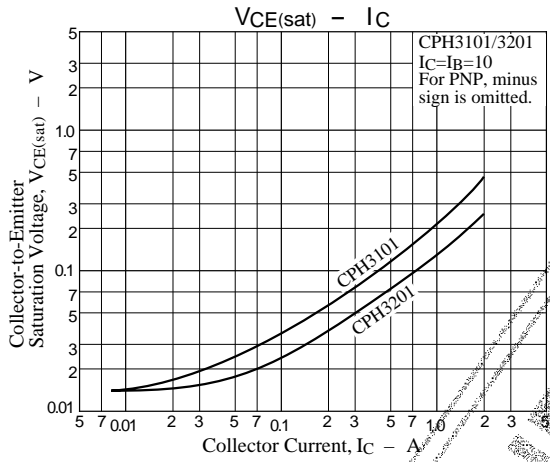
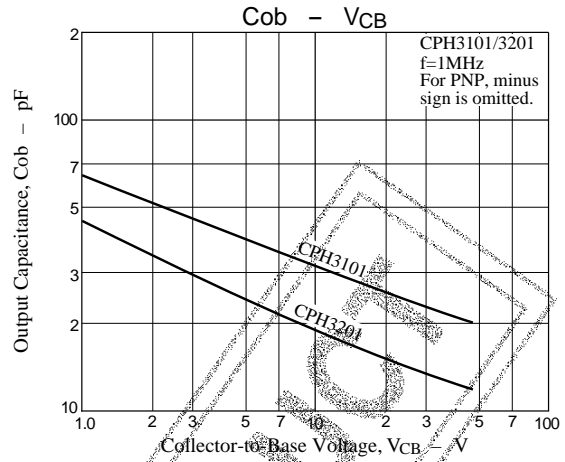
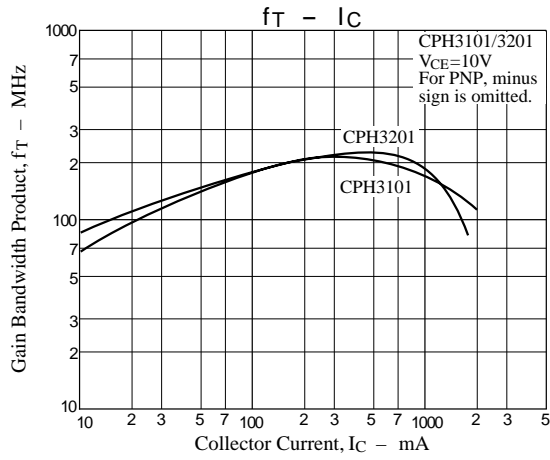
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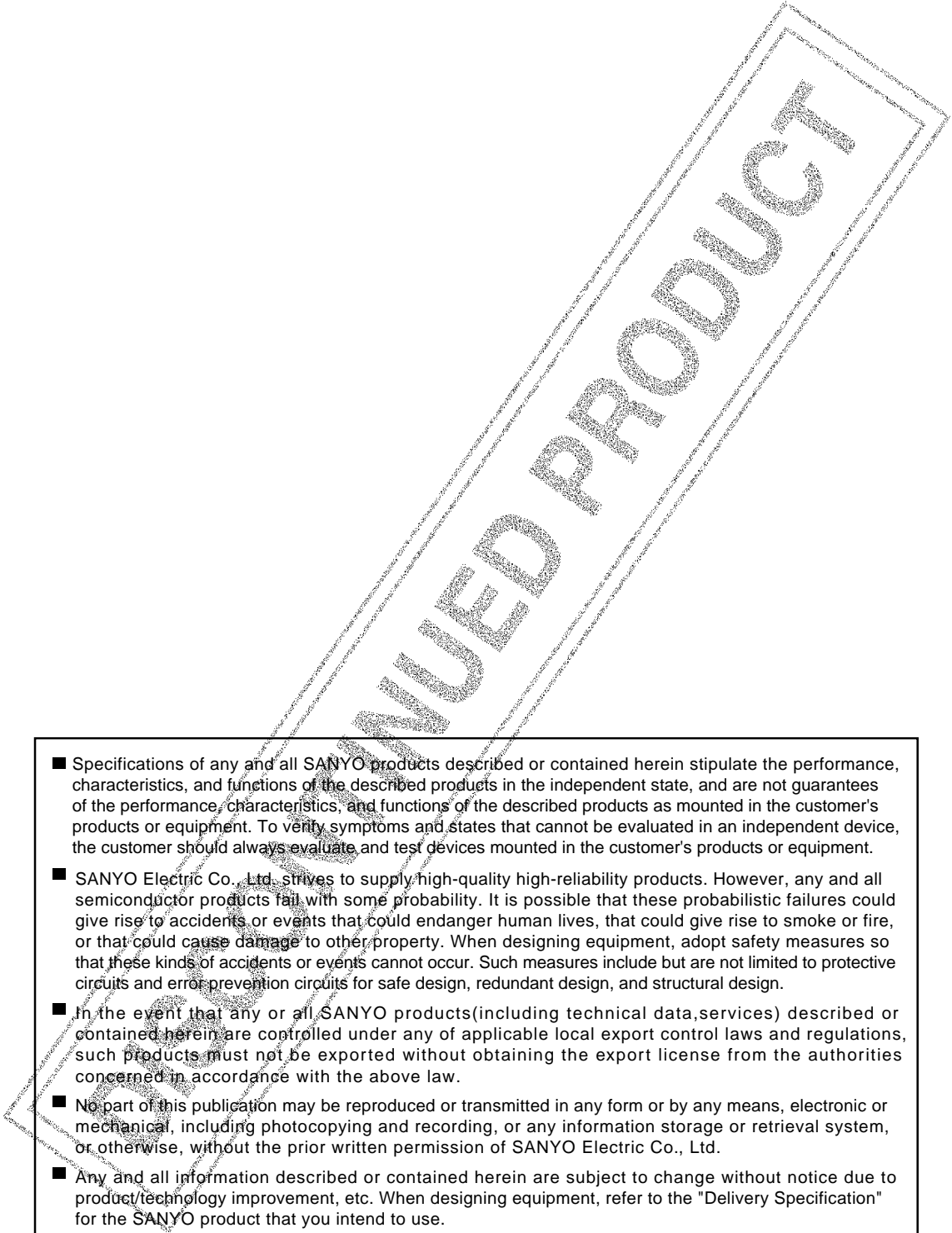
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-) $30$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-) $30$			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_C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

## Switching Time Test Circuit



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