



SANYO Semiconductors

## DATA SHEET

# CPH3140 / CPH3240 — High-Voltage Switching Applications

PNP / NPN Epitaxial Planar Silicon Transistors

## Features

- Adoption of FBET, MBIT processes.
- High breakdown voltage and large current capacity.
- High-speed switching.
- Ultrasmall size making it easy to provide high-density, small-sized hybrid ICs.

( ) : CPH3140

## Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-)120	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)100	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(-)6	V
Collector Current	I <sub>C</sub>		(-)1	A
Collector Current (Pulse)	I <sub>CP</sub>		(-)2	A
Collector Dissipation	P <sub>C</sub>	Mounted on a ceramic board (600mm <sup>2</sup> X0.8m)	0.9	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =(-)100V, I <sub>E</sub> =0			(-)100	nA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0			(-)100	nA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)100mA	140		400	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)10V, I <sub>C</sub> =(-)100mA		120		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =(-)10V, f=1MHz		(13)8.5		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =(-)400mA, I <sub>B</sub> =(-)40mA		(-0.2)0.1	(-0.6)0.4	V
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =(-)400mA, I <sub>B</sub> =(-)40mA		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =(-)10μA, I <sub>E</sub> =0	(-)120			V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =(-)1mA, R <sub>BE</sub> =∞	(-)100			V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =(-)10μA, I <sub>C</sub> =0	(-)6			V

Marking CPH3140 : BB  
CPH3240 : DL

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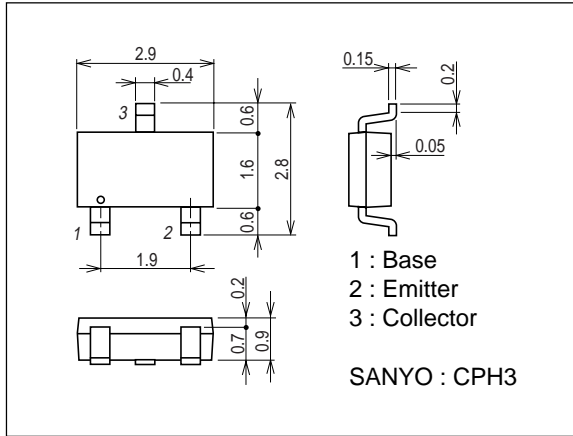
# CPH3140 / CPH3240

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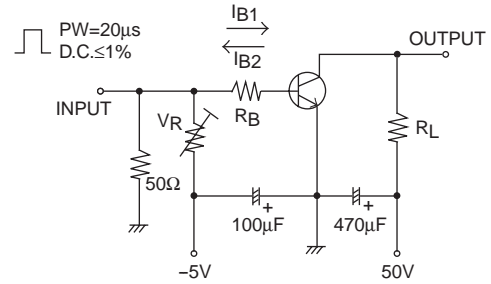
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Time	$t_{on}$	See specified test circuit.		(80)80		ns
Storage Time	$t_{stg}$	See specified test circuit.		(700)850		ns
Fall Time	$t_f$	See specified test circuit.		(40)50		ns

## Package Dimensions

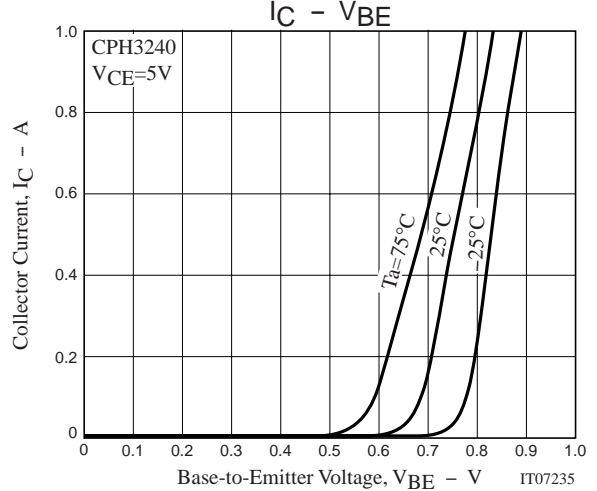
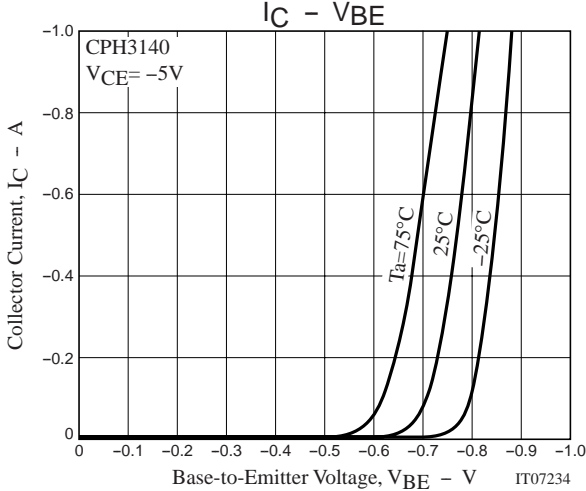
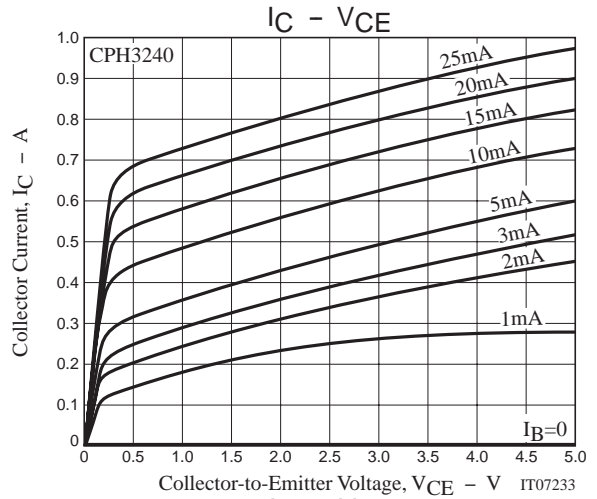
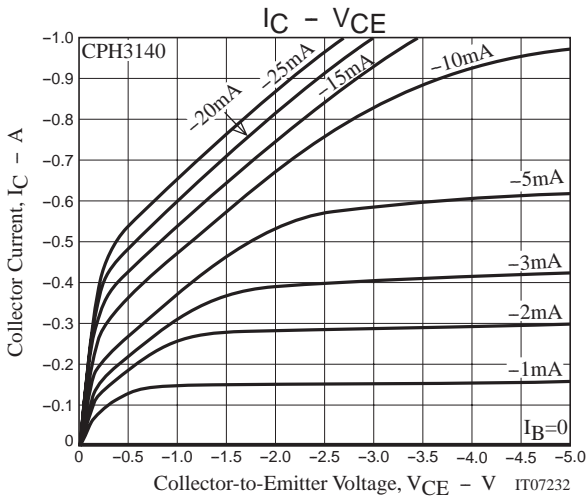
unit : mm  
2150A



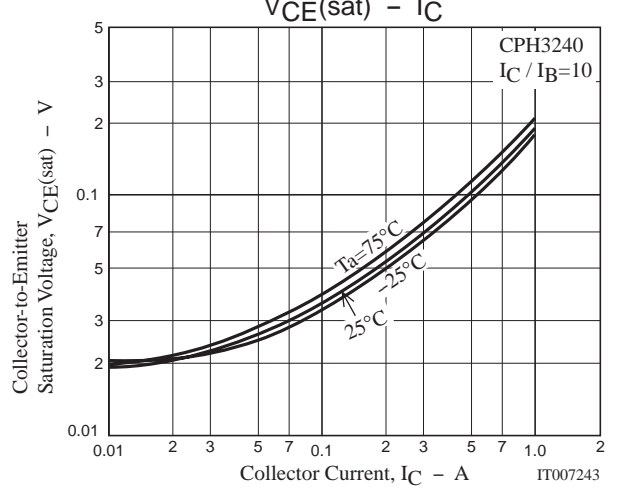
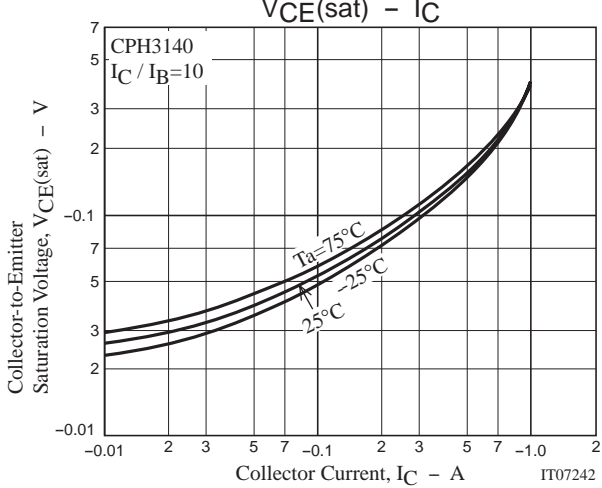
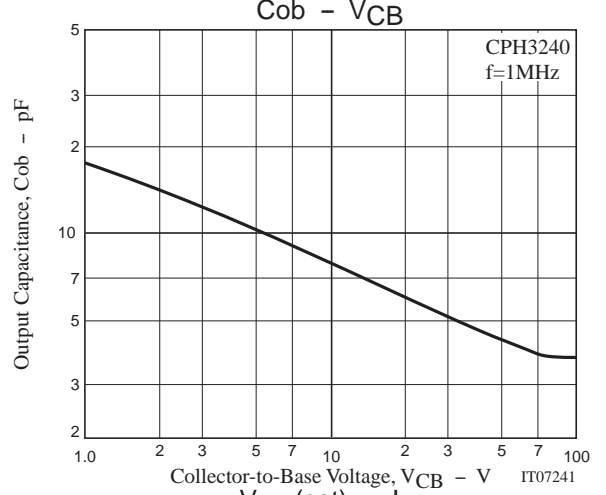
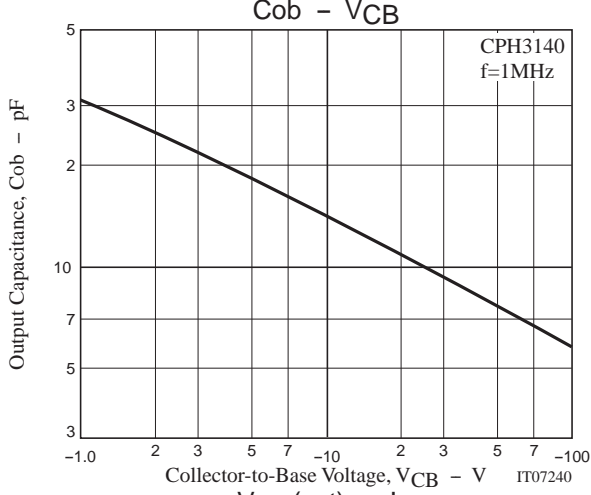
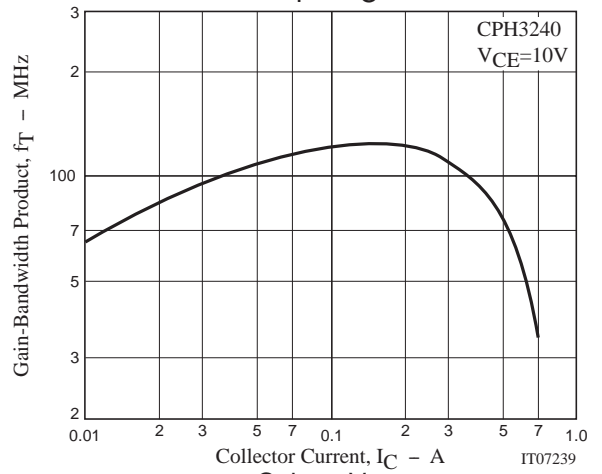
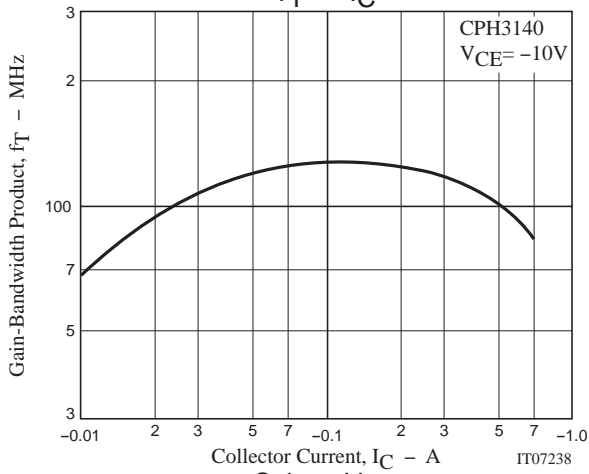
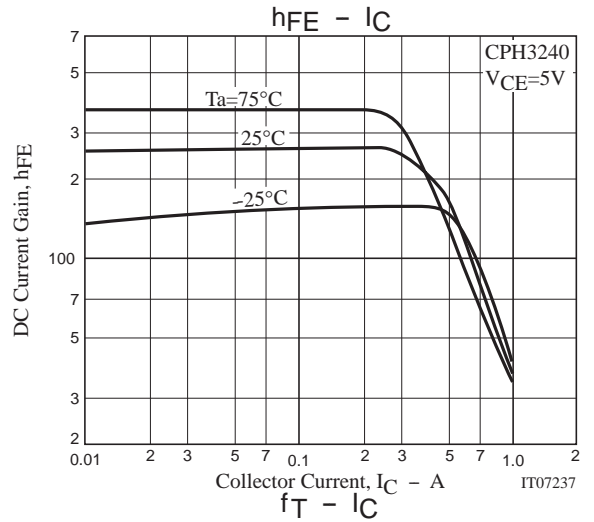
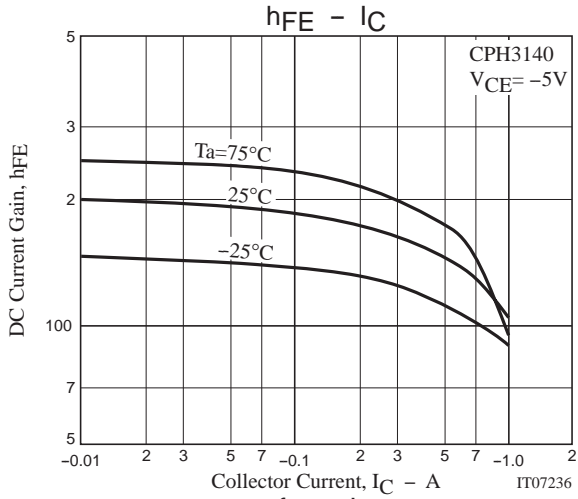
## Switching Time Test Circuit



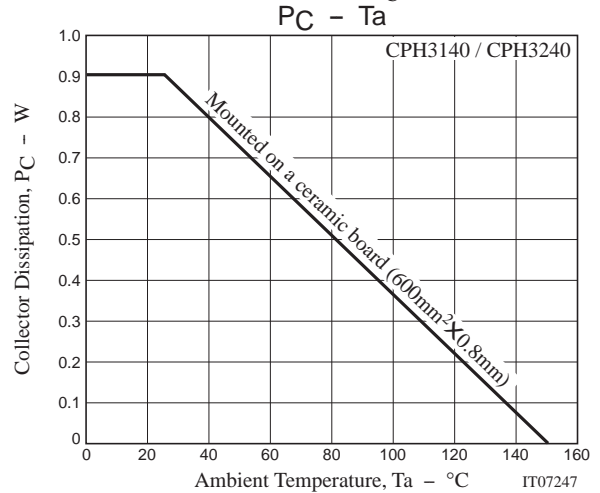
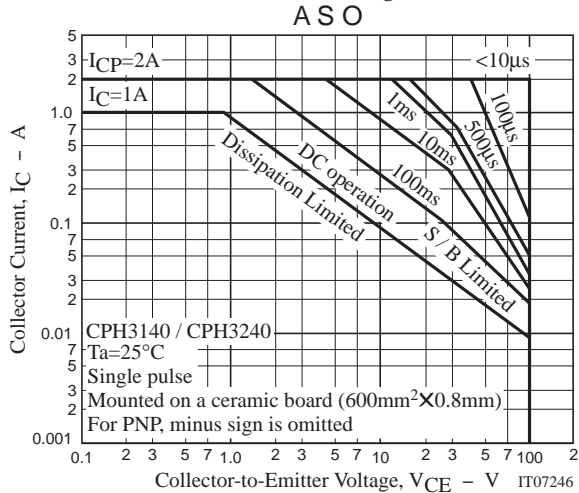
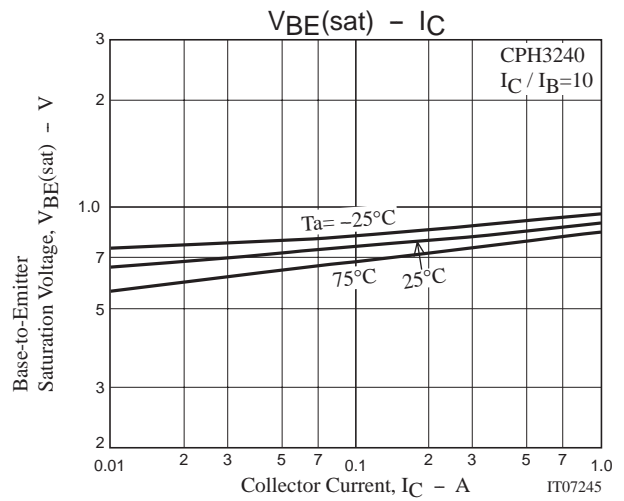
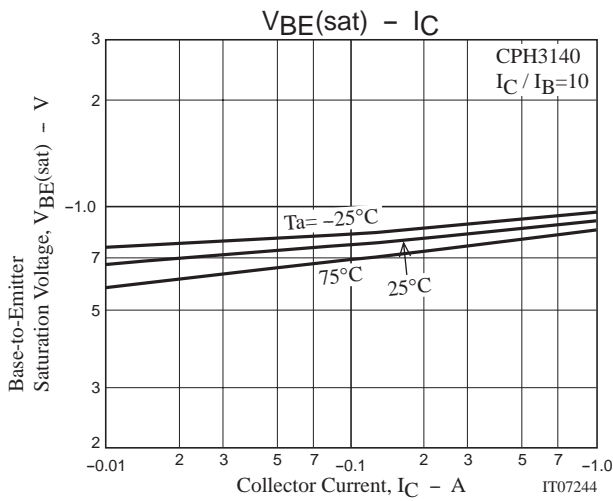
$I_C = 10I_{B1} = -10I_{B2} = 400\text{mA}$   
(For PNP, the polarity is reversed)



CPH3140 / CPH3240



# CPH3140 / CPH3240



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