



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 _{CB0}		(-)120	V
Collector-to-Emitter Voltage	V _{CEO}		(-)100	V
Emitter-to-Base Voltage	V _{EBO}		(-)6	V
Collector Current	I _C		(-)1	A
Collector Current (Pulse)	I _{CP}		(-)2	A
Collector Dissipation	P _C	Mounted on a ceramic board (600mm ² X0.8m)	0.9	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

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

Marking CPH3140 : BB
CPH3240 : DL

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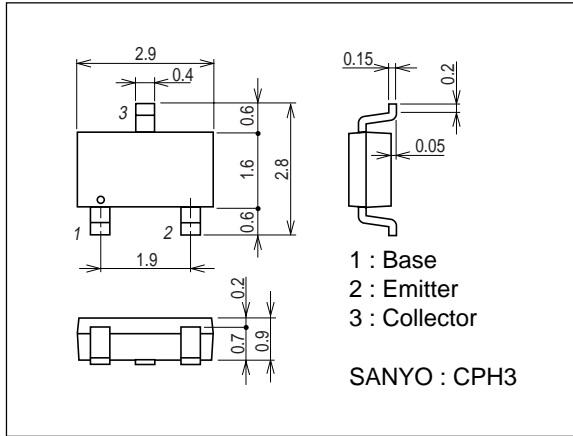
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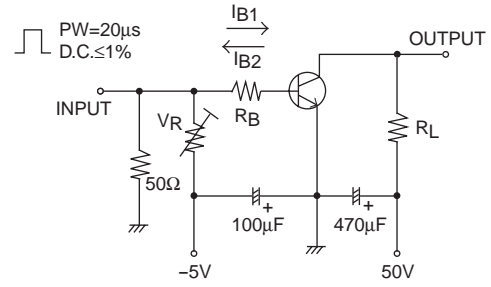
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Time	t_{on}	See specified test circuit.		(80)80		ns
Storage Time	t_{stg}	See specified test circuit.		(700)850		ns
Fall Time	t_f	See specified test circuit.		(40)50		ns

Package Dimensions

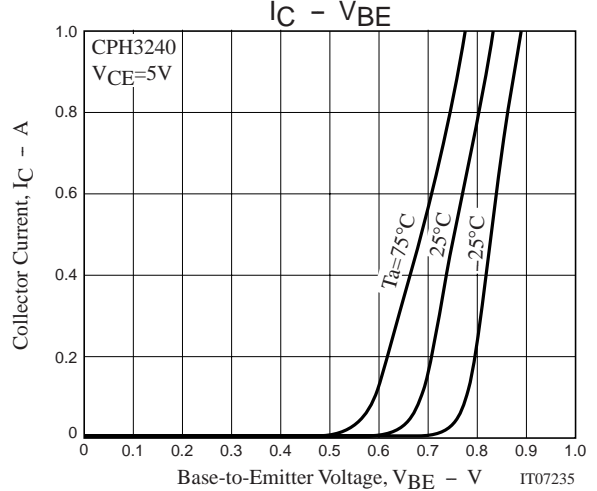
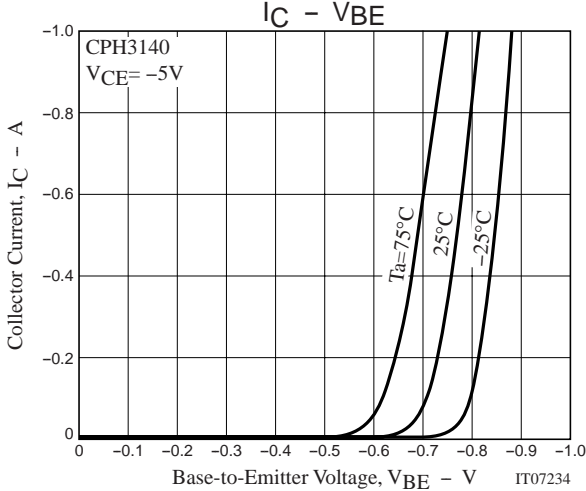
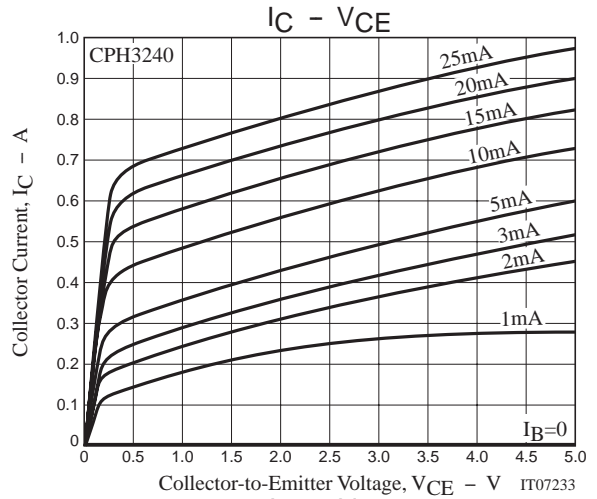
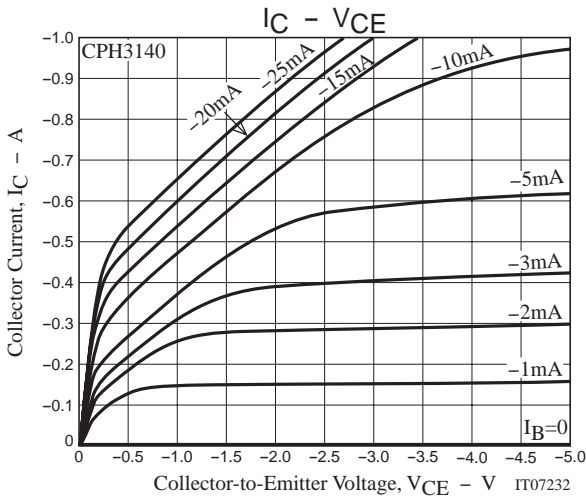
unit : mm
2150A



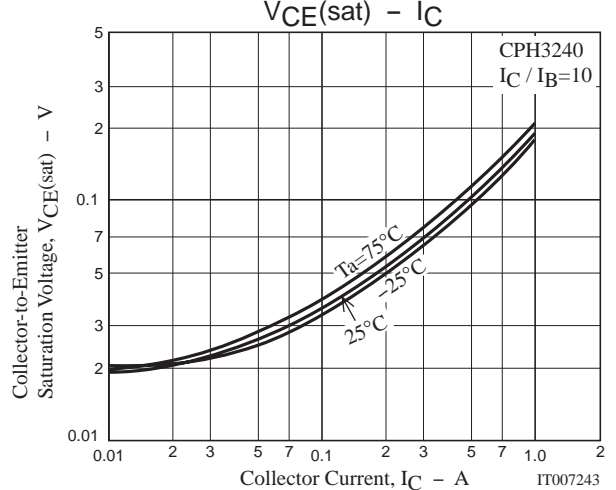
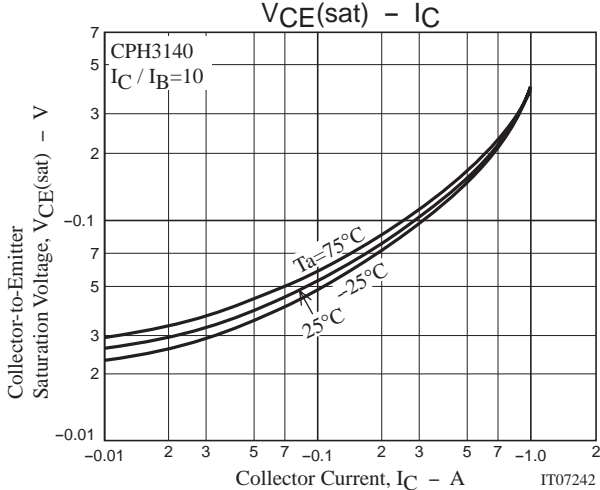
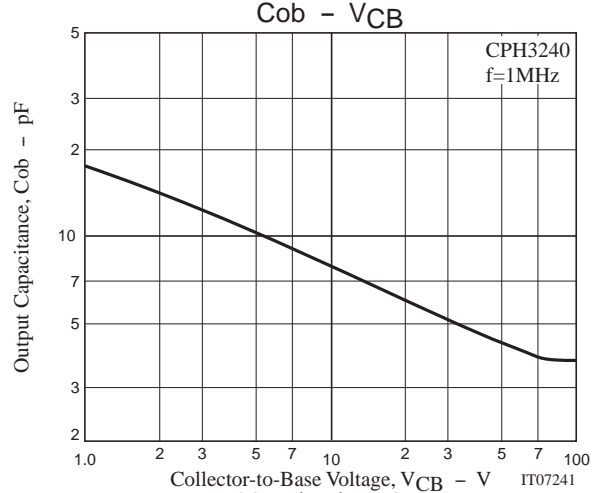
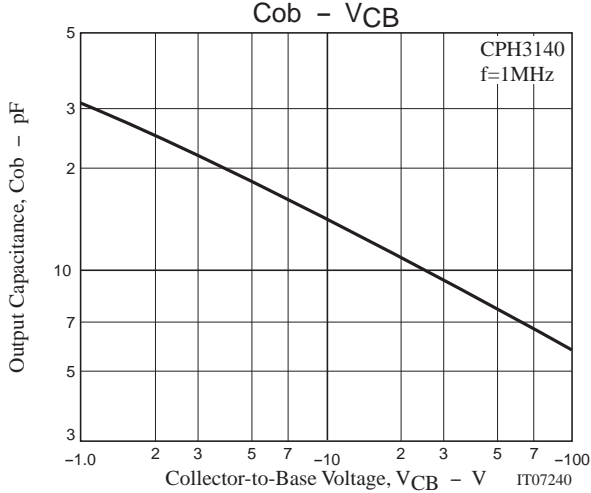
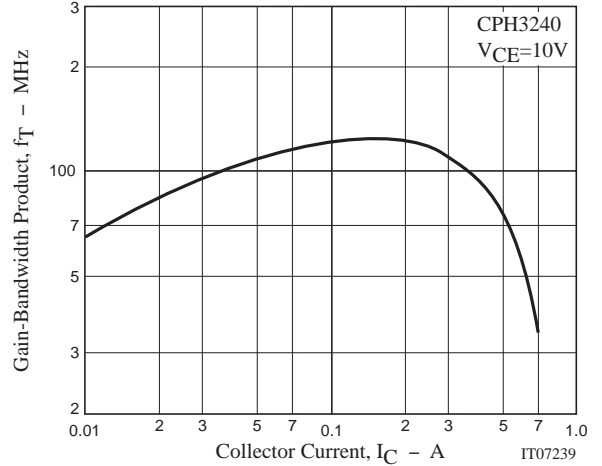
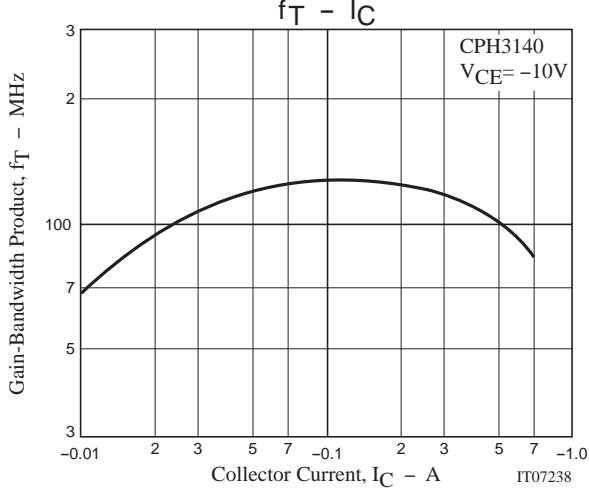
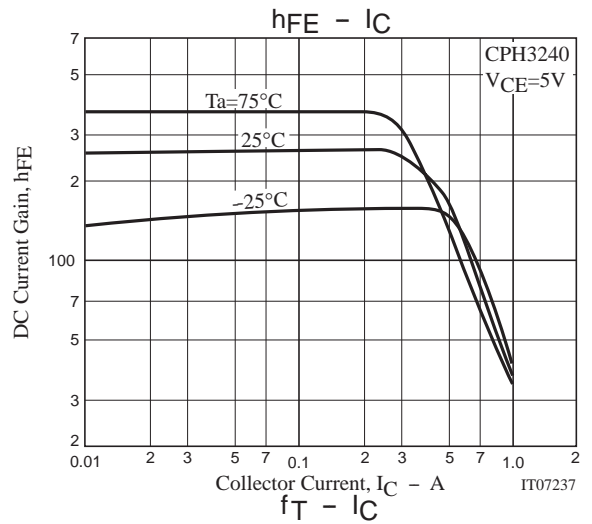
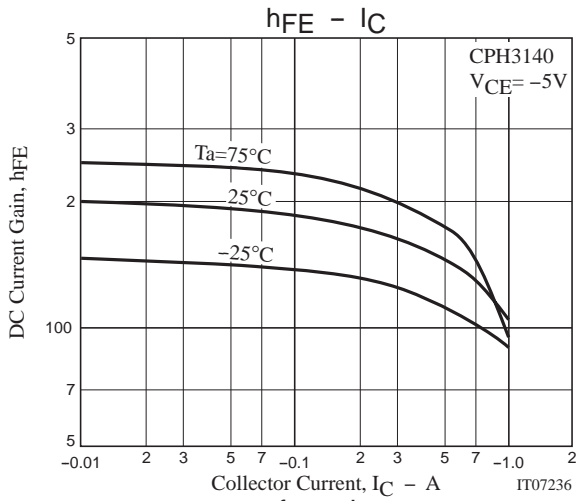
Switching Time Test Circuit



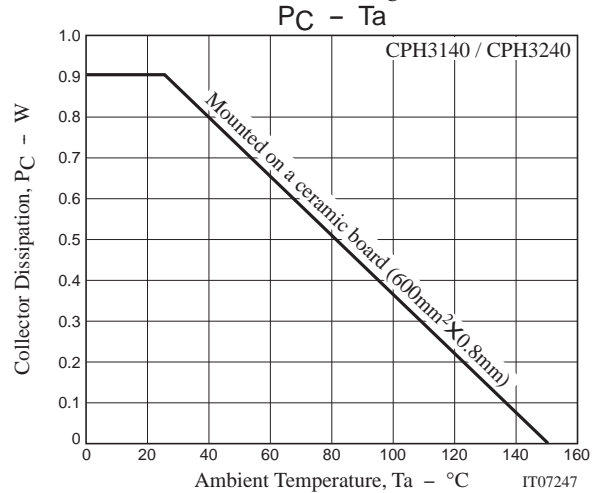
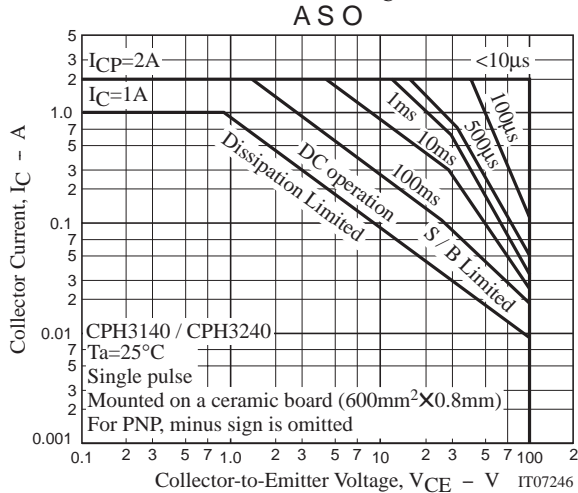
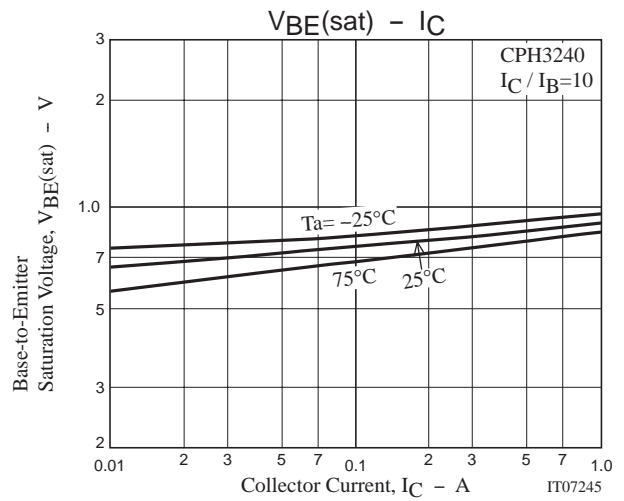
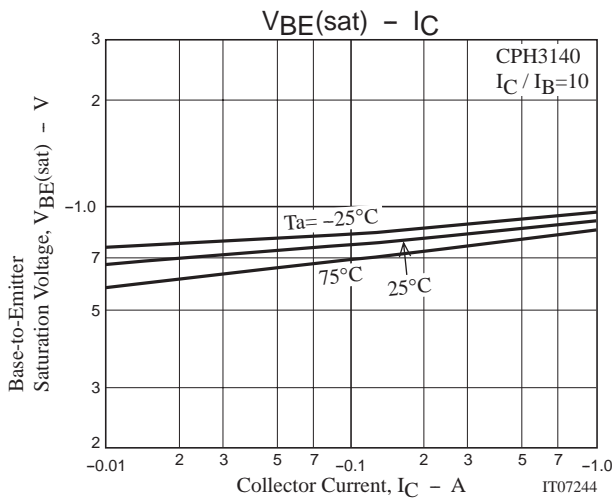
$I_C = 10I_{B1} = -10I_{B2} = 400\text{mA}$
(For PNP, the polarity is reversed)



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