Ordering number : ENA0521

SANYO Semiconductors

DATA SHEET

CPH6531 — PNP Epitaxial Planar Silicon Transistor
DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, flash.

Features

- Composite type with two PNP transistors contained in one package facilitating high-density mounting.
- The two chips contained are equivalent to the CPH3116.
- Ultrasmall package permitting applied sets to be small and slim.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		–50	V
Collector-to-Emitter Voltage	V_{CES}		–50	V
Collector-to-Emitter Voltage	V_{CEO}		–50	V
Emitter-to-Base Voltage	V_{EBO}		–5	V
Collector Current	I_C		–1.0	A
Collector Current (Pulse)	I_{CP}		–2	A
Base Current	I_B		–200	mA
Collector Dissipation	P_C	Mounted on a ceramic board (600mm²×0.8m) 1unit	0.9	W
Total Power Dissipation	P_T	Mounted on a ceramic board (600mm²×0.8m)	1.1	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–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}=–40V, I_E=0A			–0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–4V, I_C=0A			–0.1	μA
DC Current Gain	h_{FE}	V_{CE}=–2V, I_C=–100mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}=–10V, I_C=–300mA		420		MHz
Output Capacitance	Cob	V_{CB}=–10V, f=1MHz		9		pF

Marking : ES

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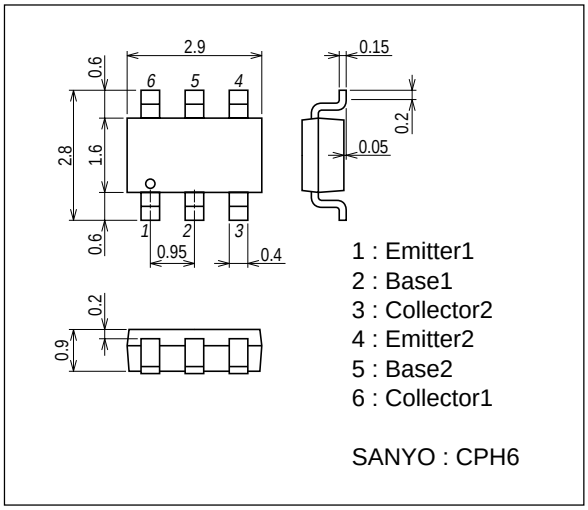
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE}(sat)1$	I_C=-500mA, I_B=-10mA		-230	-380	mV
	$V_{CE}(sat)2$	I_C=-300mA, I_B=-6mA		-125	-200	mV
Base-to-Emitter Saturation Voltage	$V_{BE}(sat)$	I_C=-500mA, I_B=-10mA		-0.81	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=-10μA, I_E=0A	-50			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	I_C=-100μA, R_{BE}=0Ω	-50			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=-1mA, R_{BE}=∞	-50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=-10μA, I_C=0A	-5			V
Turm-ON Time	t_{on}	See specified Test Circuit.		35		ns
Storage Time	t_{stg}	See specified Test Circuit.		170		ns
Fall Time	t_f	See specified Test Circuit.		30		ns

Note) The specifications shown above are for each individual transistor.

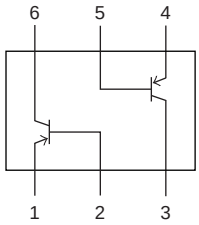
Package Dimensions

unit : mm (typ)

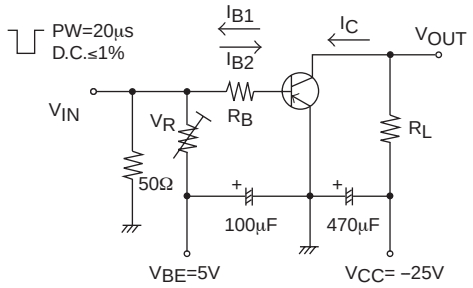
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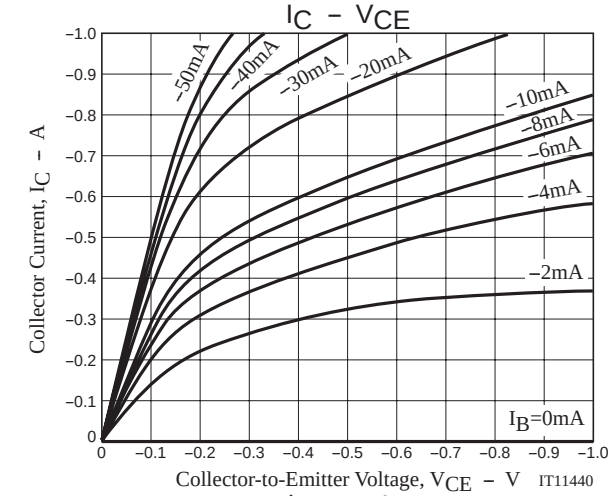
Electrical Connection

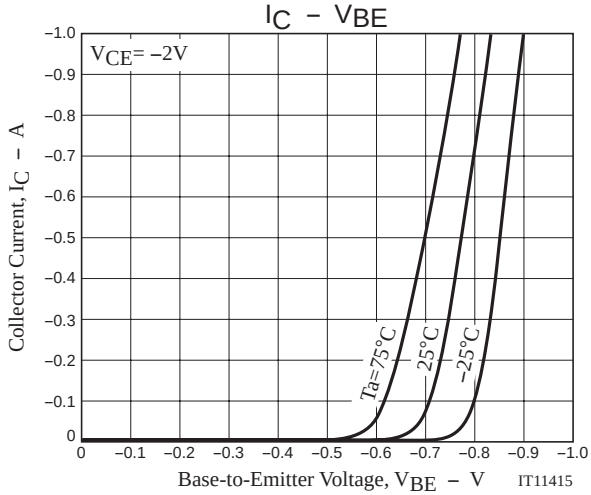


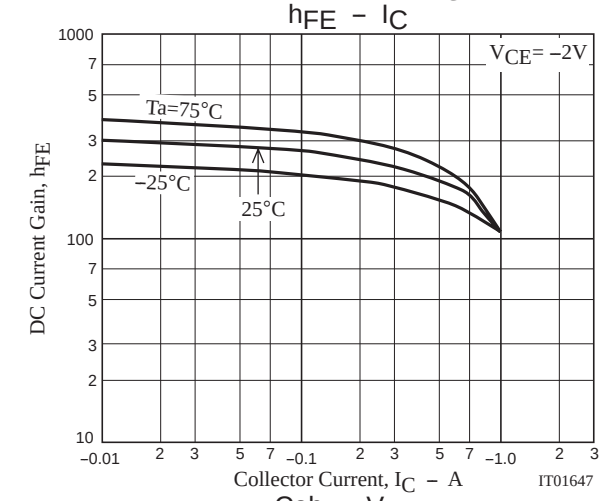
Switching Time Test Circuit

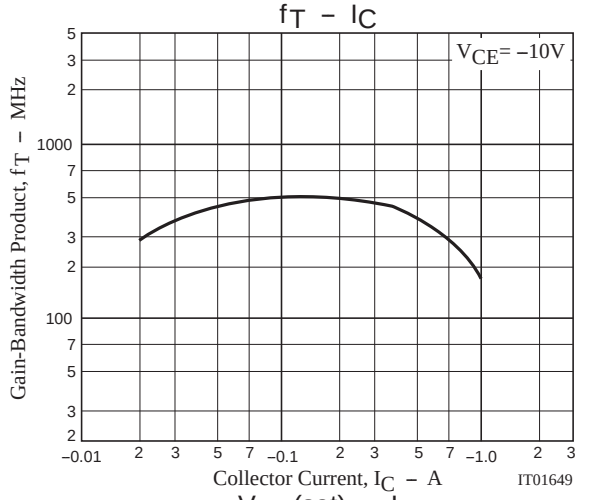


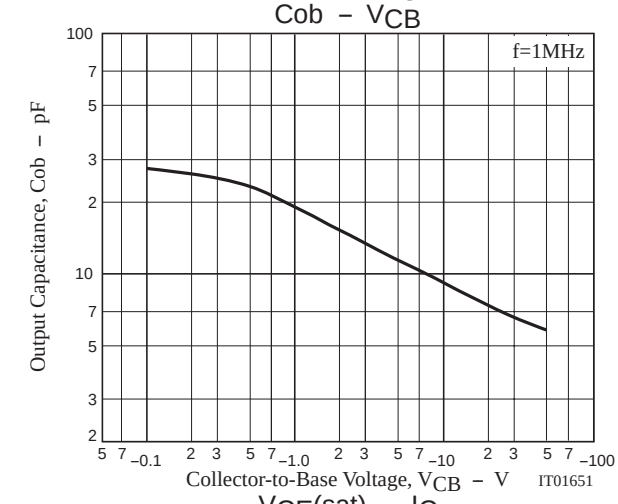
$20I_{B1}$= −$20I_{B2}$=I_C= −500mA

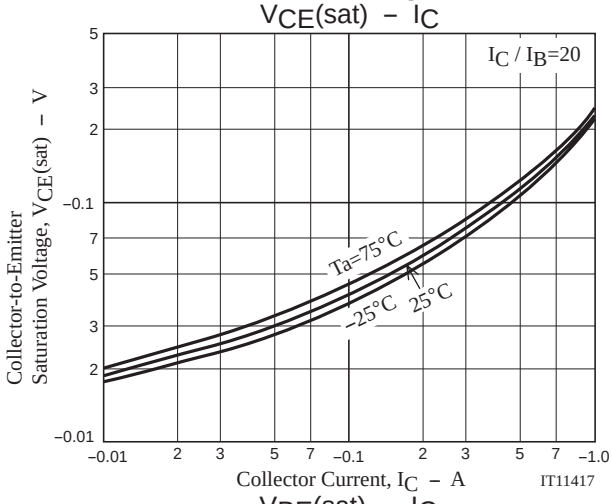

IC – VCE
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT11440
–50mA
–40mA
–30mA
–20mA
–10mA
–8mA
–6mA
–4mA
–2mA
IB=0mA

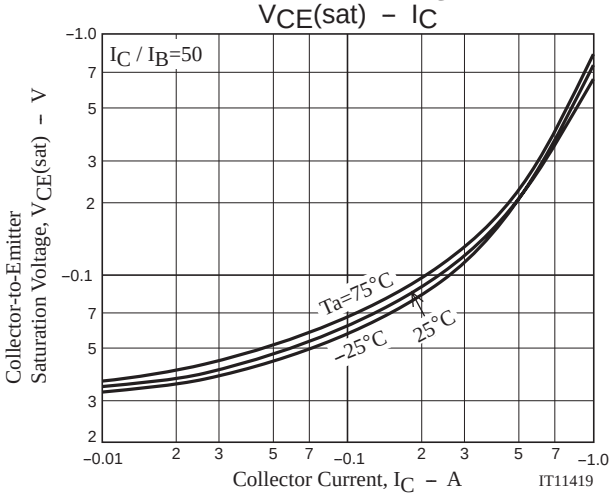

IC – VBE
VCE= –2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT11415
Ta=75°C
25°C
–25°C

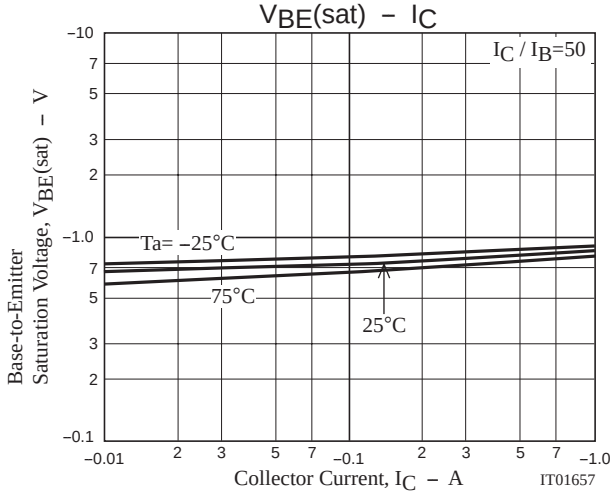

hFE – IC
VCE= –2V
DC Current Gain, hFE
Collector Current, IC – A
IT01647
Ta=75°C
–25°C
25°C

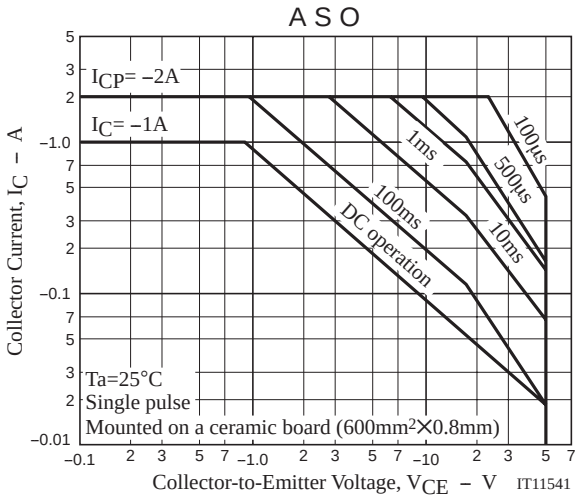

fT – IC
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT01649

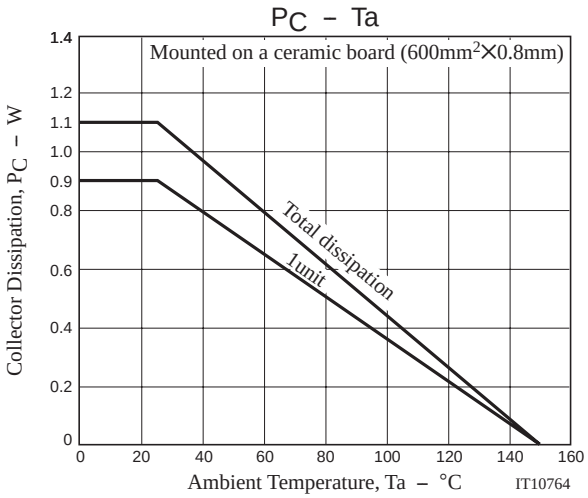

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT01651


VCE(sat) – IC
IC / IB=20
Collector-to-Emitter
Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT11417
Ta=75°C
–25°C
25°C


VCE(sat) – IC
IC / IB=50
Collector-to-Emitter
Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT11419
Ta=75°C
–25°C
25°C


VBE(sat) – IC
IC / IB=50
Base-to-Emitter
Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT01657
Ta= –25°C
75°C
25°C





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