



CPH5522

PNP / NPN Epitaxial Planar Silicon Transistors

High-Current Switching Applications

Applications

- Relay drivers, lamp drivers, motor drivers, flash, MOSFET gate drive.

Features

- Composite type with a PNP transistor and an NPN transistor contained in one package, facilitating high-density mounting.
- The CPH5522 consists of two chips encapsulated in a package which are equivalent to the CPH3114 and the CPH3214, respectively.
- Ultrasmall package facilitate miniaturization in end products (0.9mm mounting height).

() : PNP

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-) 15	V
Collector-to-Emitter Voltage	V_{CE0}		(-) 15	V
Emitter-to-Base Voltage	V_{EB0}		(-) 5	V
Collector Current	I_C		(-) 2	A
Collector Current (Pulse)	I_{CP}		(-) 5	A
Base Current	I_B		(-) 300	mA
Collector Dissipation	P_C	Mounted on a ceramic board (600mm 2 ×0.8mm) 1unit	0.9	W
Total Dissipation	P_T	Mounted on a ceramic board (600mm 2 ×0.8mm)	1.2	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Marking : EY

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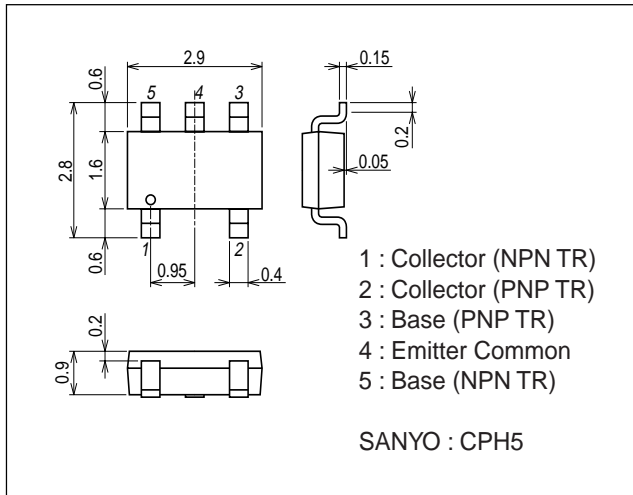
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)12V, I_E = 0A$			(-)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	$V_{CE} = (-)2V, I_C = (-)300mA$		(350)450		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)10V, f = 1MHz$		(17)9		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)750mA, I_B = (-)15mA$		(-100)	(-160)	mV
				120	190	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)750mA, I_B = (-)15mA$		(-180)	(-290)	mV
				215	340	mV
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0A$	(-)15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0A$	(-)5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		(50)40		ns
Storage Time	t_{stg}	See specified Test Circuit.		(90)180		ns
Fall Time	t_f	See specified Test Circuit.		(15)20		ns

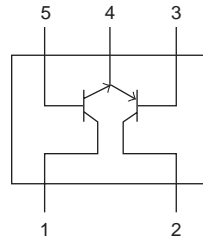
Package Dimensions

unit : mm (typ)

7017A-009



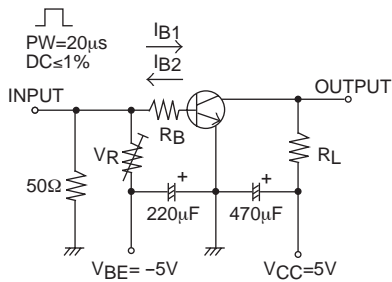
Electrical Connection



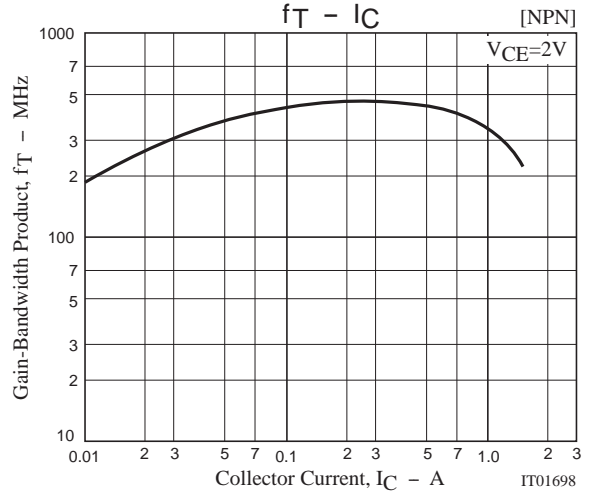
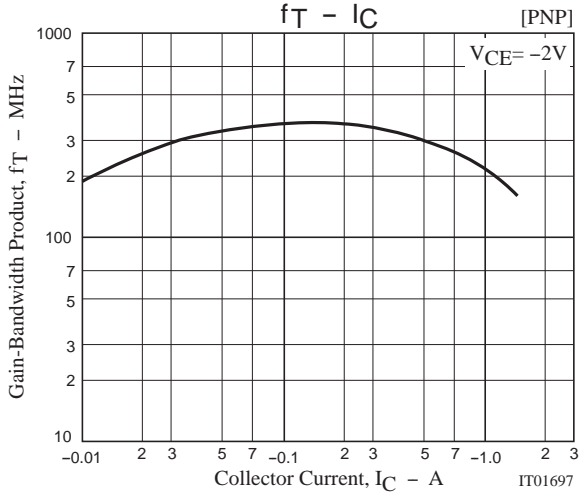
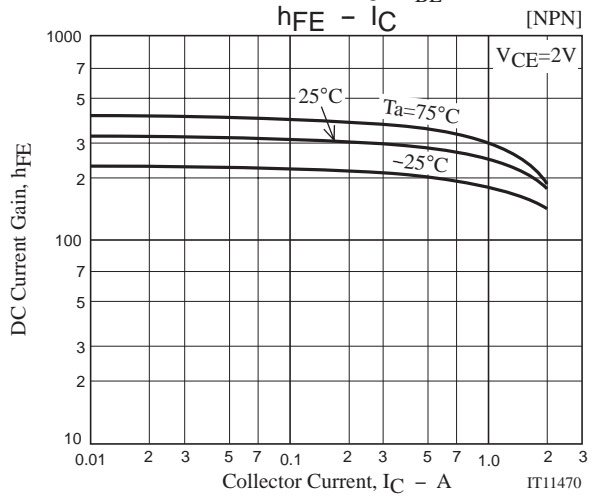
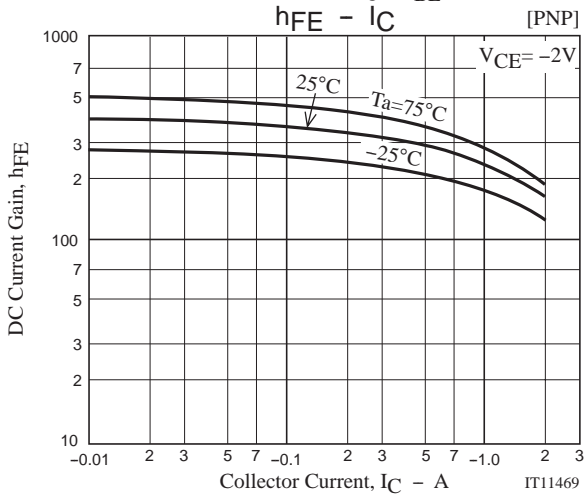
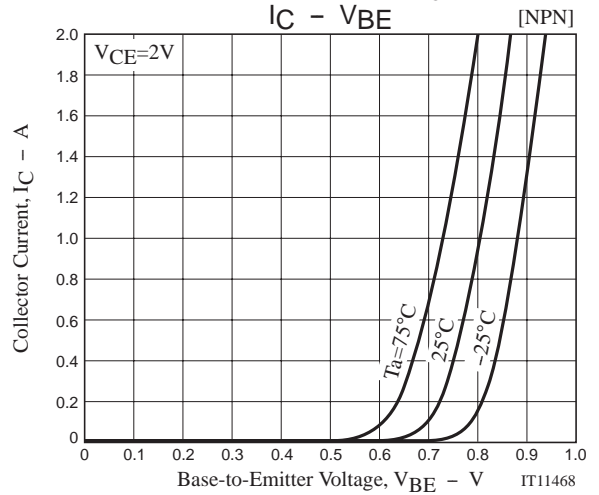
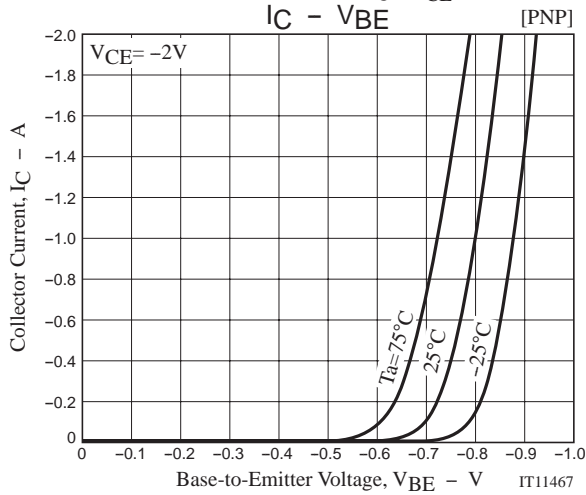
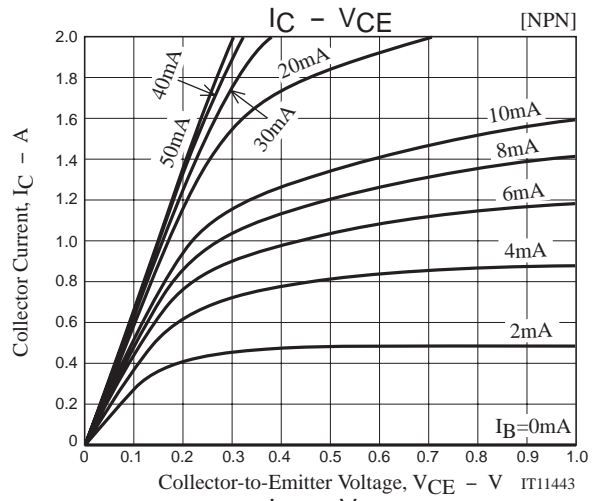
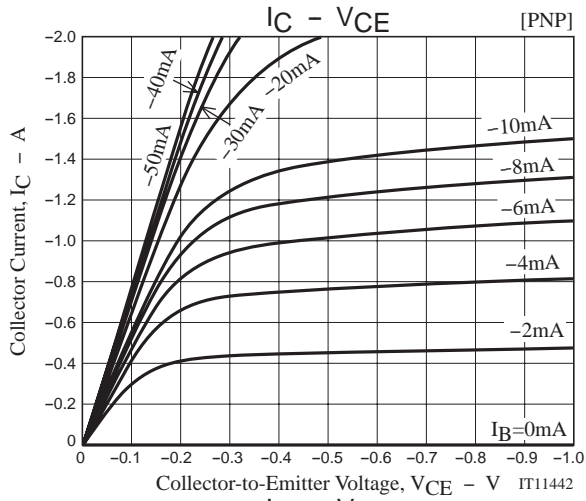
- 1 : Collector (NPN TR)
- 2 : Collector (PNP TR)
- 3 : Base (PNP TR)
- 4 : Emitter Common
- 5 : Base (NPN TR)

Top view

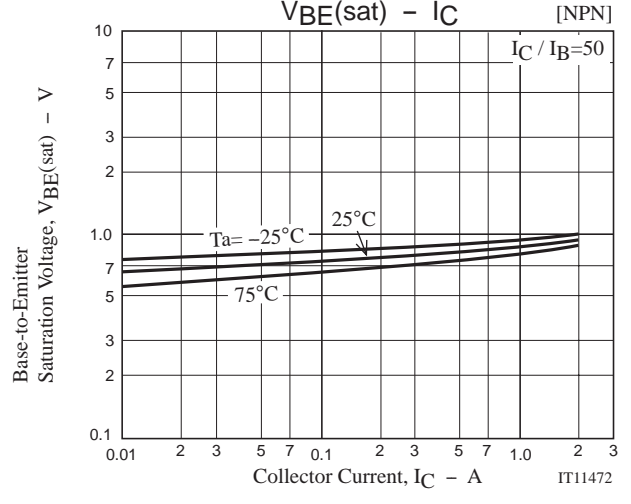
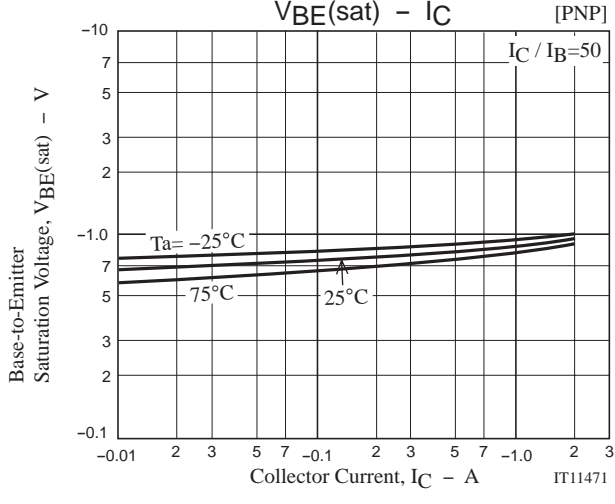
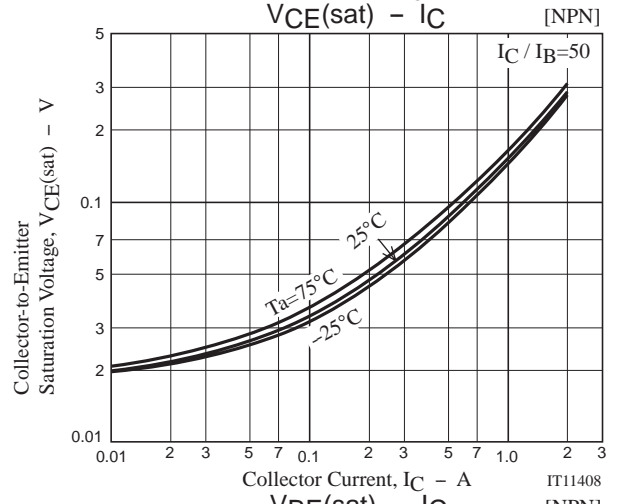
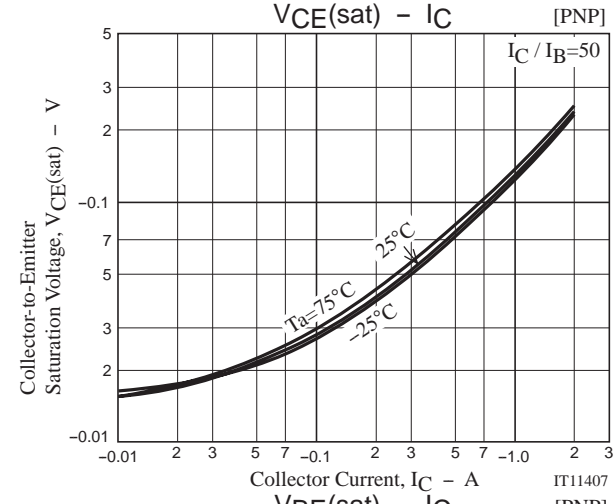
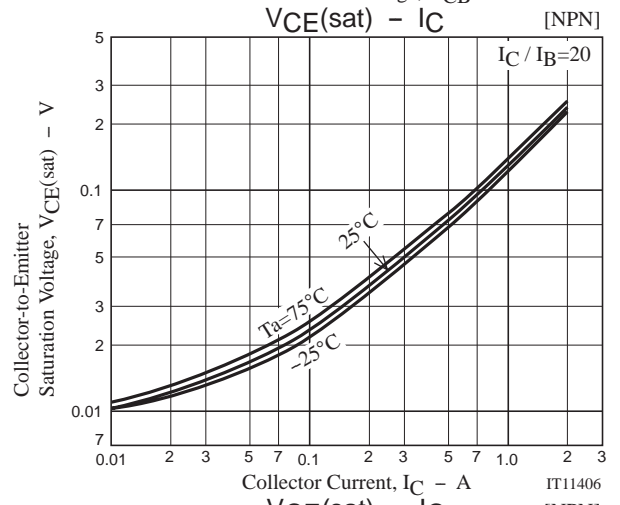
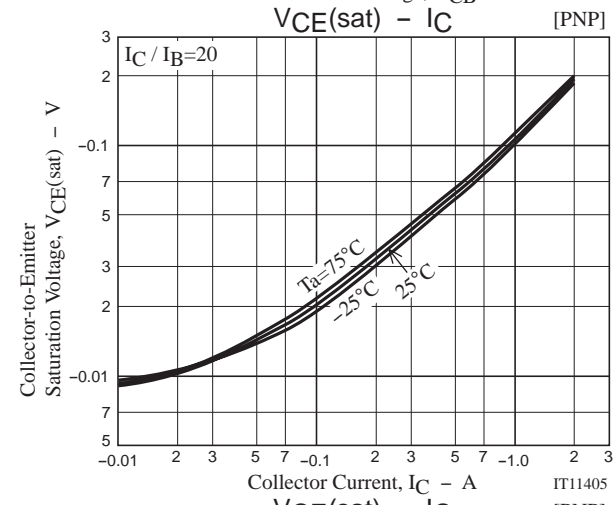
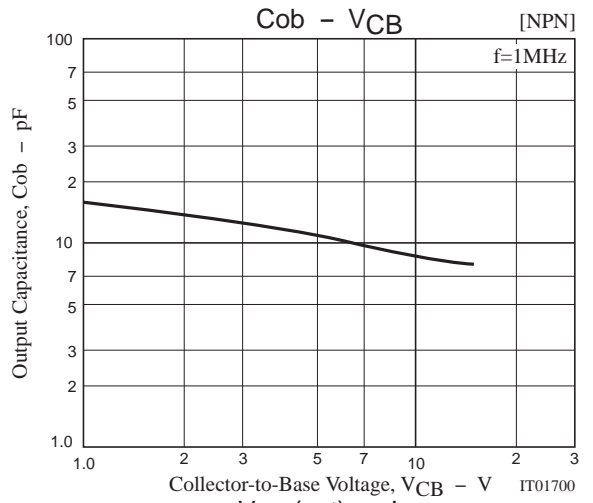
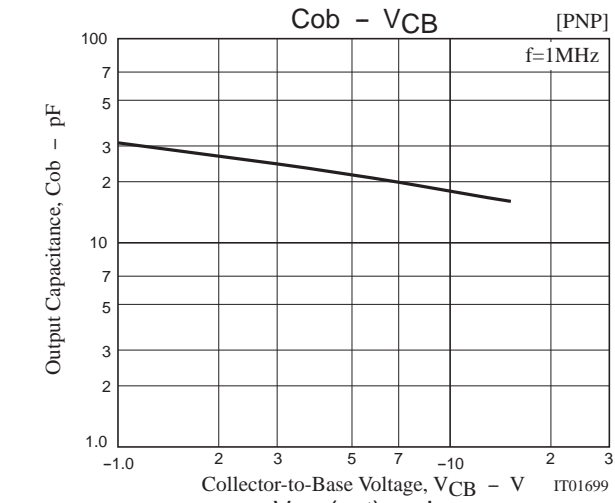
Switching Time Test Circuit



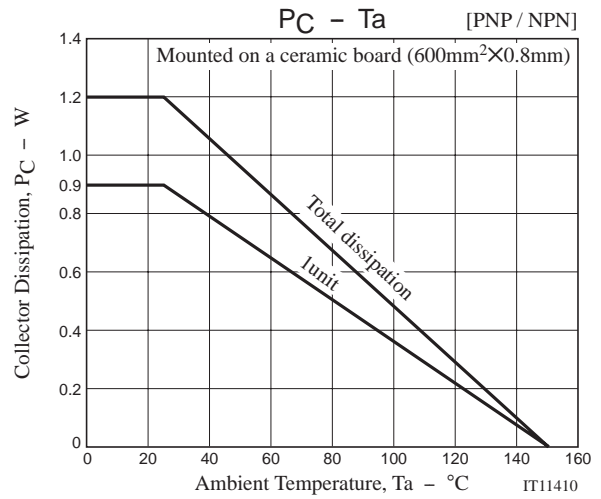
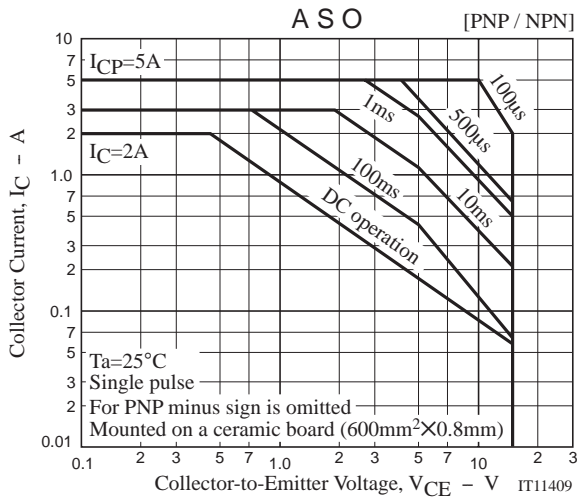
$20I_{B1} = -20I_{B2} = I_C = 750mA$
 (For PNP, the polarity is reversed.)



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