Ordering number : ENN6918A

NPN Epitaxial Planar Silicon Transistor

CPH5503

DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, strobes.

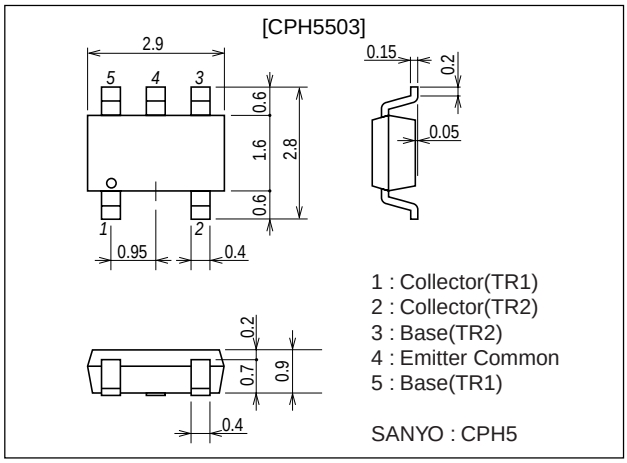
Features

- Composite type with two NPN transistors contained in one package facilitating high-density mounting.
- The two chips contained are equivalent to the CPH3209.
- Ultrasmall package permitting applied sets to be made small and slim.(0.9mm)

Package Dimensions

unit : mm

2162



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		40	V
Collector-to-Emitter Voltage	V_{CEO}		30	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		3	A
Collector Current (Pulse)	I_{CP}		5	A
Collector Dissipation	P_C	Mounted on a ceramic board (600mm²×0.8mm)	0.9	W
Total Dissipation	P_T	Mounted on a ceramic board (600mm²×0.8mm)	1.2	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}=30V, I_E=0			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	μA
DC Current Gain	h_{FE}	V_{CE}=2V, I_C=500mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=500mA		450		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		20		pF

Marking : EC

Continued on next page.

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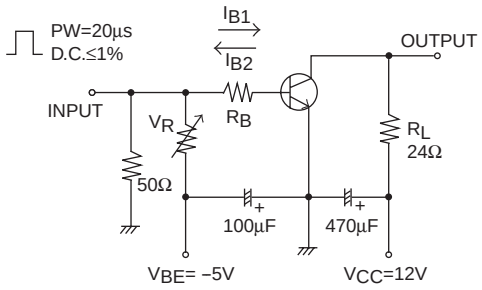
Continued from preceding page.

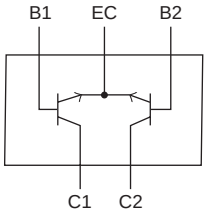
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE}(sat)$	I_C=1.5A, I_B=30mA		120	180	mV
		I_C=3A, I_B=60mA		220	330	mV
Base-to-Emitter Saturation Voltage	$V_{BE}(sat)$	I_C=1.5A, I_B=30mA		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	5			V
Turn-ON Time	t_{on}	See specified Test Circuit		30		ns
Storage Time	t_{stg}	See specified Test Circuit		300		ns
Fall Time	t_f	See specified Test Circuit		15		ns

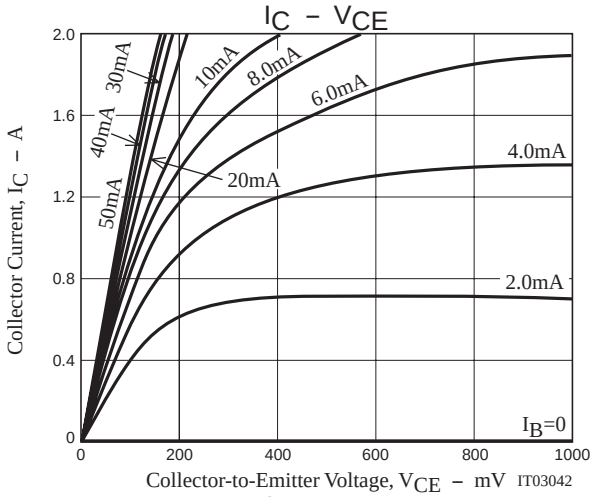
Switching Time Test Circuit

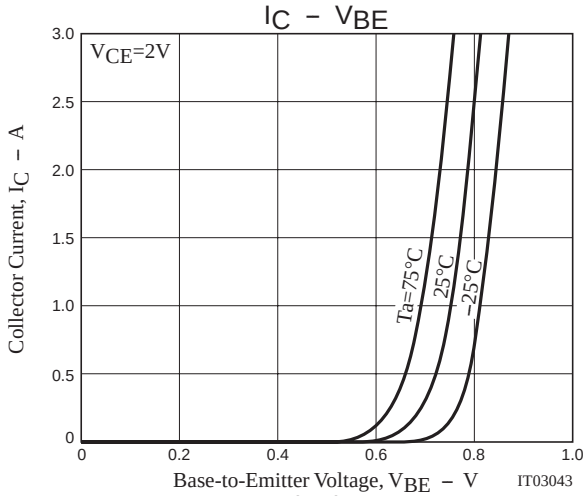


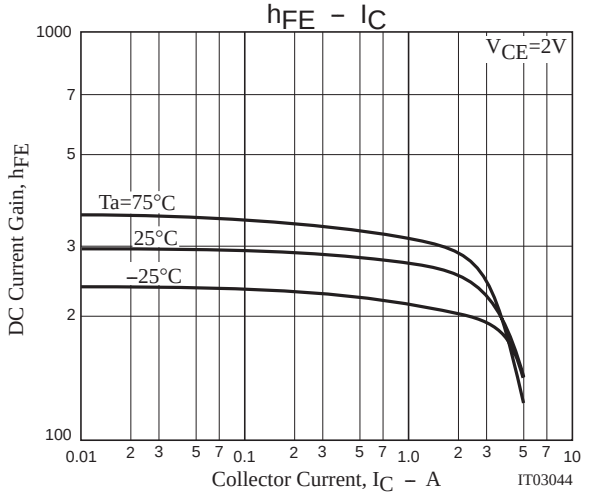
I_C=20I_{B1}= −20I_{B2}=500mA

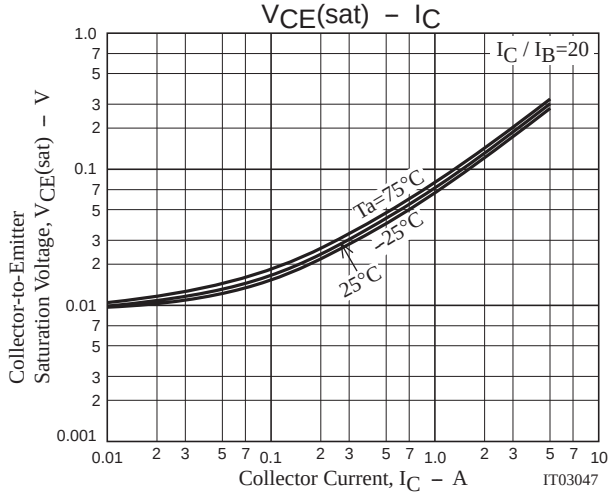
Electrical Connection

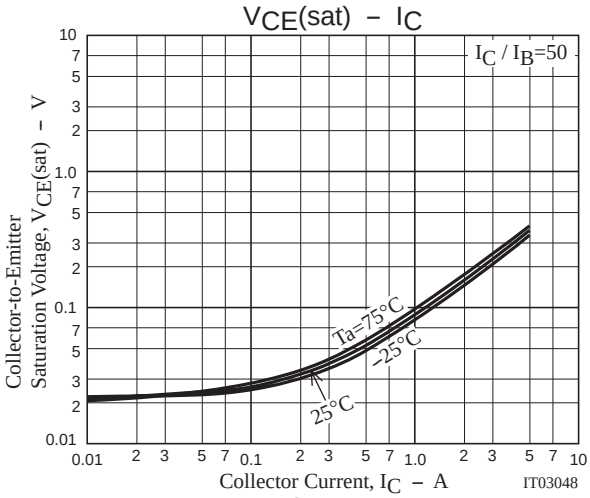


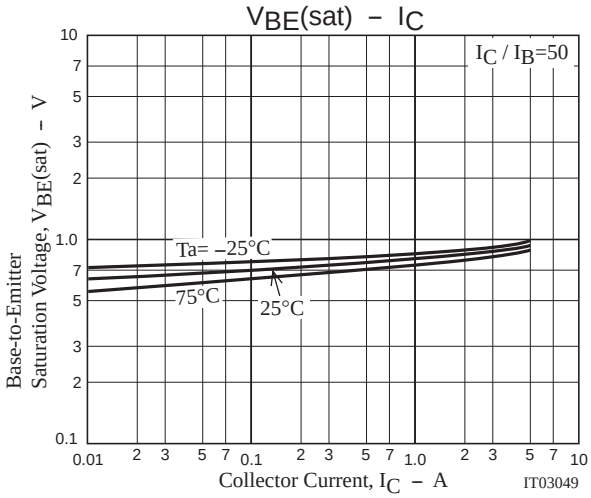


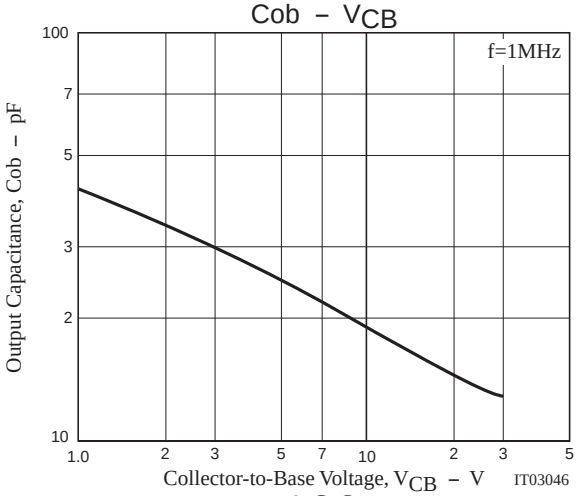


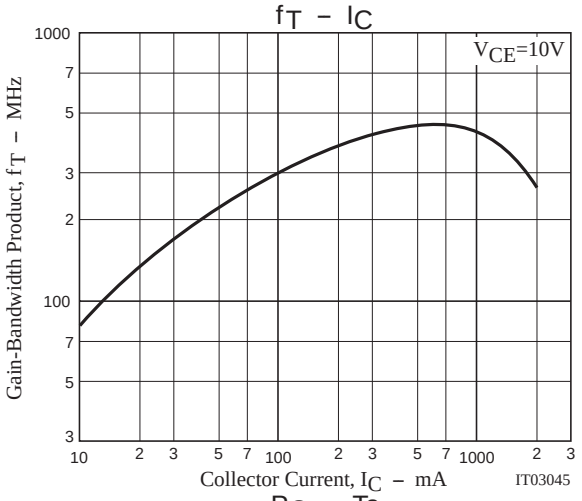


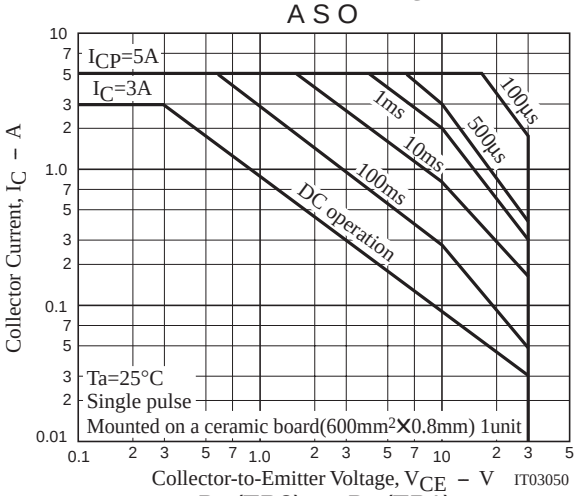


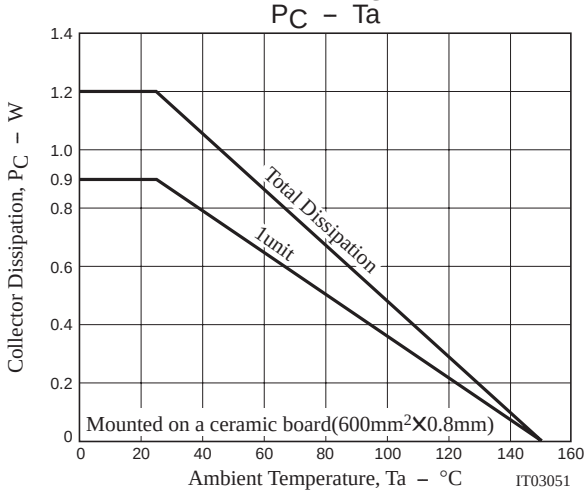

VCE(sat) – IC
IC / IB=50
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
IT03048

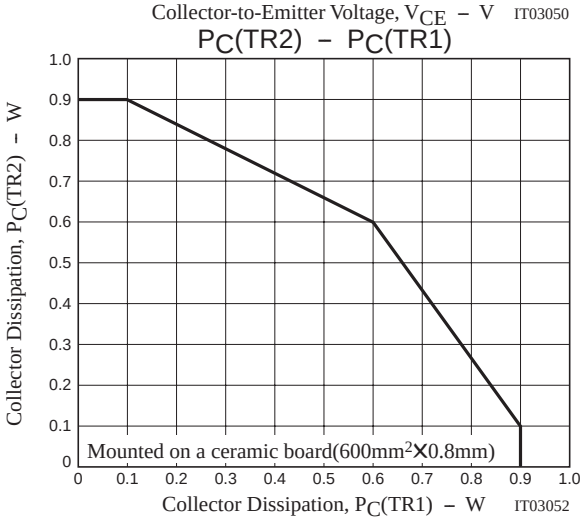

VBE(sat) – IC
IC / IB=50
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Ta= –25°C
75°C
25°C
Collector Current, IC – A
IT03049


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT03046


fT – IC
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
IT03045


A S O
ICP=5A
IC=3A
1ms
10ms
100ms
DC operation
100µs
500µs
Ta=25°C
Single pulse
Mounted on a ceramic board(600mm2×0.8mm) 1unit
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT03050


PC – Ta
Total Dissipation
1unit
Mounted on a ceramic board(600mm2×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT03051


PC(TR2) – PC(TR1)
Mounted on a ceramic board(600mm2×0.8mm)
Collector Dissipation, PC(TR2) – W
Collector Dissipation, PC(TR1) – W
IT03052

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