



SANYO Semiconductors

## DATA SHEET

# CPH3151

 PNP Epitaxial Planar Silicon Transistor  
**High-Voltage Switching Applications**

## Applications

- DC / DC converters, relay drivers, lamp drivers, motor drivers.

## Features

- Adoption of FBET, MBIT processes.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- Ultrasmall package permitting applied sets to be small and slim (mounting height: 0.9mm).
- High allowable power dissipation.

## 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>CES</sub>		-120	V
Collector-to-Emmitter Voltage	V <sub>CEO</sub>		-120	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		-7	V
Collector Current	I <sub>C</sub>		-2	A
Collector Current (Pulse)	I <sub>CP</sub>		-3	A
Base Current	I <sub>B</sub>		-400	mA
Collector Dissipation	P <sub>C</sub>	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)	0.9	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Marking : BR

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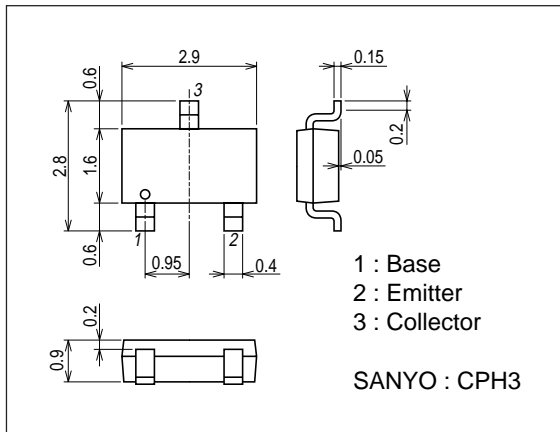
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-80V, I_E=0A$			-1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-5V, I_C=0A$			-1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=-5V, I_C=-100mA$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE}=-10V, I_C=-100mA$		75		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10V, f=1MHz$		21		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=-1A, I_B=-100mA$		-135	-270	mV
	$V_{CE(sat)2}$	$I_C=-0.5A, I_B=-50mA$		-80	-160	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-1A, I_B=-100mA$		-0.85	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0A$	-120			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=-100\mu A, R_{BE}=0\Omega$	-120			V
Collector-to-Emmitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA, R_{BE}=\infty$	-120			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0A$	-7			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		55		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		840		ns
Fall Time	$t_f$	See specified Test Circuit.		40		ns

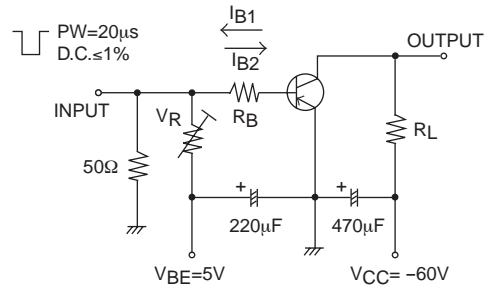
## Package Dimensions

unit : mm (typ)

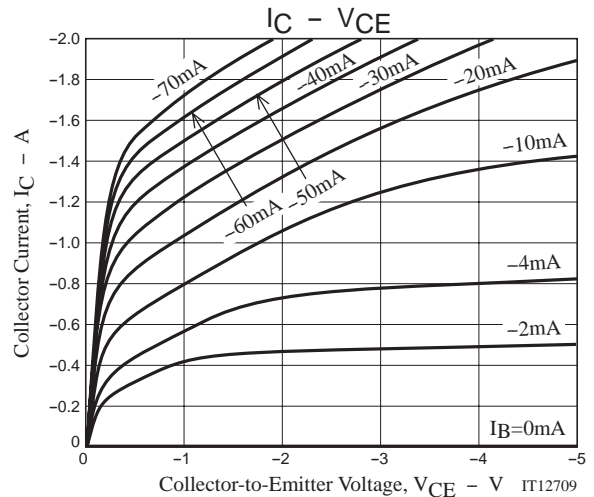
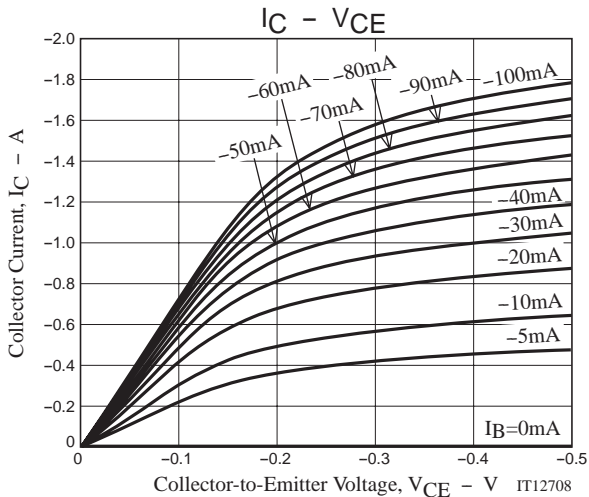
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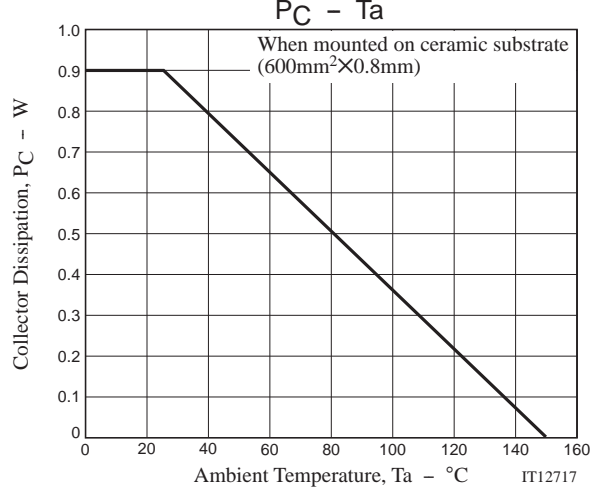
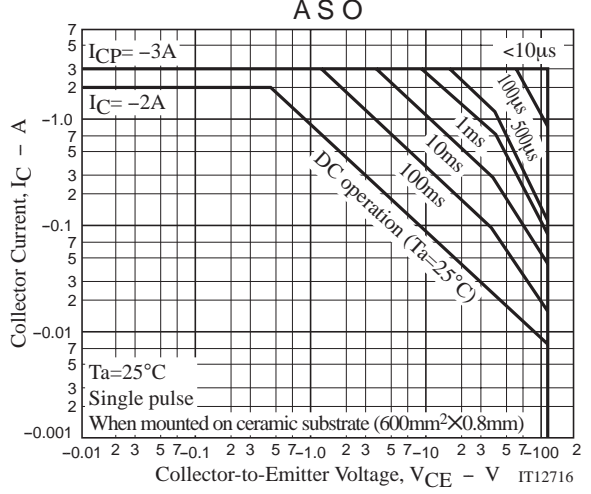
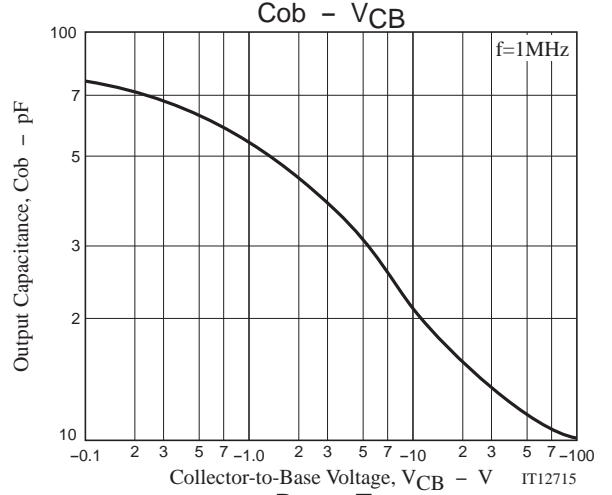
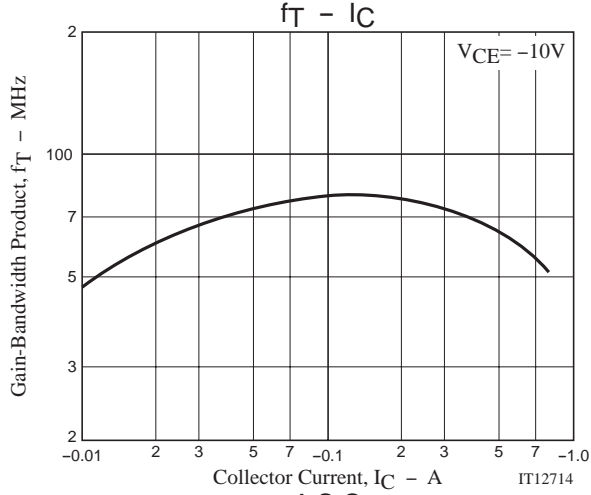
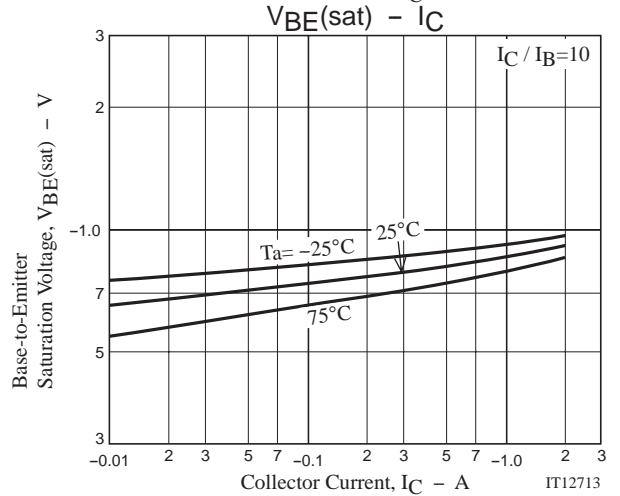
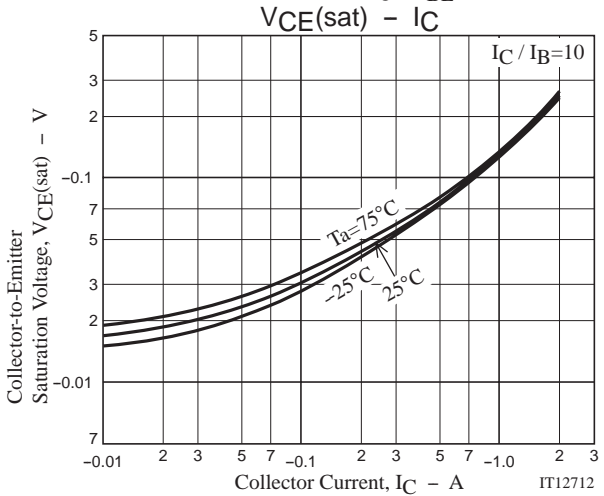
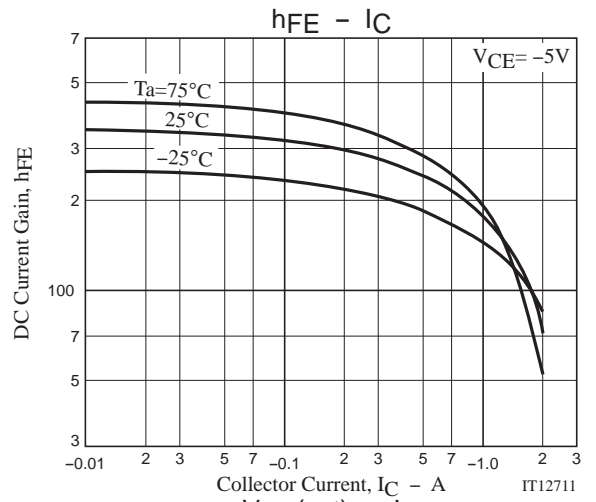
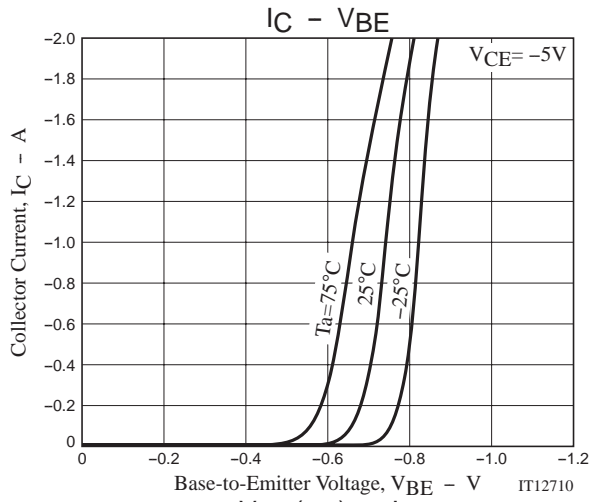


## Switching Time Test Circuit



$$I_C = -10I_{B1} = 10I_{B2} = -0.7A$$





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