



# CPH3251 — NPN Epitaxial Planar Silicon Transistor

## High-Voltage Switching Applications

### Applications

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

### 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>		150	V
Collector-to-Emitter Voltage	V <sub>CES</sub>		150	V
Collector-to-Emitter 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 : DW

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**SANYO Semiconductor Co., Ltd.**

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21308 TI IM / D1207EA TI IM TC-00001081 No. A0871-1/4

# CPH3251

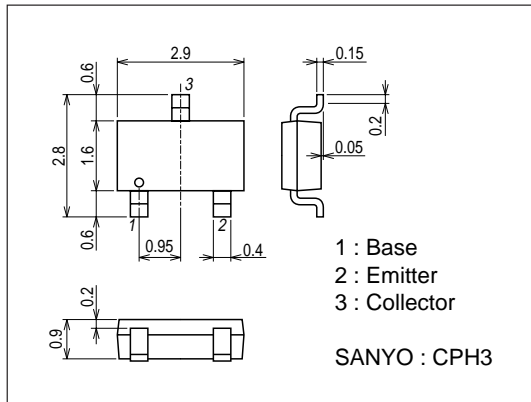
## Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=100\text{V}, I_E=0\text{A}$			1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0\text{A}$			1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE}=5\text{V}, I_C=100\text{mA}$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE}=10\text{V}, I_C=100\text{mA}$		130		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		13		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=1\text{A}, I_B=100\text{mA}$		100	150	mV
	$V_{CE(sat)2}$	$I_C=0.5\text{A}, I_B=50\text{mA}$		60	90	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1\text{A}, I_B=100\text{mA}$		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0\text{A}$	150			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu\text{A}, R_{BE}=0\Omega$	150			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	120			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0\text{A}$	7			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		50		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		1250		ns
Fall Time	$t_f$	See specified Test Circuit.		60		ns

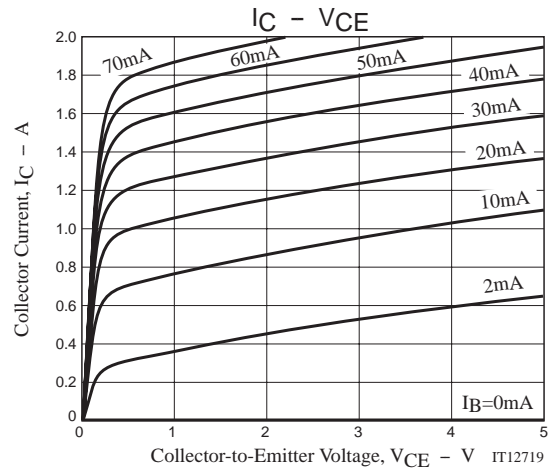
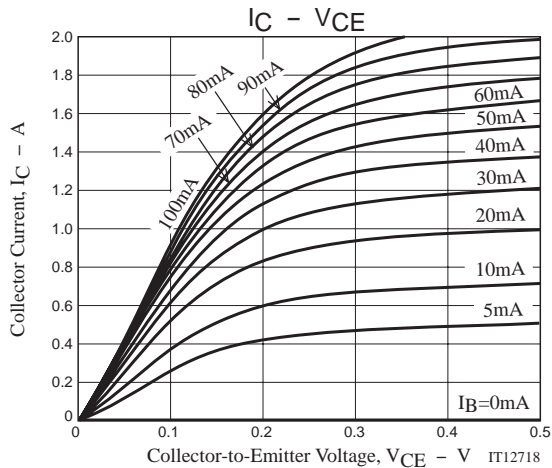
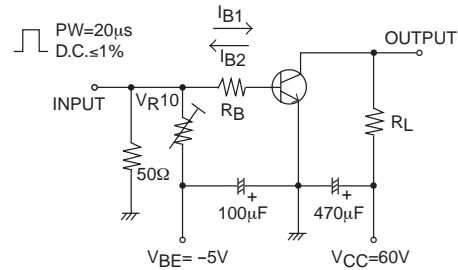
## Package Dimensions

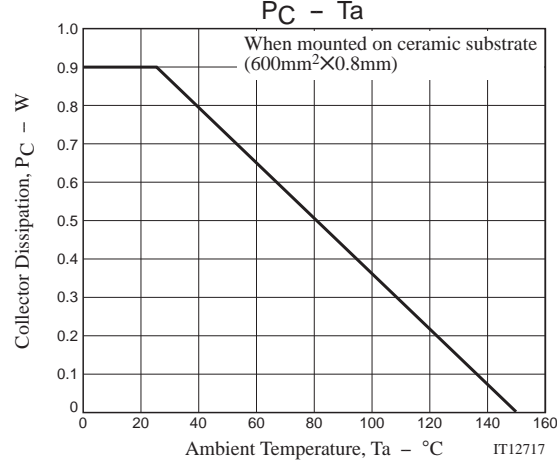
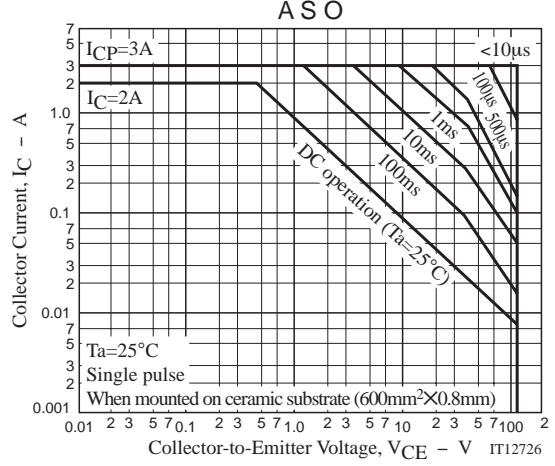
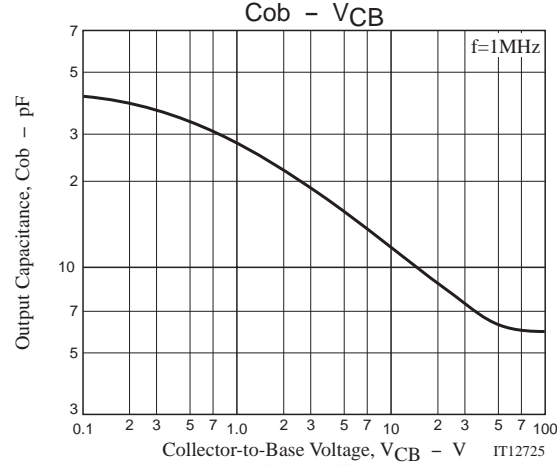
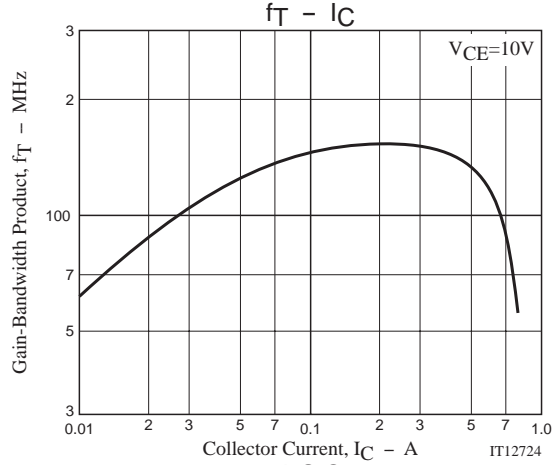
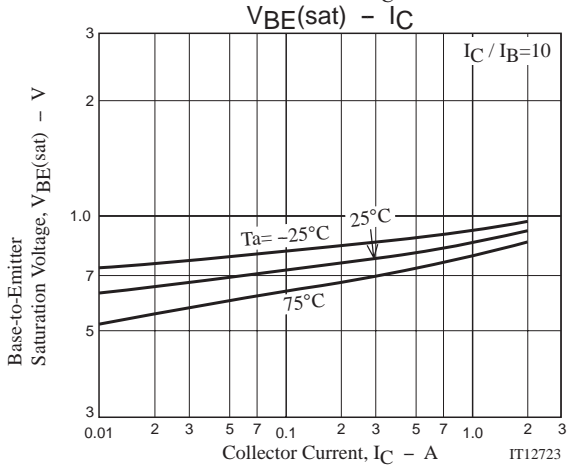
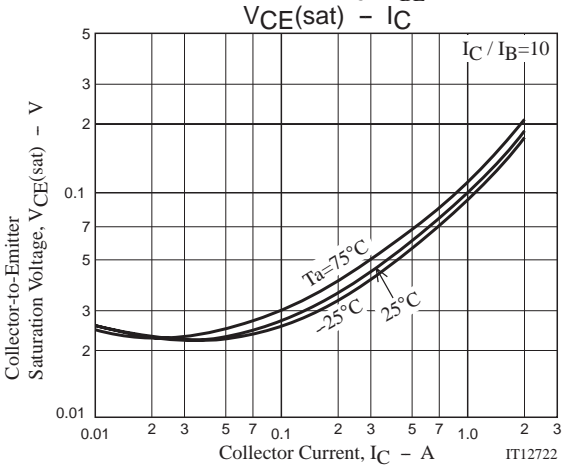
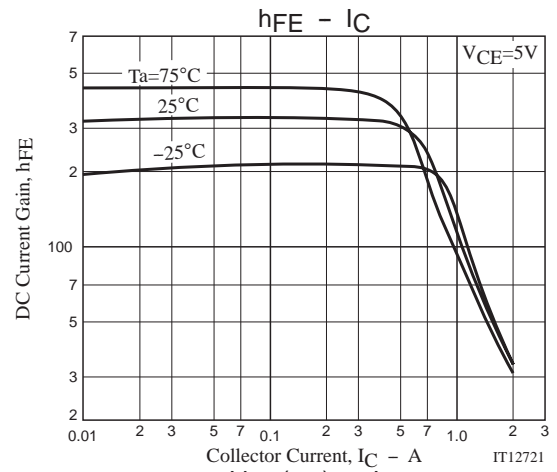
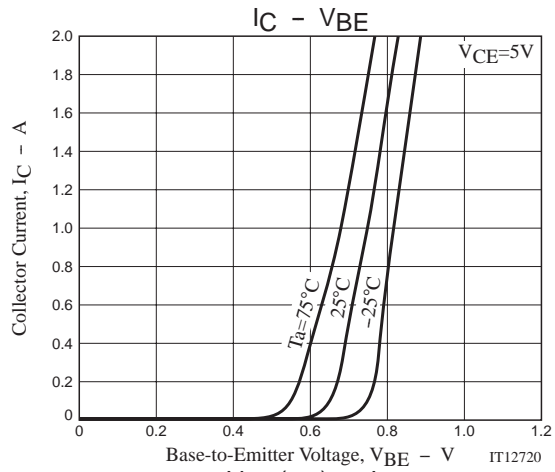
unit : mm (typ)

7015A-003



## Switching Time Test Circuit





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