



SANYO Semiconductors

DATA SHEET

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 _{CB0}		150	V
Collector-to-Emitter Voltage	V _{CES}		150	V
Collector-to-Emitter Voltage	V _{CEO}		120	V
Emitter-to-Base Voltage	V _{EBO}		7	V
Collector Current	I _C		2	A
Collector Current (Pulse)	I _{CP}		3	A
Base Current	I _B		400	mA
Collector Dissipation	P _C	When mounted on ceramic substrate (600mm ² ×0.8mm)	0.9	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Marking : DW

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CPH3251

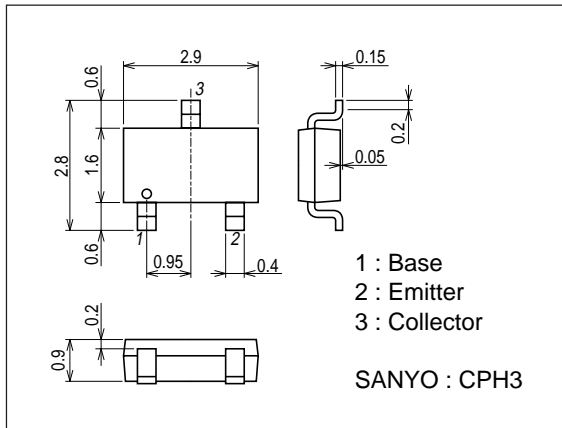
Electrical Characteristics at Ta=25°C

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

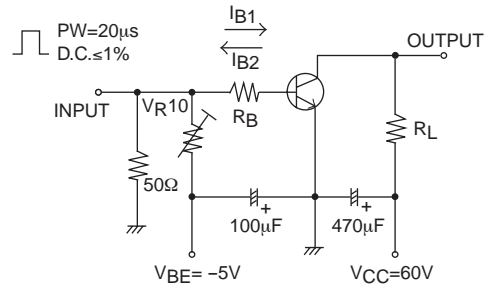
Package Dimensions

unit : mm (typ)

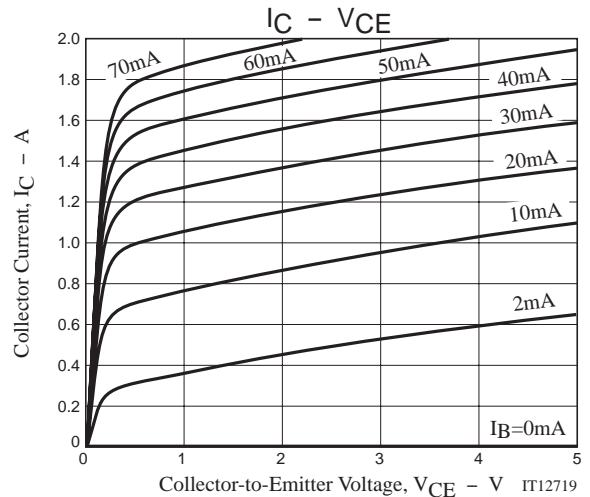
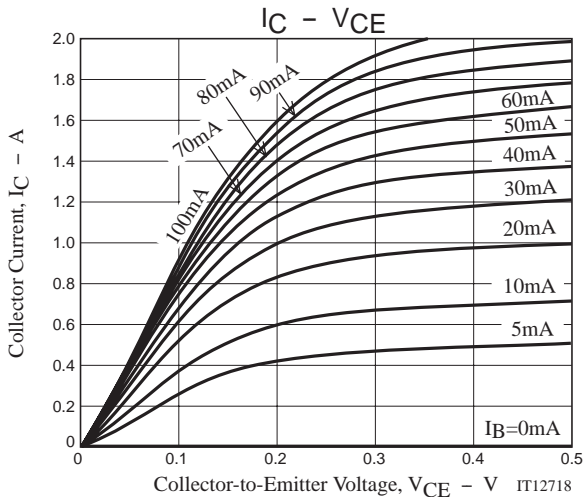
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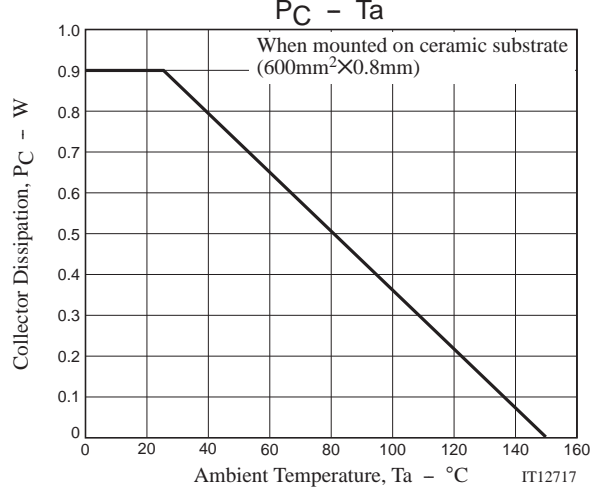
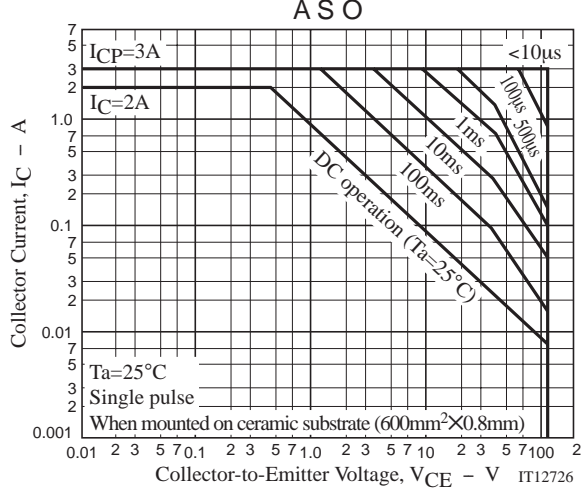
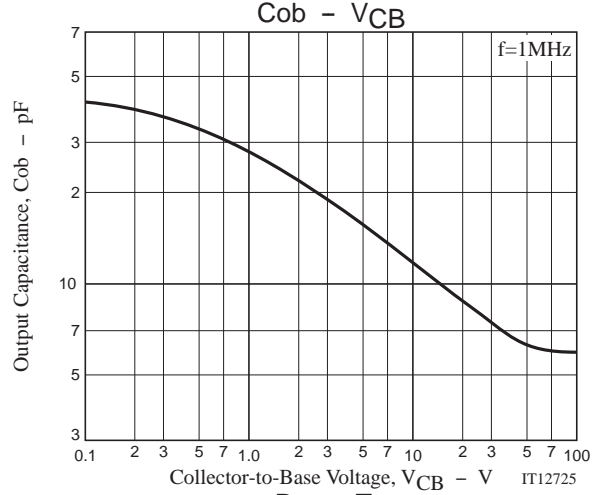
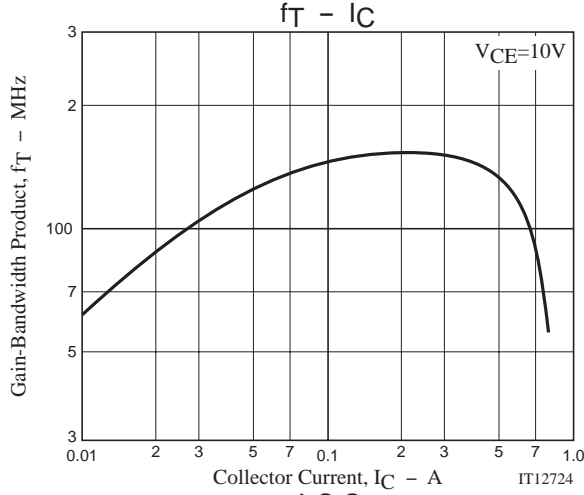
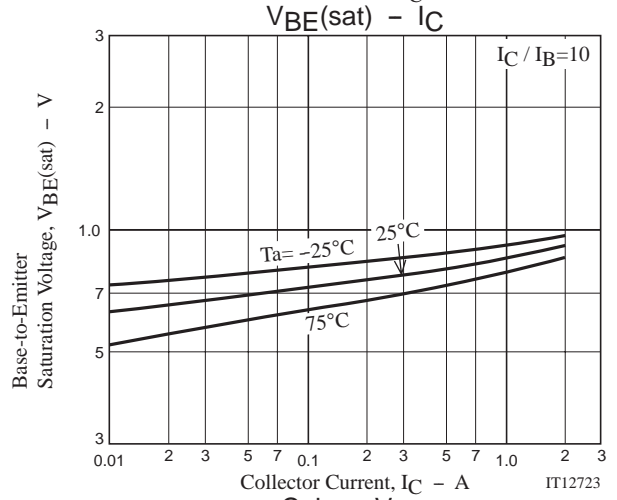
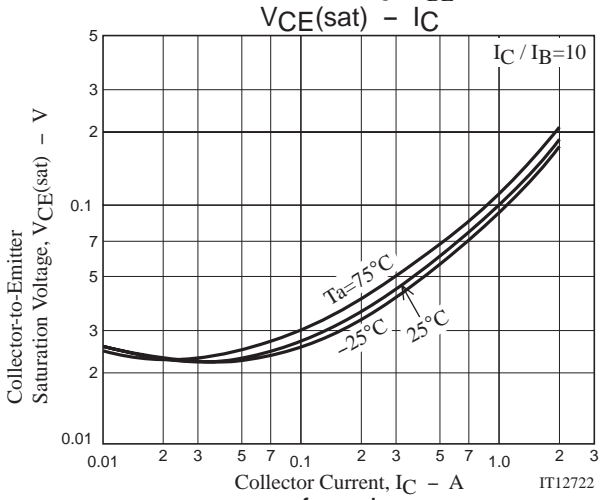
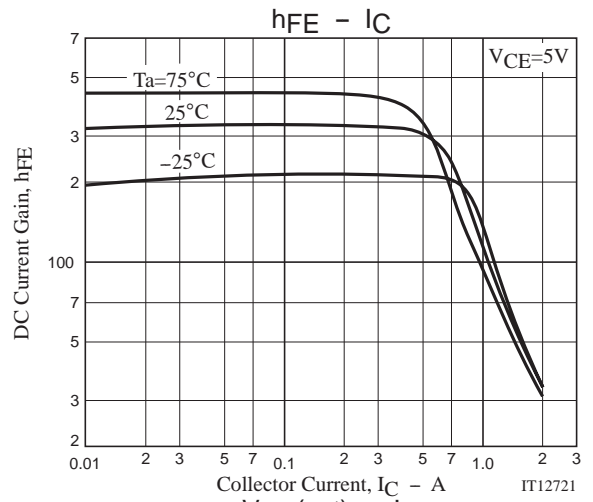
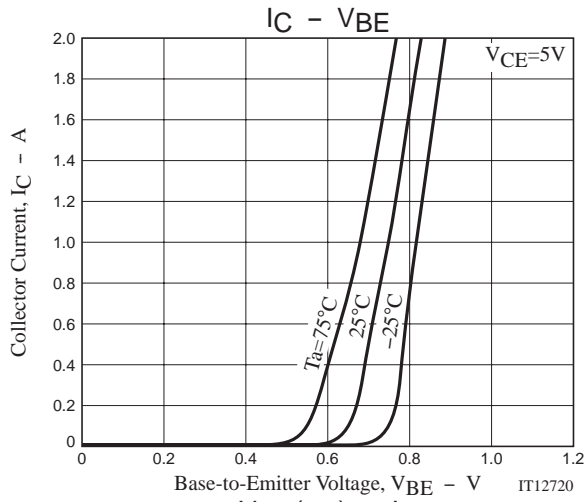


Switching Time Test Circuit



$$I_C = 10I_{B1} = -10I_{B2} = 0.5A$$





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