



SANYO Semiconductors

# DATA SHEET

## CPH3147 — PNP Epitaxial Planar Silicon Transistor

### High-Current Switching Applications

#### Applications

- DC / DC converter, Relay drivers, lamp drivers, motor drivers.

#### Features

- Adoption of FBET, MBIT processes.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- Ultrasmall package facilitates miniaturization in end products (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>		-80	V
Collector-to-Emitter Voltage	V <sub>CES</sub>		-80	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		-80	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		-7	V
Collector Current	I <sub>C</sub>		-2.5	A
Collector Current (Pulse)	I <sub>CP</sub>		-4	A
Base Current	I <sub>B</sub>		-500	mA
Collector Dissipation	P <sub>C</sub>	Mounted on a ceramic board (600mm <sup>2</sup> X0.8mm)	0.9	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

**Electrical Characteristics** at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =-70V, I <sub>E</sub> =0A			-1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =-4V, I <sub>C</sub> =0A			-1	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =-5V, I <sub>C</sub> =-100mA	200		400	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-500mA		350		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, f=1MHz		23		pF

Marking : BN

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**SANYO Semiconductor Co., Ltd.**

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# CPH3147

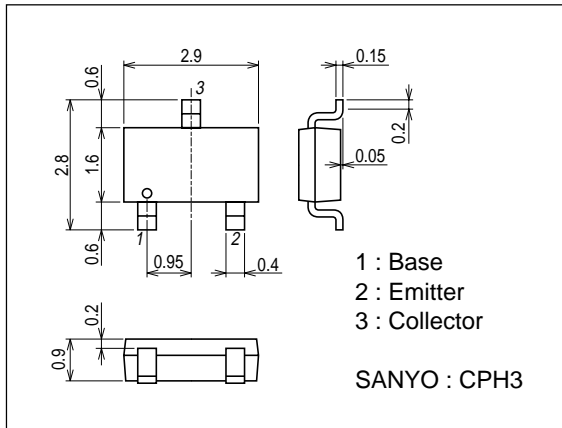
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -1A, I_B = -100mA$		-85	-170	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -1A, I_B = -100mA$		-0.85	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0A$	-80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = -100\mu A, R_{BE} = 0\Omega$	-80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1mA, R_{BE} = \infty$	-80			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.		40		ns
Storage Time	$t_{stg}$	See specified test circuit.		500		ns
Fall Time	$t_f$	See specified test circuit.		28		ns

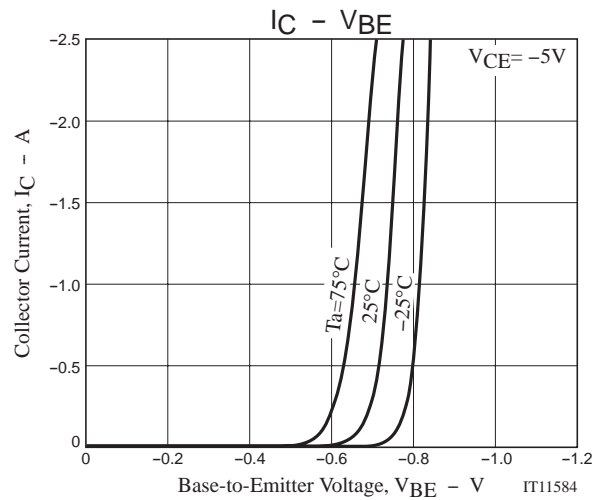
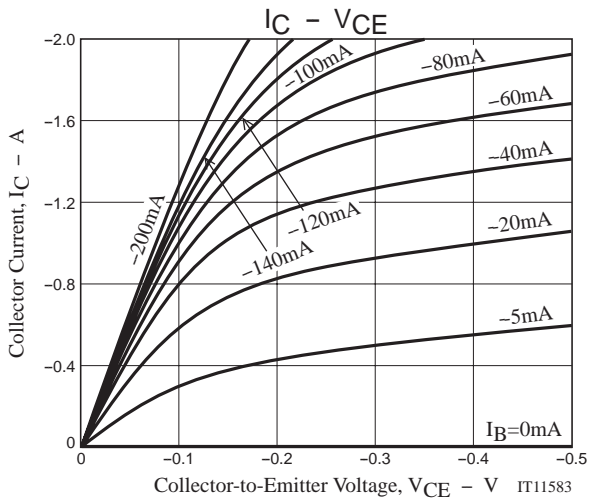
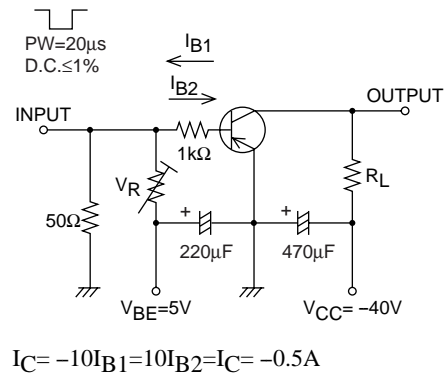
## Package Dimensions

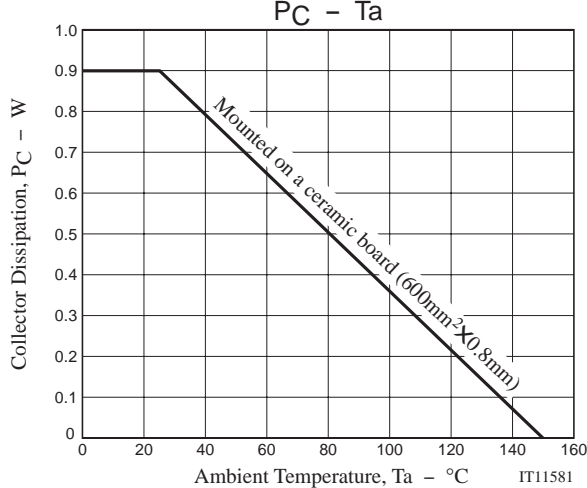
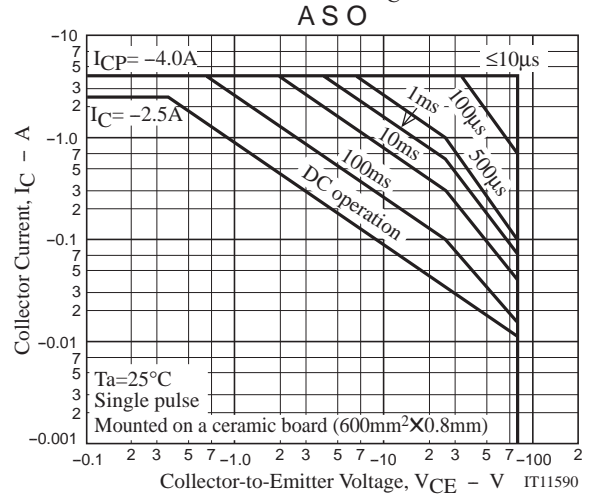
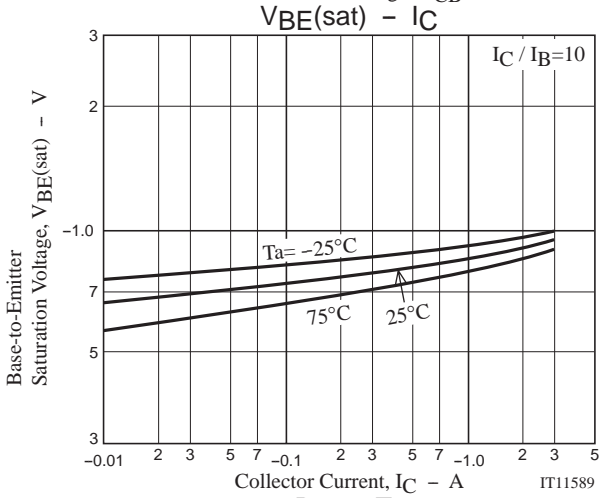
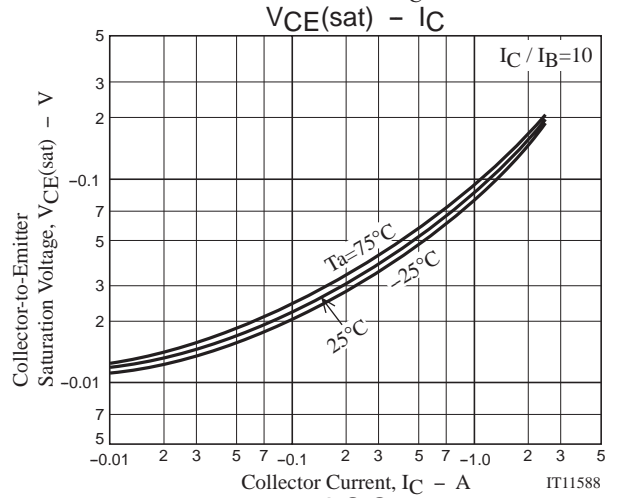
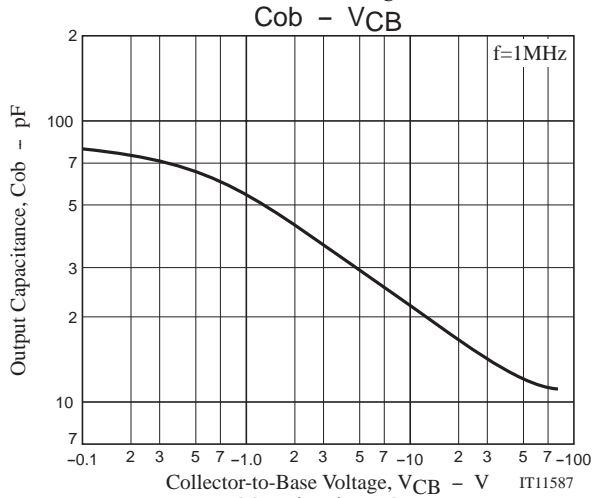
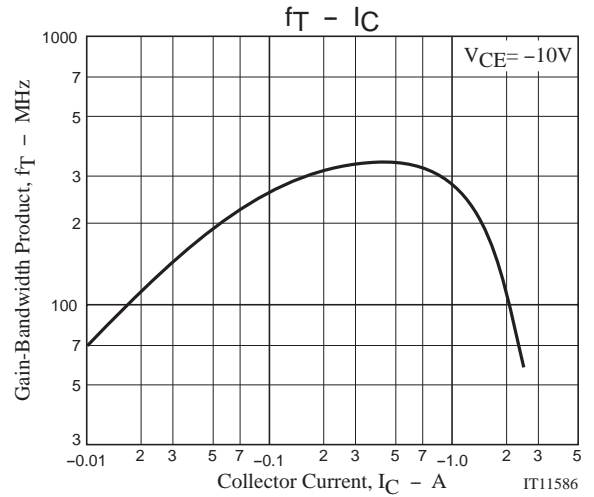
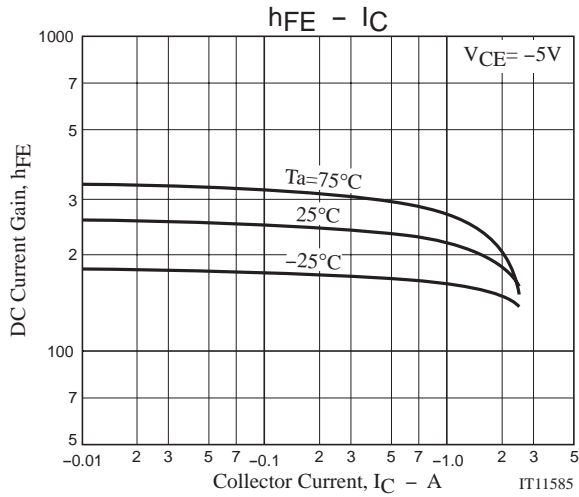
unit : mm (typ)

7015A-003



## Switching Time Test Circuit





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