



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 $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		-80	V
Collector-to-Emitter Voltage	V_{CES}		-80	V
Collector-to-Emitter Voltage	V_{CEO}		-80	V
Emitter-to-Base Voltage	V_{EBO}		-7	V
Collector Current	I_C		-2.5	A
Collector Current (Pulse)	I_{CP}		-4	A
Base Current	I_B		-500	mA
Collector Dissipation	P_C	Mounted on a ceramic board (600mm ² ×0.8mm)	0.9	W
Junction Temperature	T_j		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=-70\text{V}, I_E=0\text{A}$			-1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0\text{A}$			-1	μA
DC Current Gain	h_{FE}	$V_{CE}=-5\text{V}, I_C=-100\text{mA}$	200		400	
Gain-Bandwidth Product	f_T	$V_{CE}=-10\text{V}, I_C=-500\text{mA}$		350		MHz
Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, f=1\text{MHz}$		23		pF

Marking : BN

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CPH3147

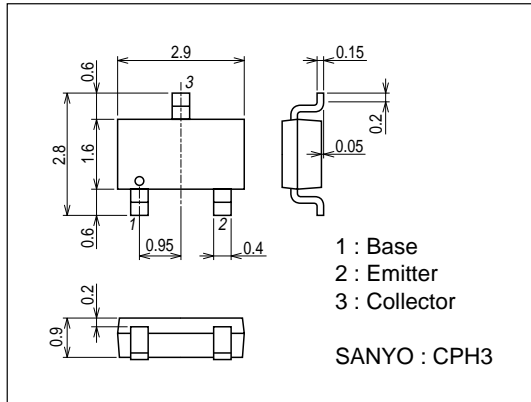
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -1A, I_B = -100mA$		-85	-170	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -1A, I_B = -100mA$		-0.85	-1.2	V
Collector-to-Base 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

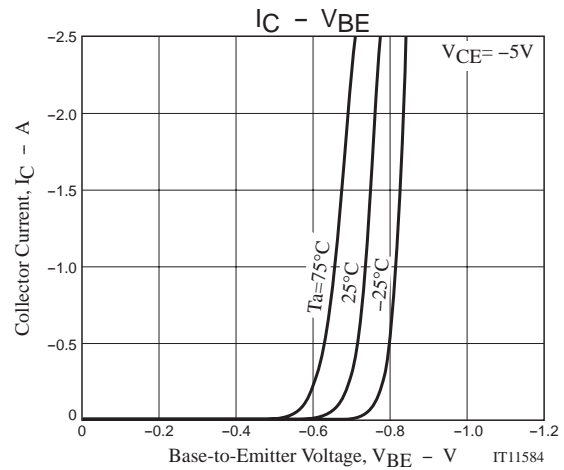
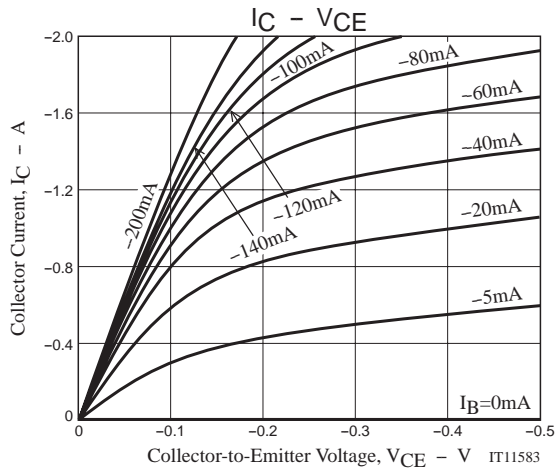
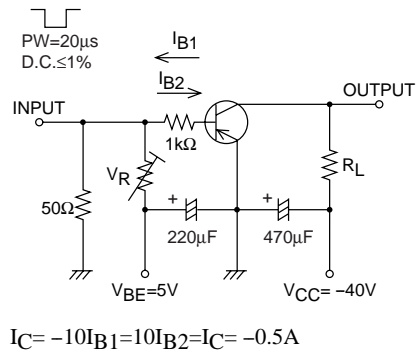
Package Dimensions

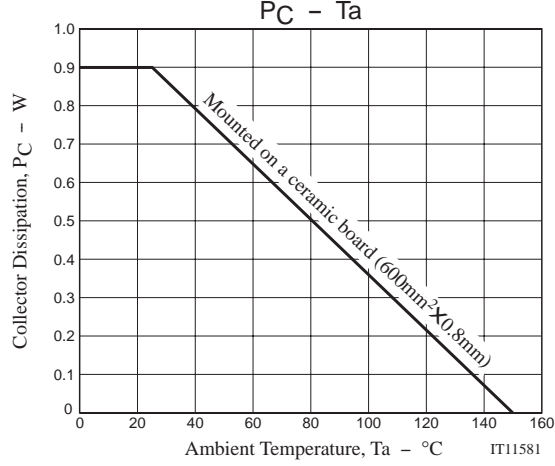
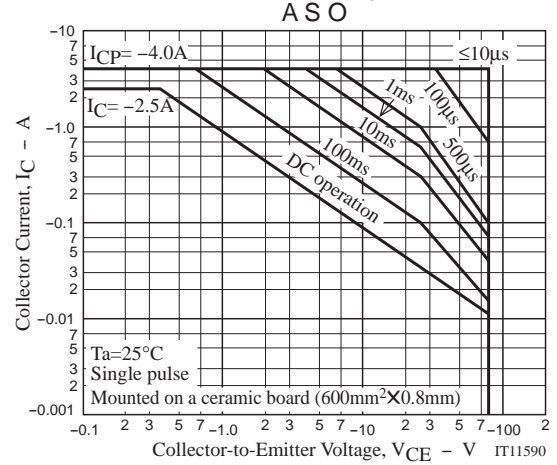
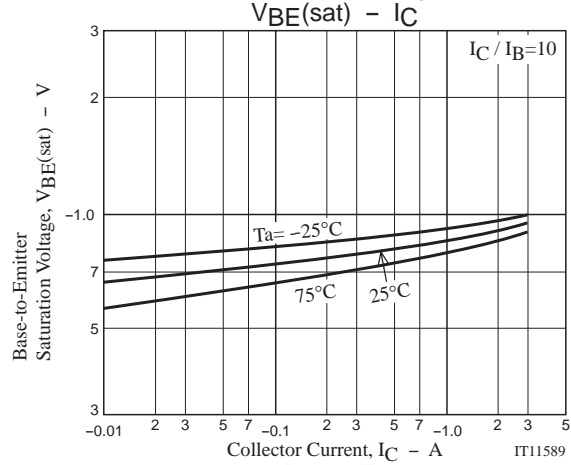
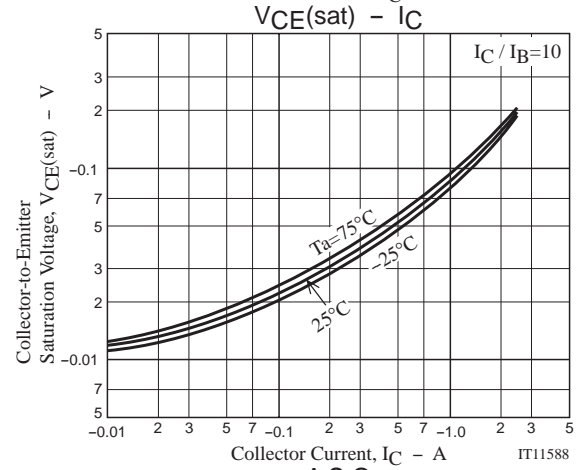
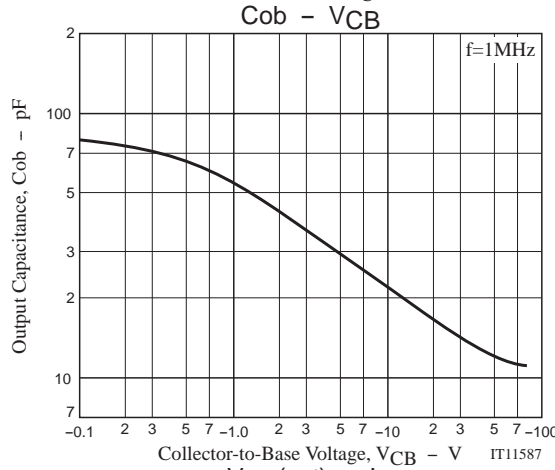
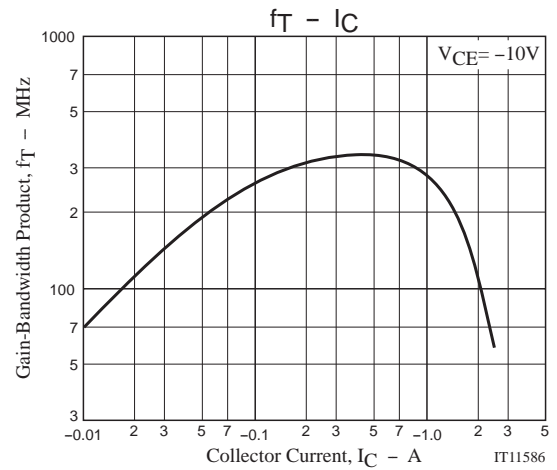
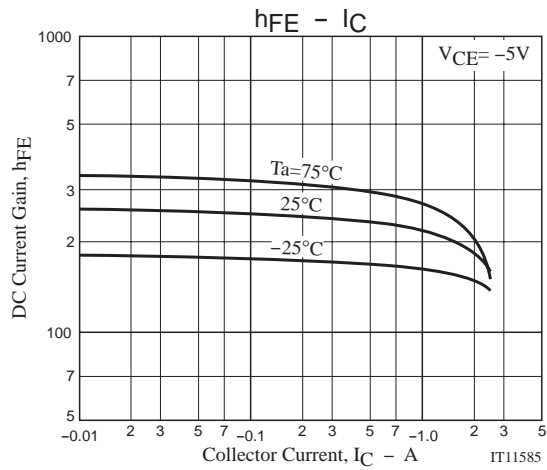
unit : mm (typ)

7015A-003



Switching Time Test Circuit





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