Ordering number : ENA1606

SANYO Semiconductors
DATA SHEET

CPH6153 — PNP Epitaxial Planar Silicon Transistor
Load Switch Applications

Applications

- Load switch, DC-DC converter, motor drivers, charger.

Features

- Adoption of MBIT process.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High speed switching.
- Ultrasmall-sized package permitting applied sets to be made small and slim (0.9mm).
- High allowable power dissipation.
- IECO is guaranteed for preventing reverse flow from the collector to the emitter.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		-20	V
Collector-to-Emitter Voltage	V_{CEO}		-20	V
Emitter-to-Base Voltage	V_{EBO}		-5	V
Collector Current	I_C		-3	A
Collector Current (Pulse)	I_{CP}		-5	A
Base Current	I_B		-600	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (600mm^2×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Marking : TC

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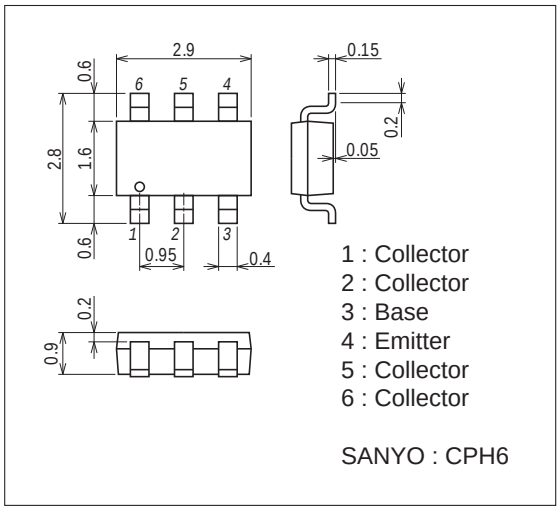
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}= -20V, I_E=0A			-0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}= -4V, I_C=0A			-0.1	μA
Emitter Cutoff Current	I_{ECO}	V_{EC}= -4.5V, I_B=0A			-1	μA
DC Current Gain	h_{FE}	V_{CE}= -2V, I_C= -100mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}= -10V, I_C= -300mA		400		MHz
Output Capacitance	Cob	V_{CB}= -10V, f=1MHz		22		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C= -1.5A, I_B= -75mA		-130	-195	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C= -1.5A, I_B= -75mA		-0.93	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C= -10μA, I_E=0A	-20			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C= -1mA, R_{BE}=∞	-20			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E= -10μA, I_C=0A	-5			V
Turn-On Time	t_{on}	See specified Test Circuit.		35		ns
Storage Time	t_{stg}	See specified Test Circuit.		65		ns
Fall Time	t_f	See specified Test Circuit.		12		ns

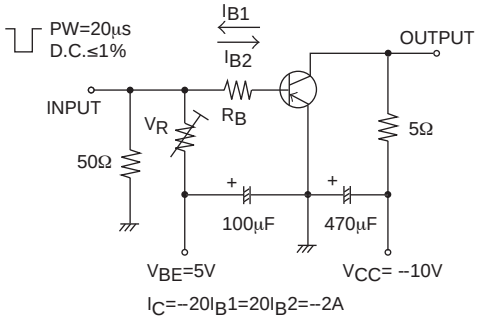
Package Dimensions

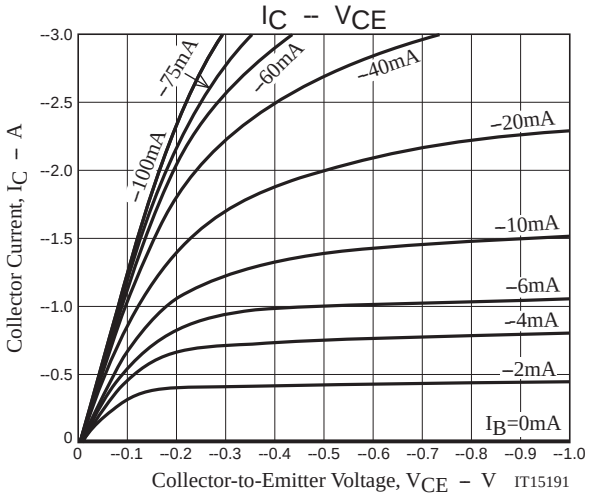
unit : mm (typ)

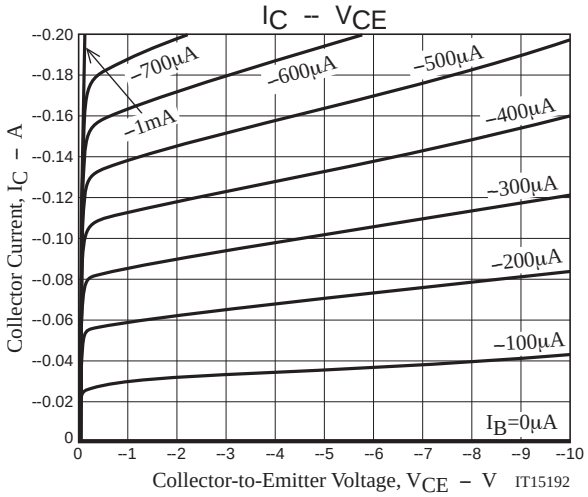
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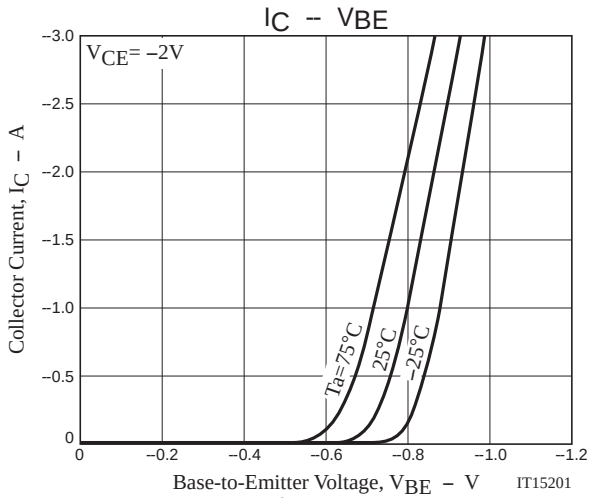


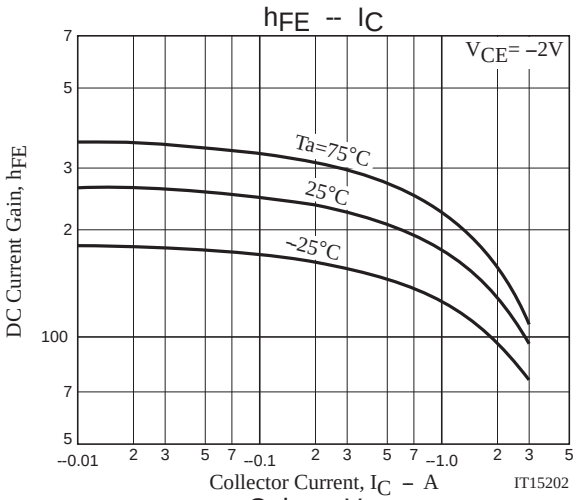
Switching Time Test Circuit

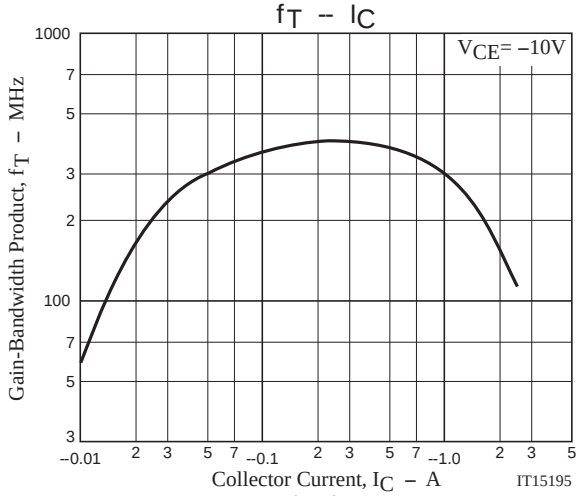


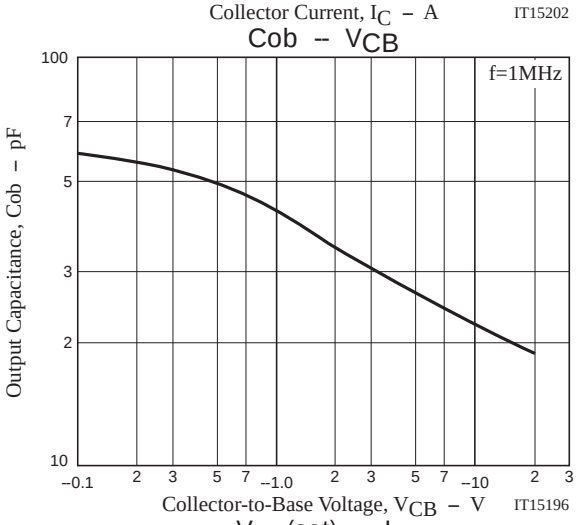


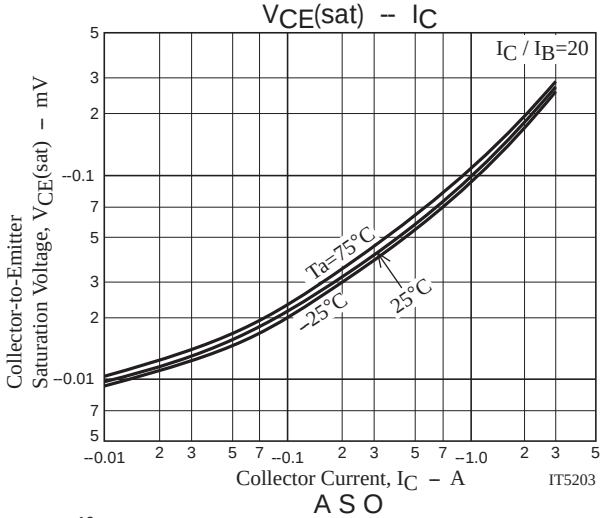


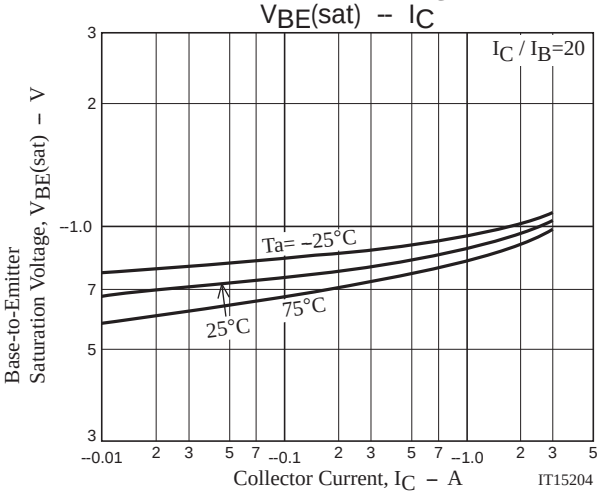

IC -- VBE
VCE= −2V
Collector Current, IC − A
Base-to-Emitter Voltage, VBE − V
Ta=75°C
25°C
−25°C
IT15201

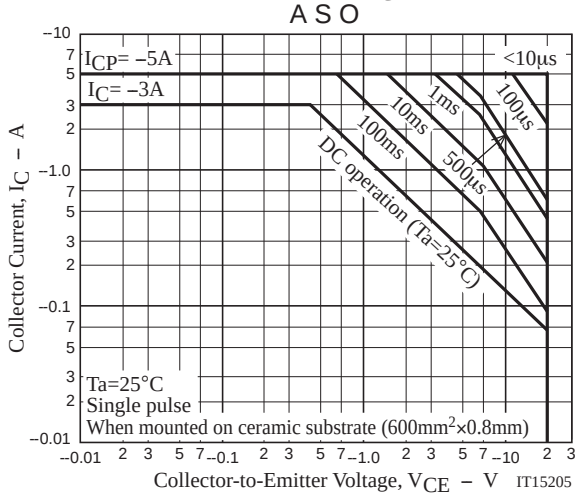

hFE -- IC
VCE= −2V
DC Current Gain, hFE
Collector Current, IC − A
Ta=75°C
25°C
−25°C
IT15202

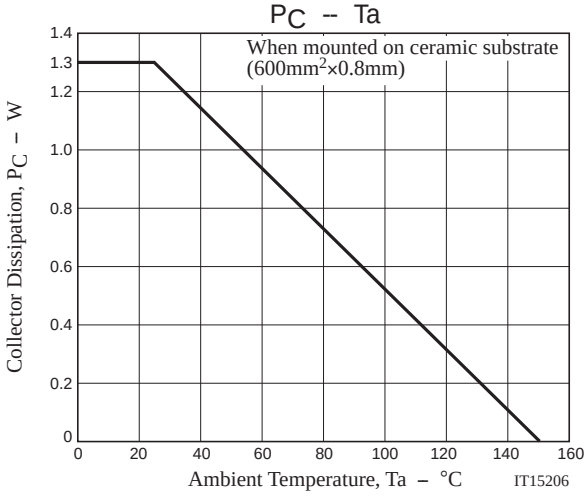

fT − IC
VCE= −10V
Gain-Bandwidth Product, fT − MHz
Collector Current, IC − A
IT15195


Cob -- VCB
f=1MHz
Output Capacitance, Cob − pF
Collector-to-Base Voltage, VCB − V
IT15196


VCE(sat) -- IC
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) − mV
Collector Current, IC − A
Ta=75°C
25°C
−25°C
IT5203


VBE(sat) -- IC
IC / IB=20
Base-to-Emitter Saturation Voltage, VBE(sat) − V
Collector Current, IC − A
Ta= −25°C
25°C
75°C
IT15204


A S O
ICP= −5A
IC= −3A
<10μs
100μs
1ms
10ms
100ms
500μs
DC operation (Ta=25°C)
Ta=25°C
Single pulse
When mounted on ceramic substrate (600mm2×0.8mm)
Collector Current, IC − A
Collector-to-Emitter Voltage, VCE − V
IT15205


PC -- Ta
When mounted on ceramic substrate
(600mm2×0.8mm)
Collector Dissipation, PC − W
Ambient Temperature, Ta − °C
IT15206

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