Ordering number : ENN7722

SANYO Semiconductors
DATA SHEET

CPH3237 — NPN Epitaxial Planar Silicon Transistor
DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, strobes.

Features

- Adoption of MBIT processes.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- Narrow h_{FE} range.
- 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_{CBO}		15	V
Collector-to-Emitter Voltage	V_{CEO}		15	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		6	A
Collector Current (Pulse)	I_{CP}		9	A
Base Current	I_B		1.2	A
Collector Dissipation	P_C	Mounted on a ceramic board (600mm²×0.8mm)	0.9	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=12V, I_E=0			0.1	µA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	µA
DC Current Gain	h_{FE}	V_{CE}=2V, I_C=500mA	250		400	
Gain-Bandwidth Product	f_T	V_{CE}=2V, I_C=500mA		250		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		46		pF

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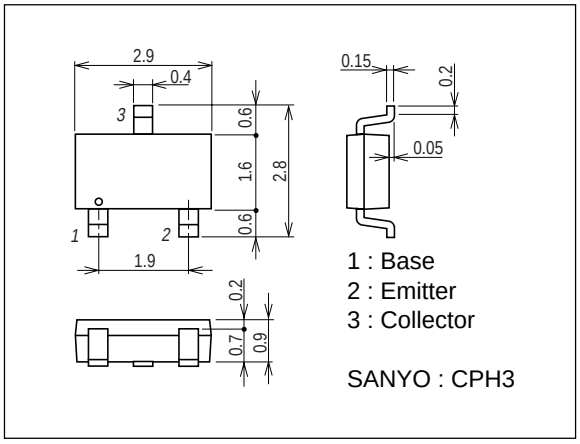
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=3A, I_B=60mA		80	120	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=3A, I_B=60mA		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	5			V
Turn-ON Time	t_{on}	See specified test circuit.		32		ns
Storage Time	t_{stg}	See specified test circuit.		250		ns
Fall Time	t_f	See specified test circuit.		10		ns

Marking : DH

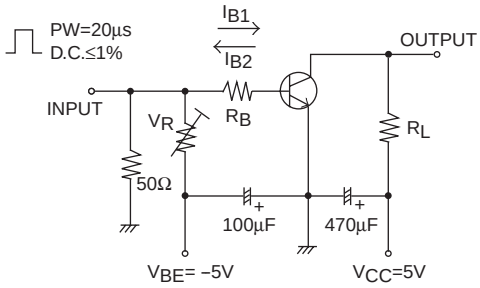
Package Dimensions

unit : mm

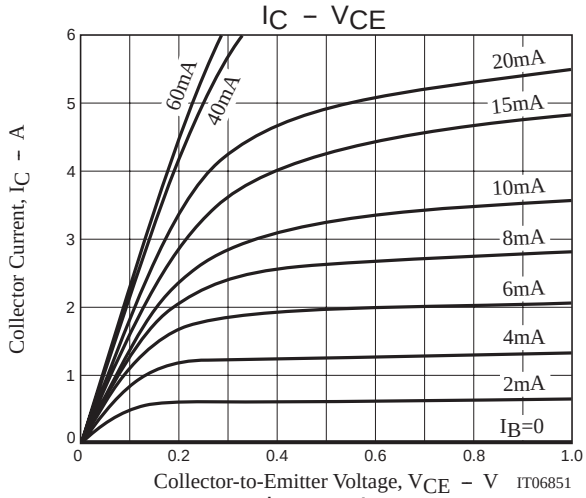
2150A

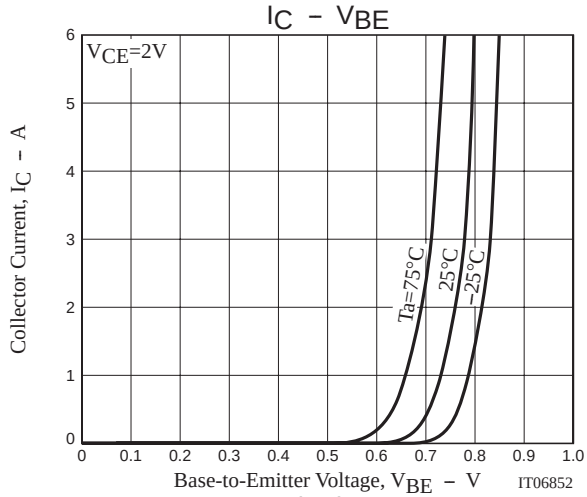


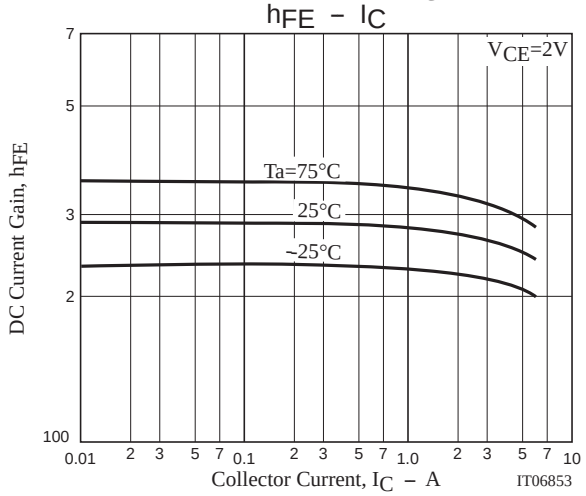
Switching Time Test Circuit

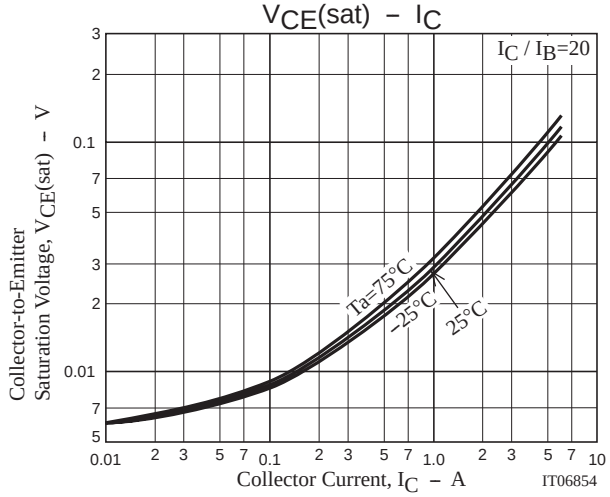


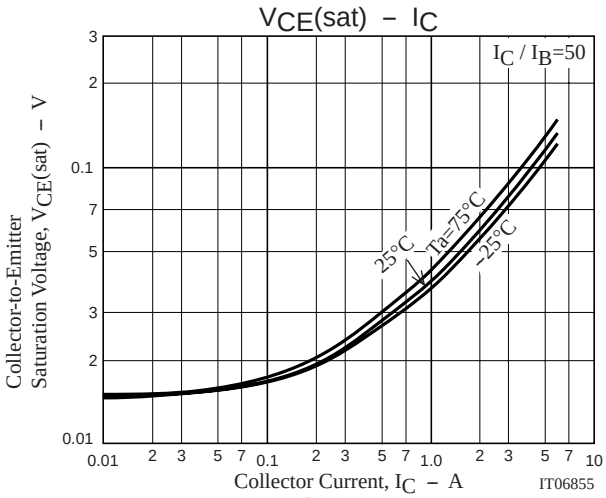
I_C=20I_{B1}= −20I_{B2}=3A

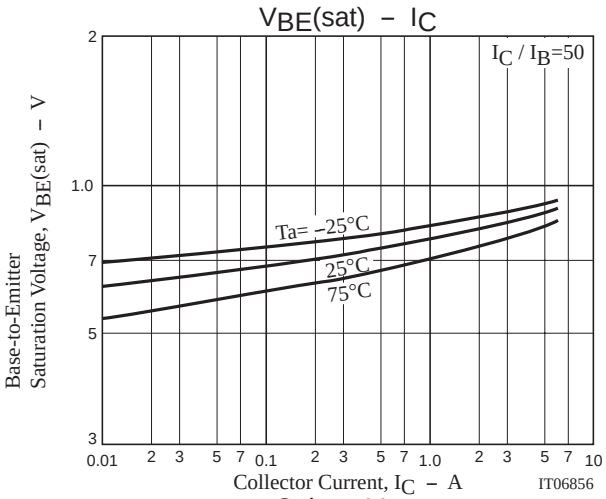


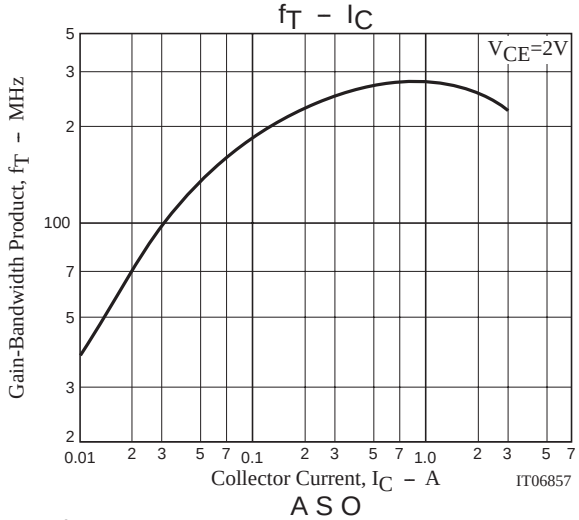


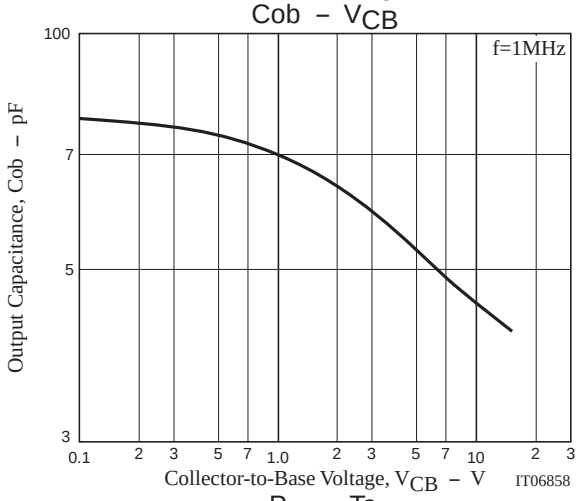


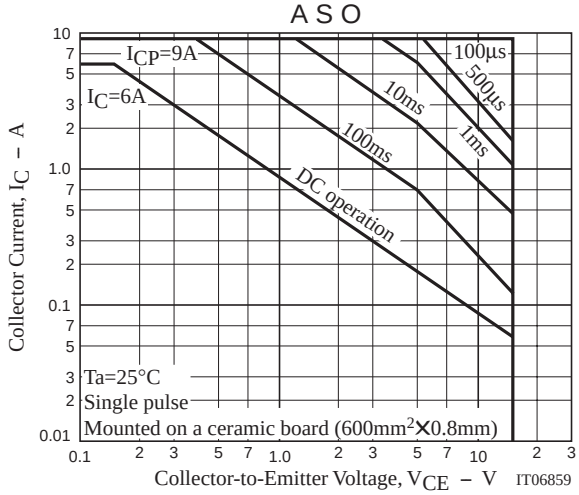


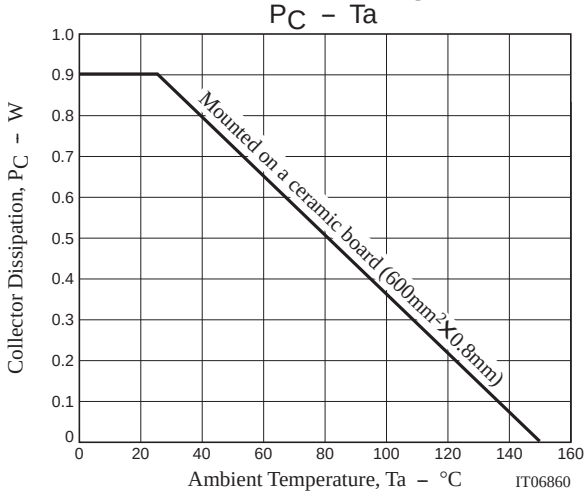

VCE(sat) – IC
IC / IB=50
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT06855


VBE(sat) – IC
IC / IB=50
Ta= –25°C
25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT06856


fT – IC
VCE=2V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT06857


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT06858


A S O
ICP=9A
IC=6A
100µs
500µs
10ms
1ms
100ms
DC operation
Ta=25°C
Single pulse
Mounted on a ceramic board (600mm2×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT06859


PC – Ta
Mounted on a ceramic board (600mm2×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT06860