Ordering number : ENN7783

SANYO Semiconductors

DATA SHEET

CPH3235 — 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 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_{CBO}		40	V
Collector-to-Emitter Voltage	V_{CEO}		30	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	Mounted on a ceramic board (600mm²×0.8m)	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}=30V, 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}=10V, I_C=500mA		450		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		20		pF

Marking : DF

Continued on next page.

SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

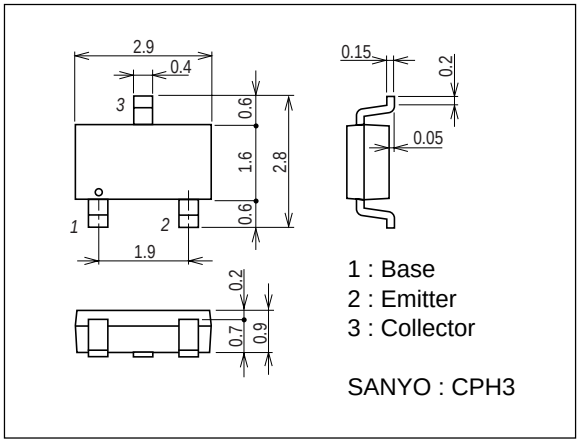
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE}(sat)1$	I_C=1.5A, I_B=30mA		90	135	mV
	$V_{CE}(sat)2$	I_C=1.5A, I_B=75mA		75	115	mV
Base-to-Emitter Saturation Voltage	$V_{BE}(sat)$	I_C=1.5A, I_B=30mA		0.83	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	30			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.		30		ns
Storage Time	tstg	See specified test circuit.		300		ns
Fall Time	t_f	See specified test circuit.		15		ns

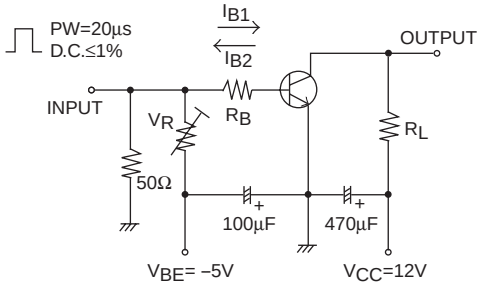
Package Dimensions

unit : mm

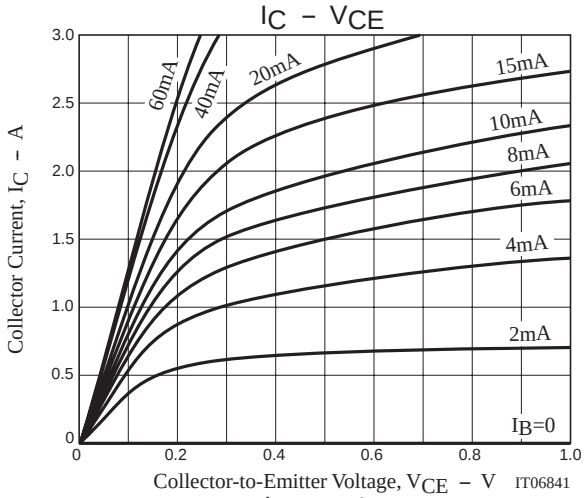
2150A

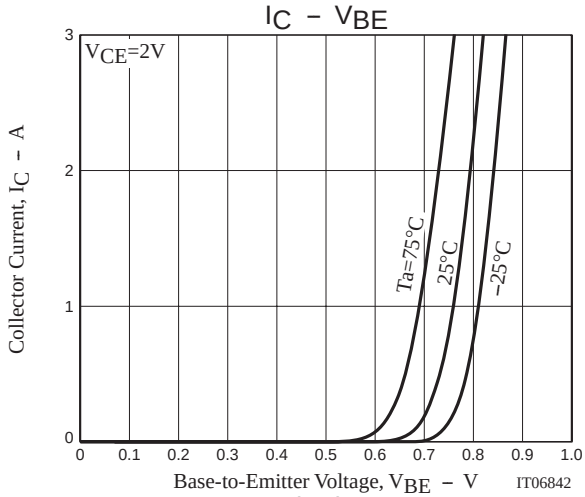


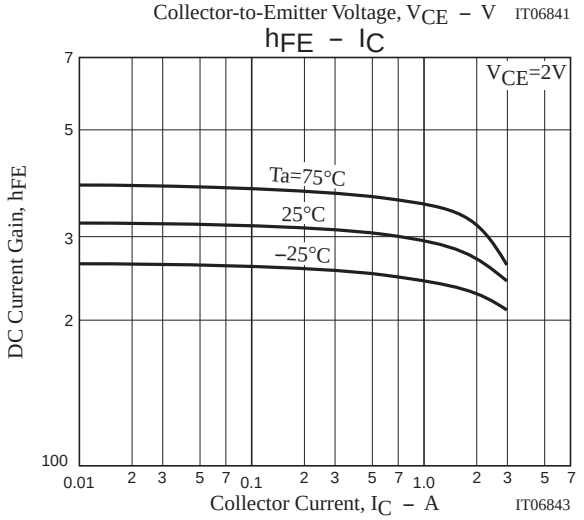
Switching Time Test Circuit

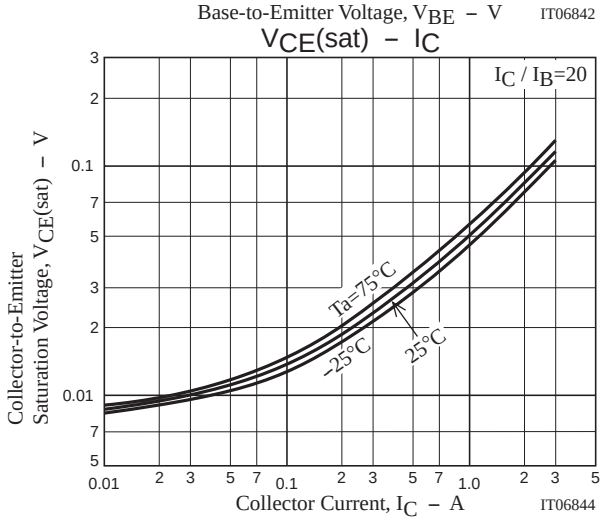


I_C=20I_{B1}= −20I_{B2}=500mA

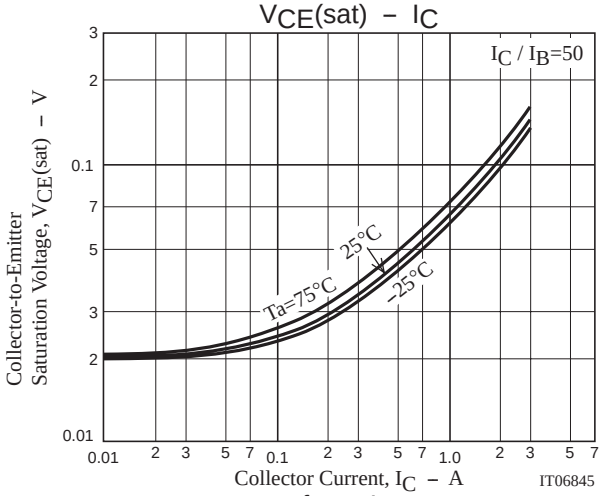




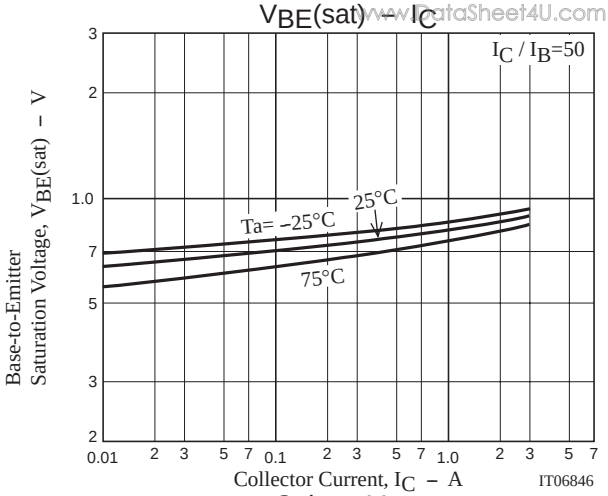




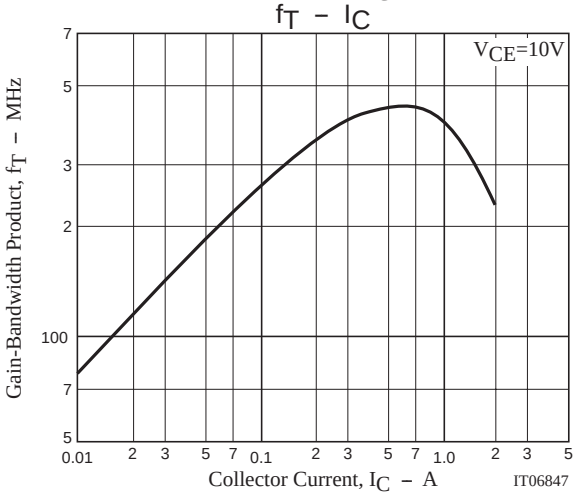
$V_{CE}(sat)$ – I_C



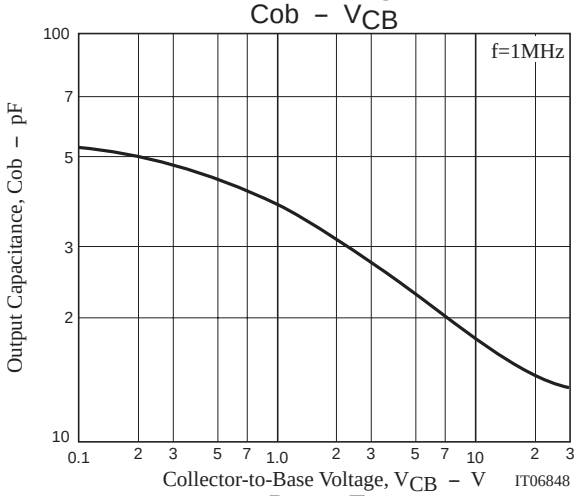
$V_{BE}(sat)$ – I_C



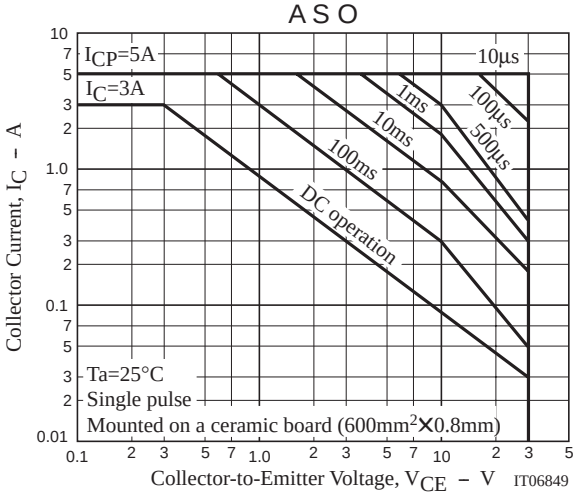
f_T – I_C



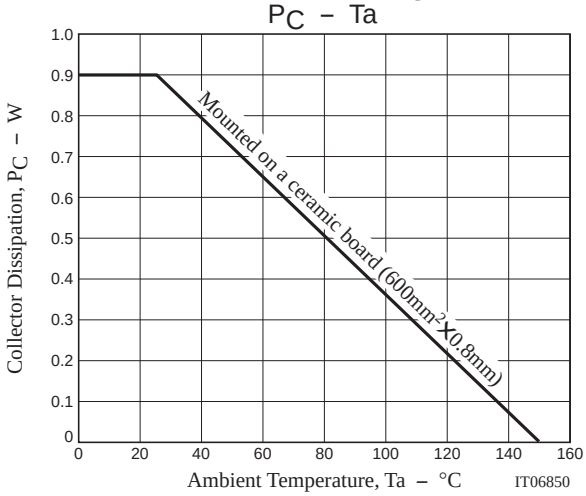
Cob – V_{CB}



A S O



P_C – Ta



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