



SANYO Semiconductors

# DATA SHEET

## CPH3239 — NPN Epitaxial Planar Silicon Transistors

### DC / DC Converter Applications

#### Applications

- Relay drivers, lamp drivers, motor drivers, strobe.

#### Features

- Adoption of MBIT process.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High speed switching.
- Narrow hFE 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 <sub>CB0</sub>		100	V
Collector-to-Emitter Voltage	V <sub>CES</sub>		100	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		6	V
Collector Current	I <sub>C</sub>		5	A
Collector Current (Pulse)	I <sub>CP</sub>		7	A
Base Current	I <sub>B</sub>		1.2	A
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

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# CPH3239

## Electrical Characteristics at Ta=25°C

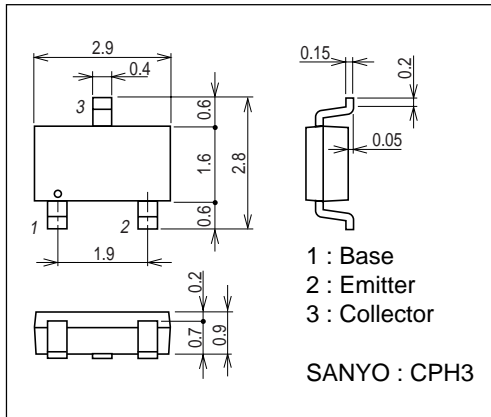
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=40V, I_E=0$			0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=4V, I_C=0$			0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=2V, I_C=500mA$	250		400	
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=500mA$		330		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		26		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2A, I_B=40mA$		85	130	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2A, I_B=40mA$		0.80	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu A, R_{BE}=\infty$	100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		32		ns
Storage Time	$t_{stg}$	See specified Test Circuit		420		ns
Fall Time	$t_f$	See specified Test Circuit		28		ns

Marking : DK

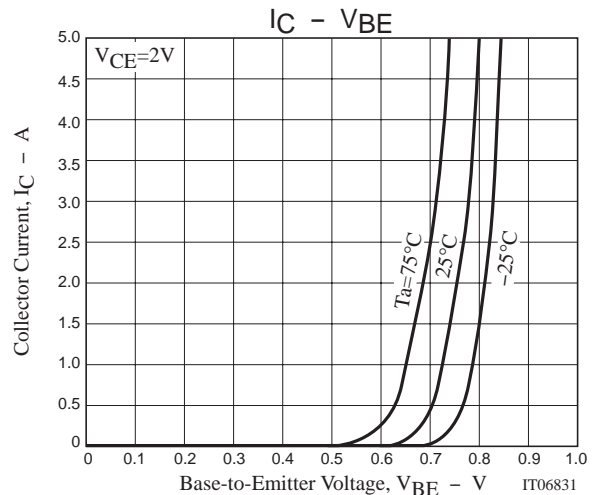
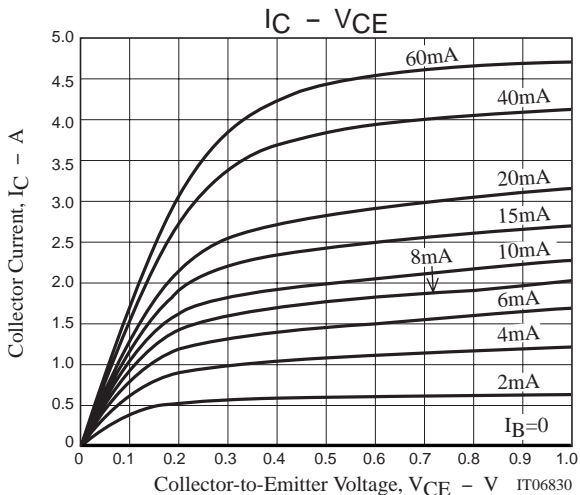
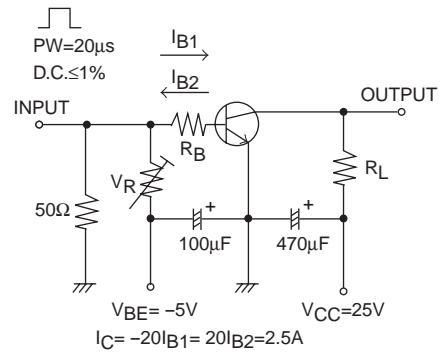
## Package Dimensions

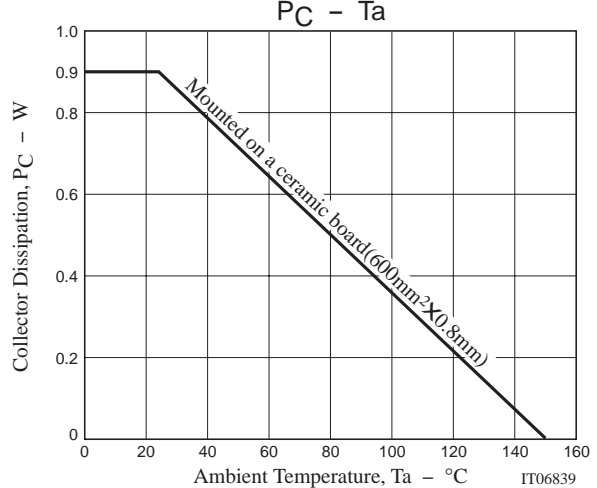
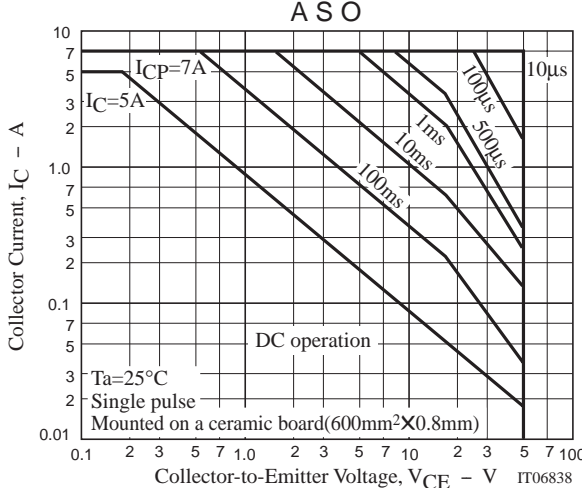
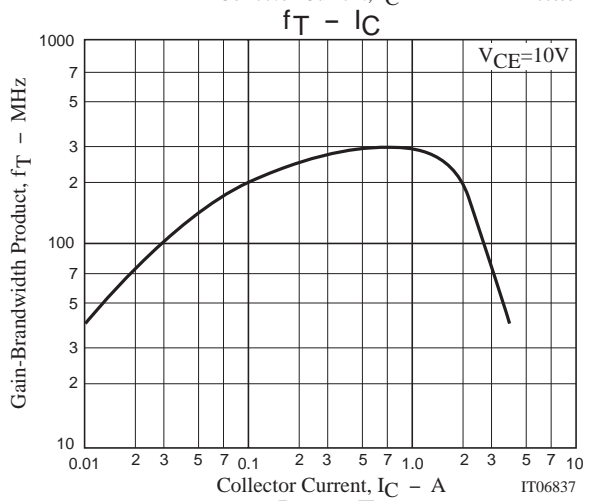
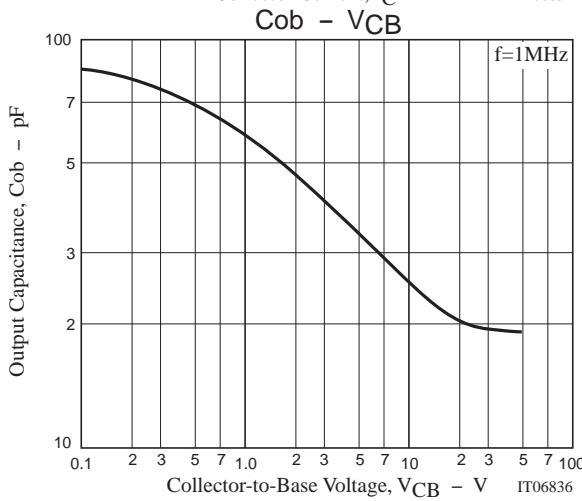
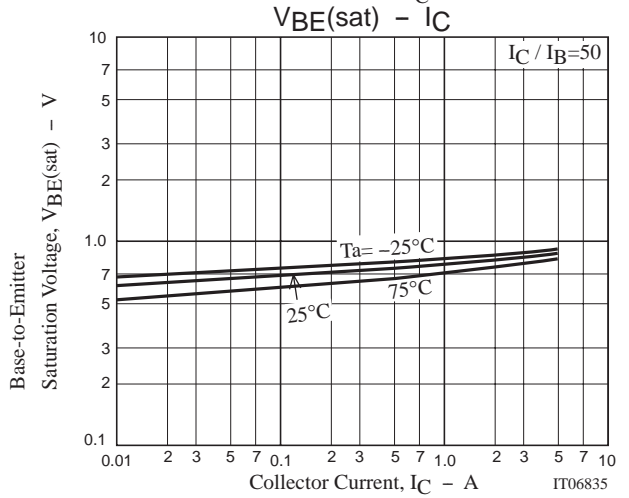
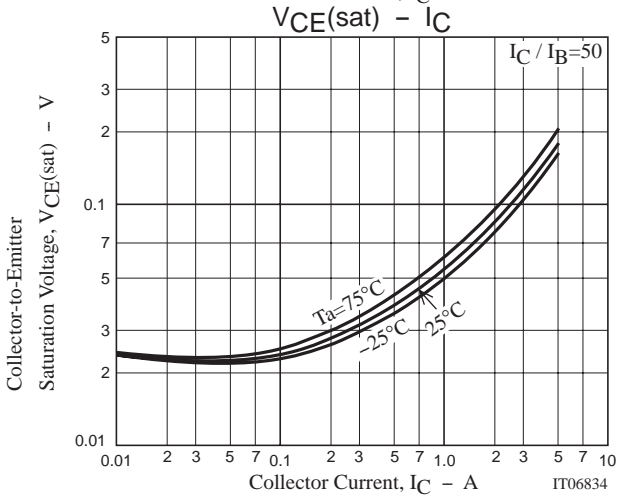
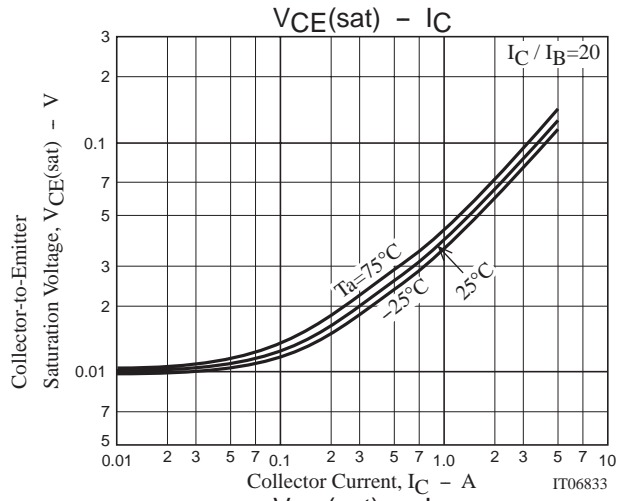
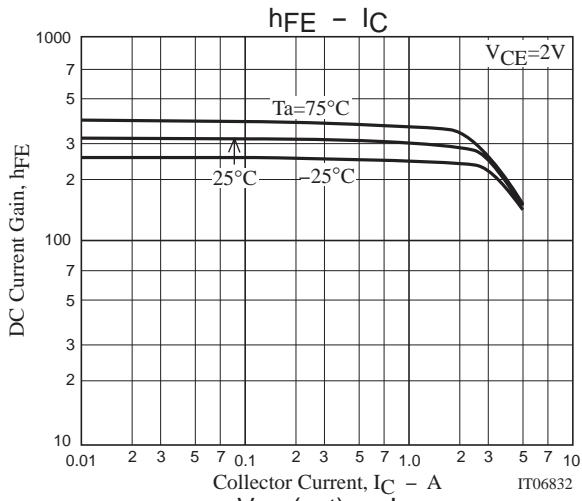
unit : mmm

2150A



## Switching Time Test Circuit





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