

# SANYO Semiconductors DATA SHEET

# **CPH3246**

NPN Epitaxial Planar Silicon Transistor

# **High-Current Switching Applications**

# **Applications**

• DC / DC converters, relay drivers, lamp drivers, motor drivers, inverters.

#### **Features**

- · Adoption of FBET, MBIT processes.
- · Large current capacitance.
- · Low collector-to-emitter saturation voltage.
- · High-speed switching.
- 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	VCBO		100	V
Collector-to-Emitter Voltage	VCES		100	V
Collector-to-Emitter Voltage	VCEO		60	V
Emitter-to-Base Voltage	VEBO		6.5	V
Collector Current	Ic		3	Α
Collector Current (Pulse)	ICP		5	Α
Base Current	IΒ		600	mA
Collector Dissipation	PC	Mounted on a ceramic board (600mm²X0.8mm)	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		
	Symbol		min	typ	max	Unit
Collector Cutoff Current	ICBO	VCB=50V, IE=0A			1	μΑ
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =4V, I <sub>C</sub> =0A			1	μΑ
DC Current Gain	hFE	V <sub>CE</sub> =2V, I <sub>C</sub> =100mA	300		600	
Gain-Bandwidth Product	fT	VCE=10V, IC=500mA		390		MHz
Output Capacitance	Cob	V <sub>CB</sub> =10V, f=1MHz		15		pF

Marking: DR Continued on next page.

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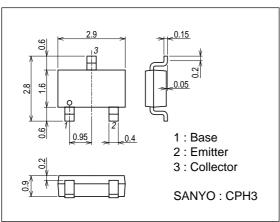
## **CPH3246**

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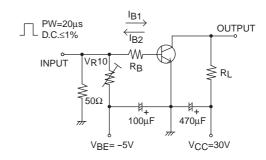
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Offic
Collector-to-Emitter Saturation Voltage	VCE(sat)1	IC=1A, IB=50mA		80	120	mV
	V <sub>CE</sub> (sat)2	I <sub>C</sub> =1A, I <sub>B</sub> =100mA		70	110	mV
Base-to-Emitter Saturation Voltage	V <sub>BE</sub> (sat)	IC=1A, IB=100mA		0.85	1.2	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	IC=10μA, IE=0A	100			V
Collector-to-Emitter Breakdown Voltage	V(BR)CES	I <sub>C</sub> =100μA, R <sub>BE</sub> =0Ω	100			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	IC=1mA, RBE=∞	60			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	I <sub>E</sub> =10μA, I <sub>C</sub> =0A	6.5			V
Turn-ON Time	ton	See specified Test Circuit.		35		ns
Storage Time	tstg	See specified Test Circuit.		680		ns
Fall Time	tf	See specified Test Circuit.		24		ns

## **Package Dimensions**

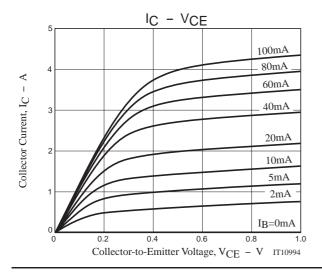
unit : mm 7015A-003

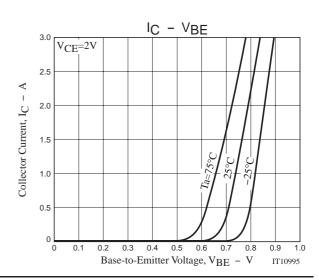


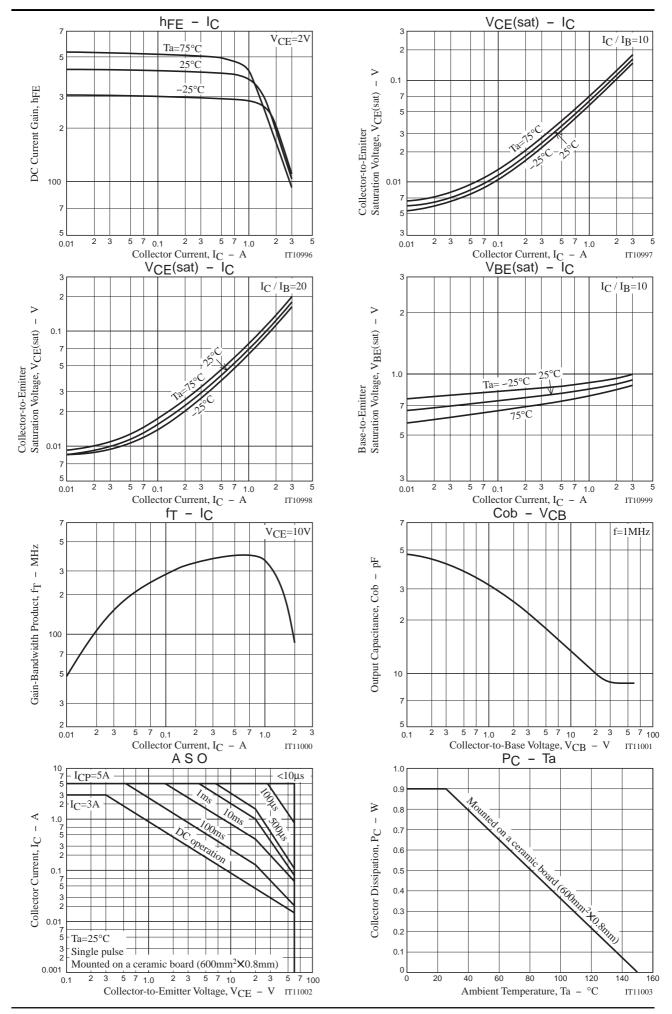
# **Switching Time Test Circuit**



 $10I_{B1} = -10I_{B2} = I_{C} = 0.5A$ 







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