



# CPH3115/CPH3215

## DC/DC Converter Applications

### Applications

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

### Features

- Adoption of MBIT processes.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- Ultrasmall-sized package permitting applied sets to be made small and slim (mounting height : 0.9mm).
- High allowable power dissipation.

### Specifications

( ) : CPH3115

**Absolute Maximum Ratings** at  $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-30)40	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-30)30	V
Emitter-to-Base Voltage	$V_{EBO}$		(-5)5	V
Collector Current	$I_C$		(-1.5)1.5	A
Collector Current (Pulse)	$I_{CP}$		(-3)3	A
Base Current	$I_B$		(-300)300	mA
Collector Dissipation	$P_C$	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm)	0.9	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

**Electrical Characteristics** at  $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)30\text{V}, I_E = 0$			(-0.1)0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4\text{V}, I_C = 0$			(-0.1)0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = (-)2\text{V}, I_C = (-)100\text{mA}$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10\text{V}, I_C = (-)300\text{mA}$		(450)		MHz
				500		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10\text{V}, f = 1\text{MHz}$		(9)8		pF

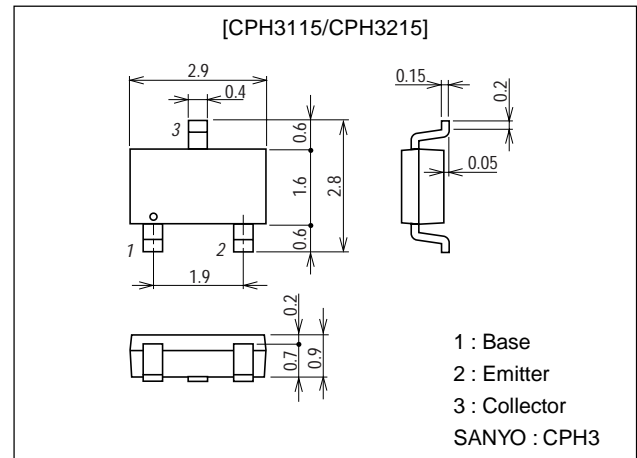
Marking : CPH3115 : AQ, CPH3215 : CQ

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### Package Dimensions

unit:mm

2150A



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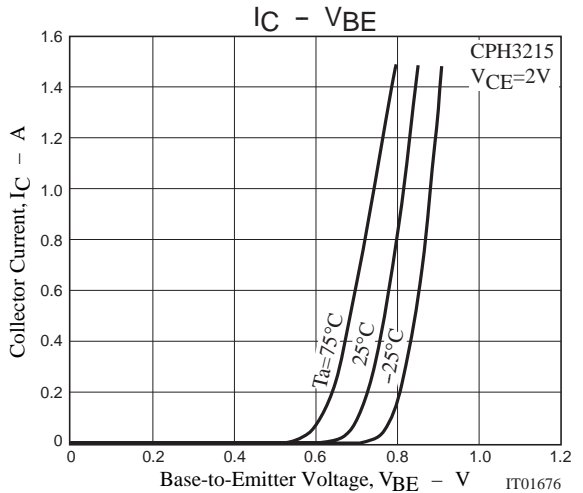
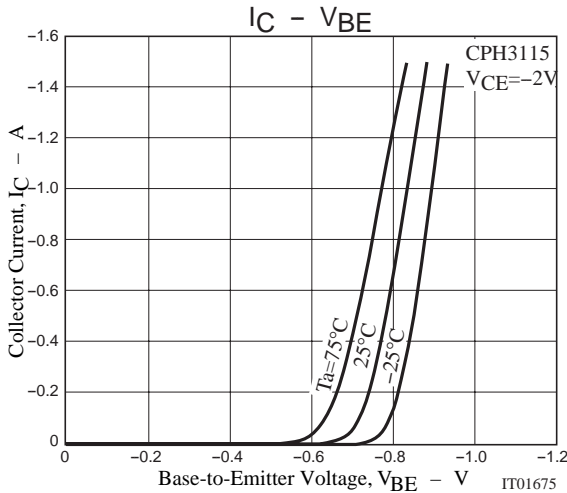
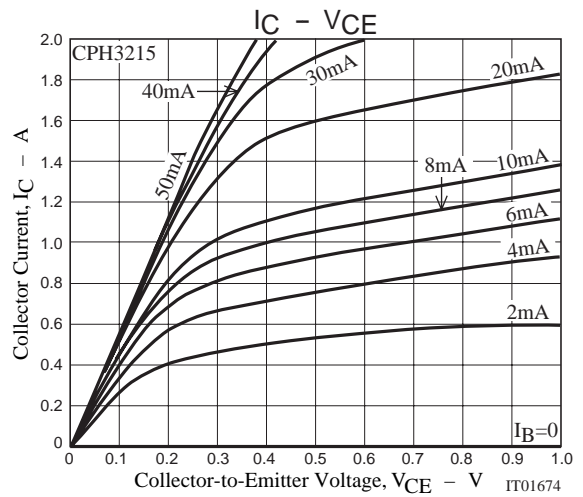
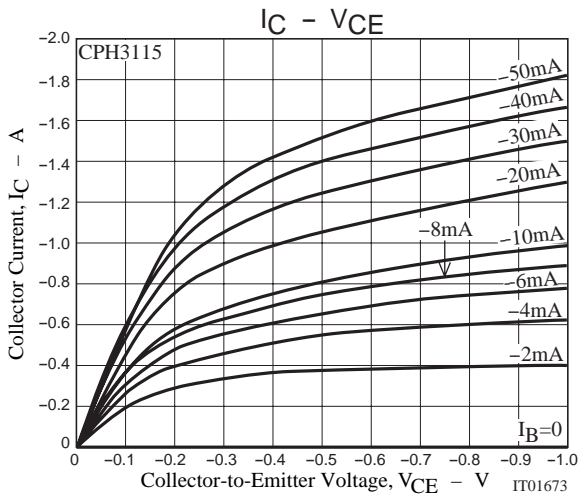
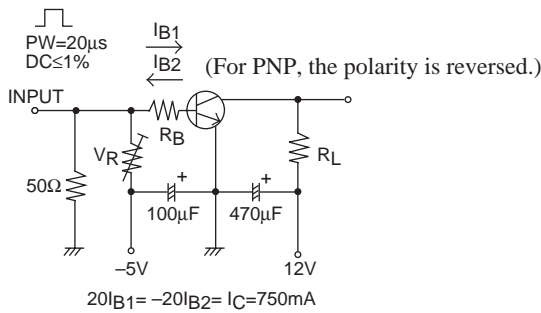
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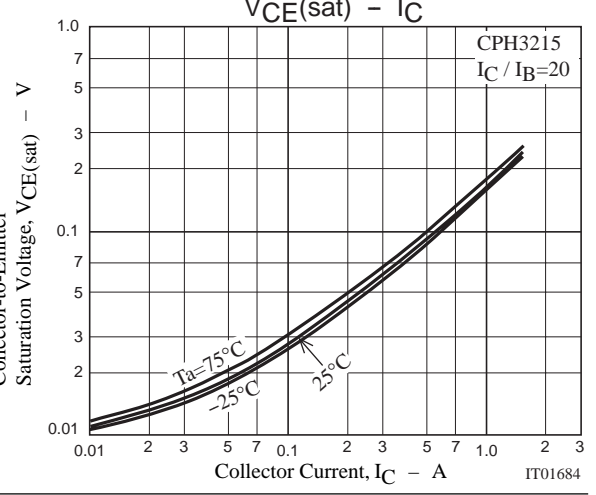
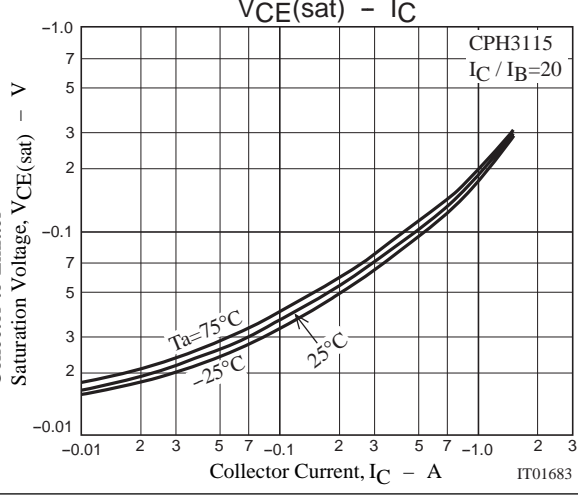
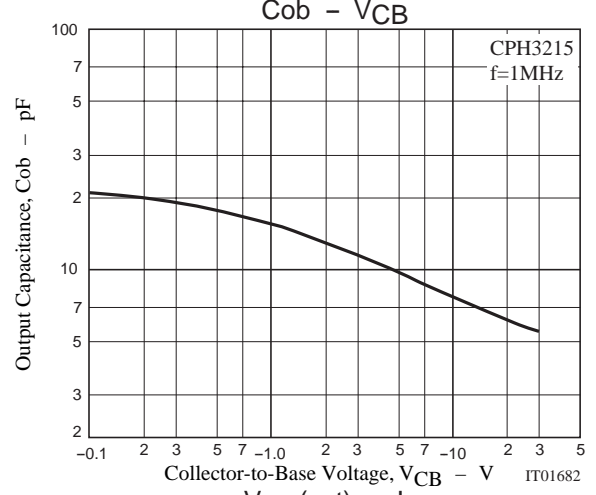
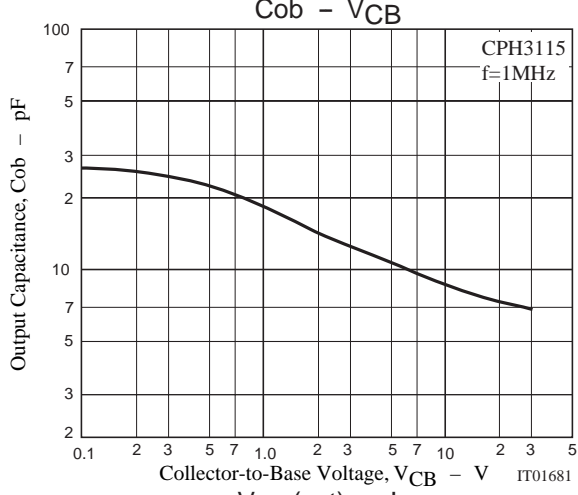
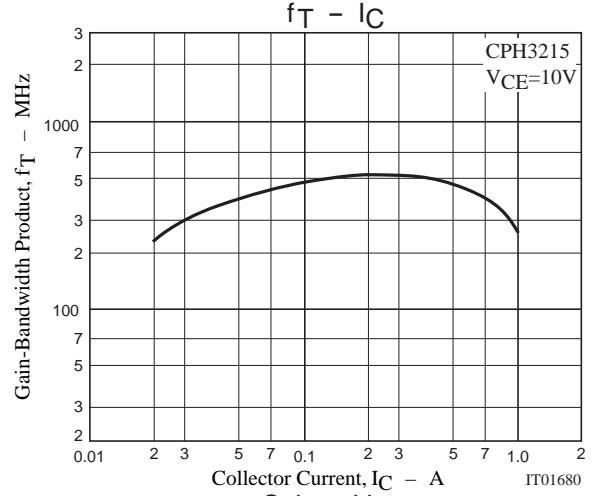
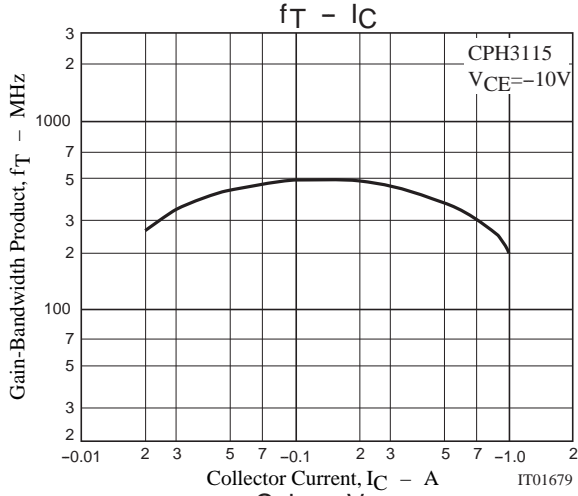
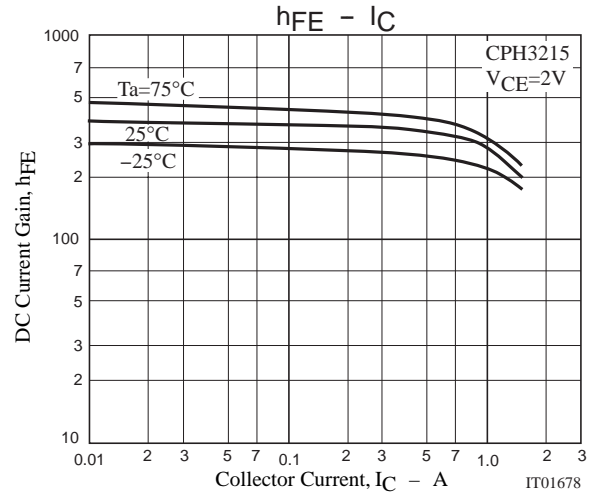
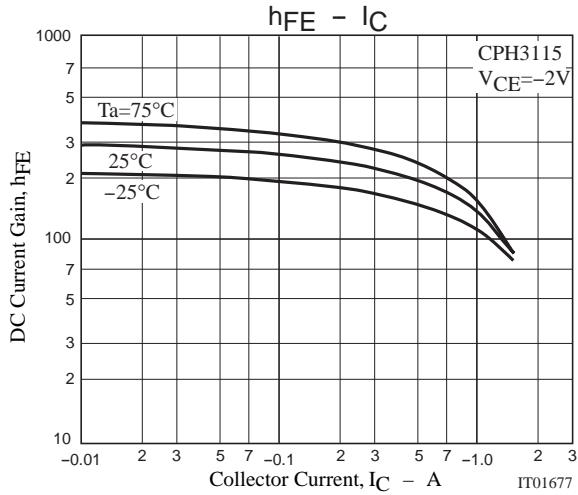
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)750\text{mA}$ , $I_B=(-)15\text{mA}$		(-250)	(-375)	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)750\text{mA}$ , $I_B=(-)15\text{mA}$		150	225	mV
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}$ , $I_E=0$	(-30)			V
Collector-to-Base Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}$ , $R_{BE}=\infty$	(-30)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}$ , $I_C=0$	(-5)			V
Turn-ON Time	$t_{on}$	See specified test circuit.		35		ns
Storage Time	$t_{stg}$	See specified test circuit.		(115)		ns
Storage Time				205		ns
Fall Time	$t_f$	See specified test circuit.		30		ns

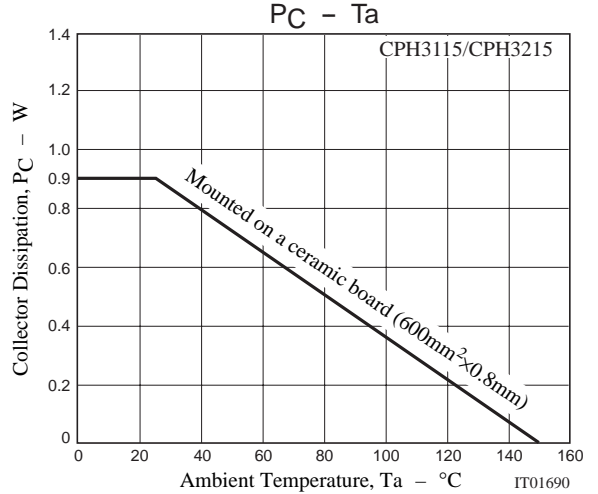
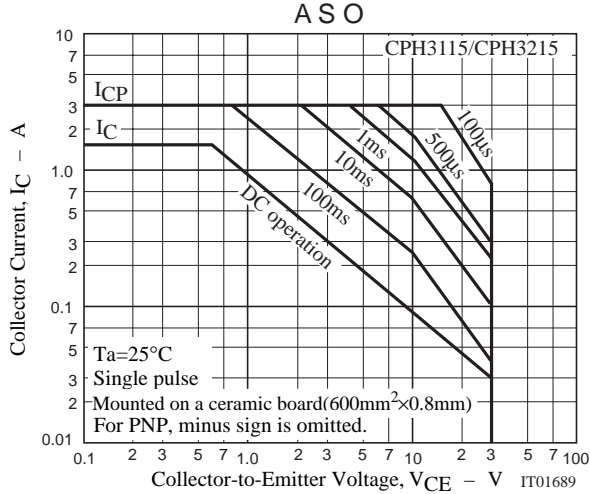
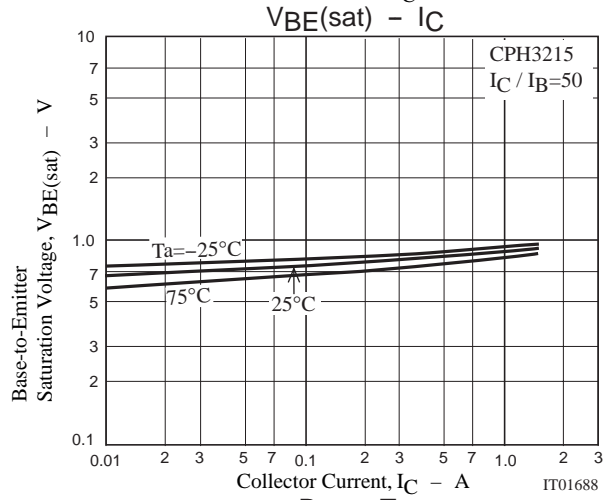
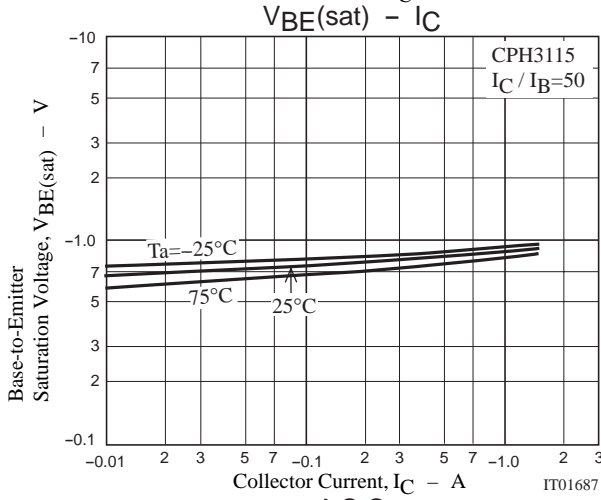
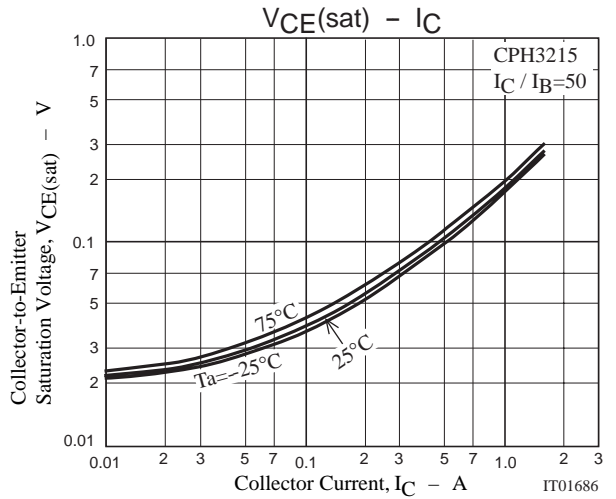
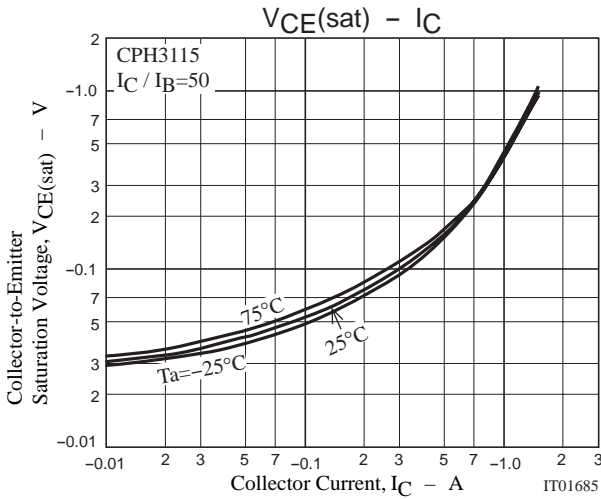
## Switching Time Test Circuit



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