



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

PNP / NPN Epitaxial Planar Silicon Transistors

CPH3145 / CPH3245 — DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, flash

Features

- Adoption of MBIT process
- Large current capacity
- Low collector-to-emitter saturation voltage
- High-speed switching
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm)
- High allowable power dissipation

Specifications () : CPH3145

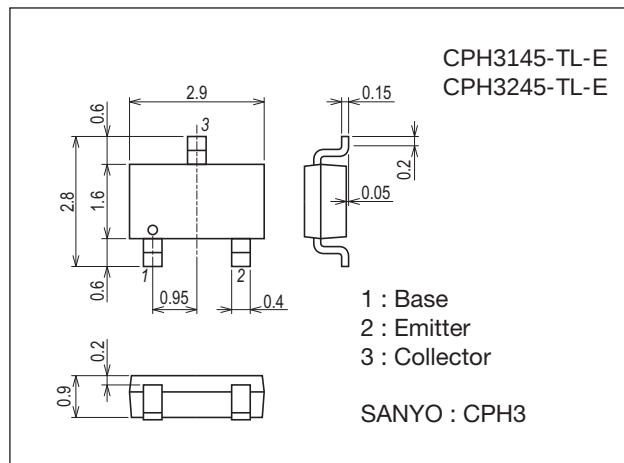
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		(-50)80	V
Collector-to-Emitter Voltage	VCES		(-50)80	V
Collector-to-Emitter Voltage	VCEO		(-)50	V
Emitter-to-Base Voltage	VEBO		(-)6	V
Collector Current	IC		(-)2	A
Collector Current (Pulse)	ICP		(-)4	A
Base Current	IB		(-)400	mA
Collector Dissipation	PC	When mounted on ceramic substrate (600mm ² ×0.8mm)	0.9	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Package Dimensions

unit : mm (typ)

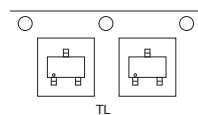
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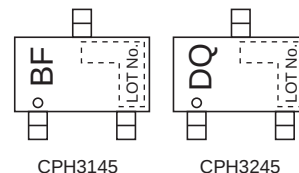
Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

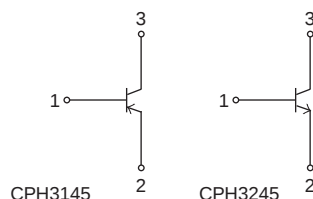
Packing Type: TL



Marking



Electrical Connection



SANYO Semiconductor Co., Ltd.

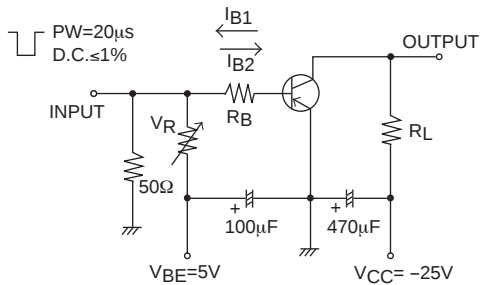
<http://semicon.sanyo.com/en/network>

CPH3145 / CPH3245

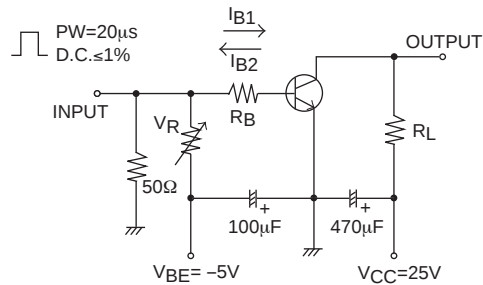
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)40V, I_E=0A$			$(-)1$	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4V, I_C=0A$			$(-)1$	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)2V, I_C=(-)100mA$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)300mA$		420		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		(16)8		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)1A, I_B=(-)50mA$		$(-165)130$	$(-330)260$	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)1A, I_B=(-)50mA$		$(-)0.9$	$(-)1.2$	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0A$	$(-50)80$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=(-)100\mu A, R_{BE}=0\Omega$	$(-50)80$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	$(-)50$			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0A$	$(-)6$			V
Turn-On Time	t_{on}	See specified Test Circuit.		(35)35		ns
Storage Time	t_{stg}			(200)330		ns
Fall Time	t_f			(24)40		ns

Switching Time Test Circuit



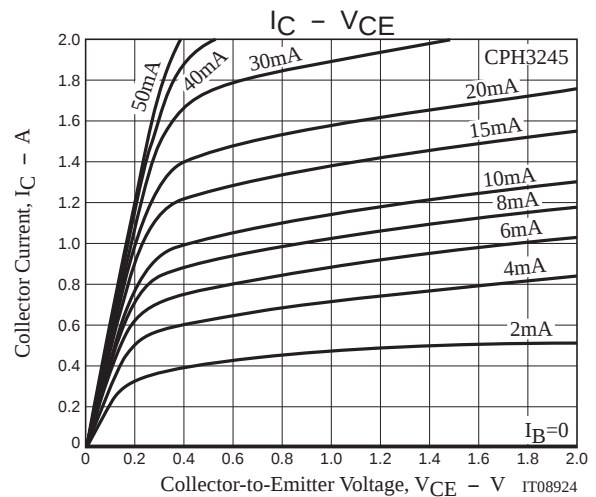
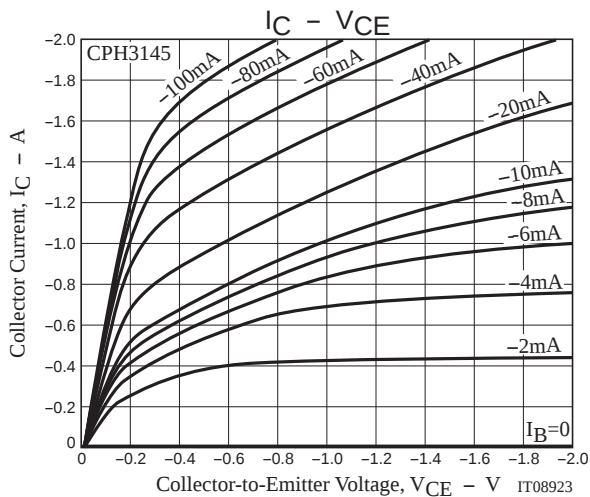
$I_C=-10I_{B1}=10I_{B2}=-0.7A$
CPH3145

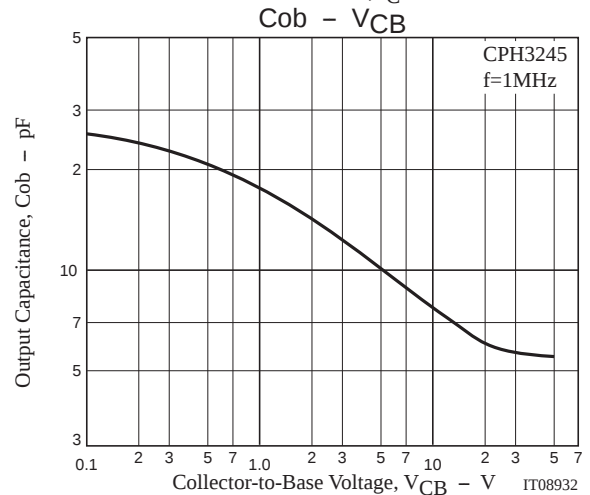
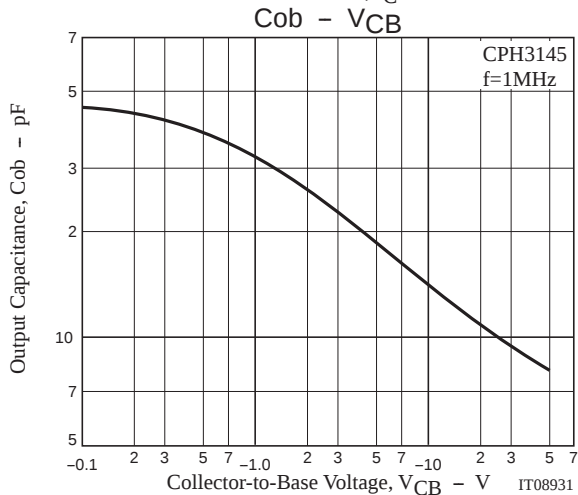
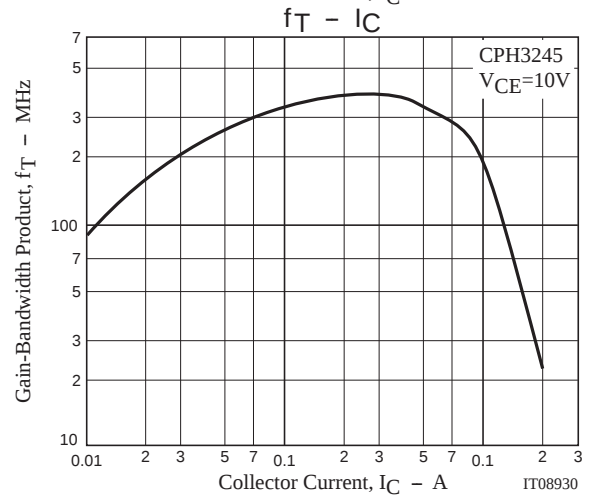
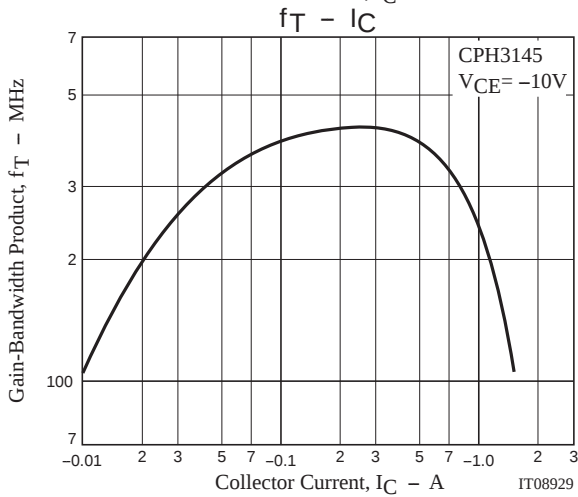
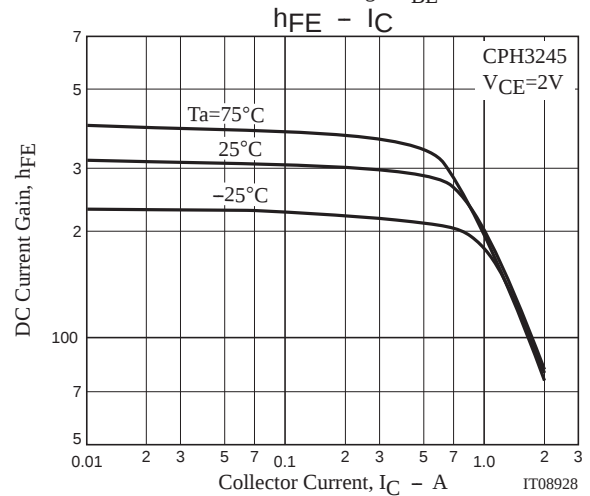
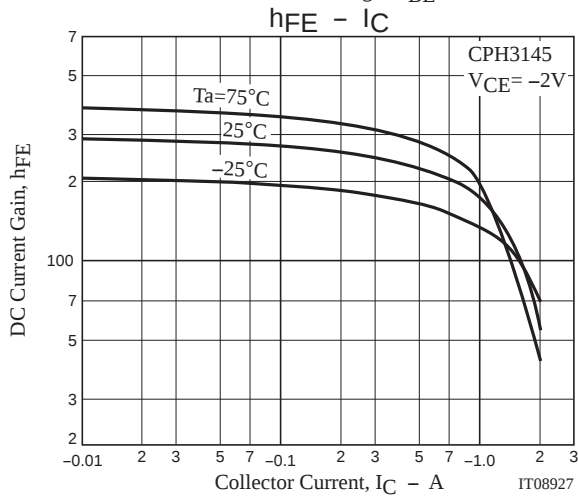
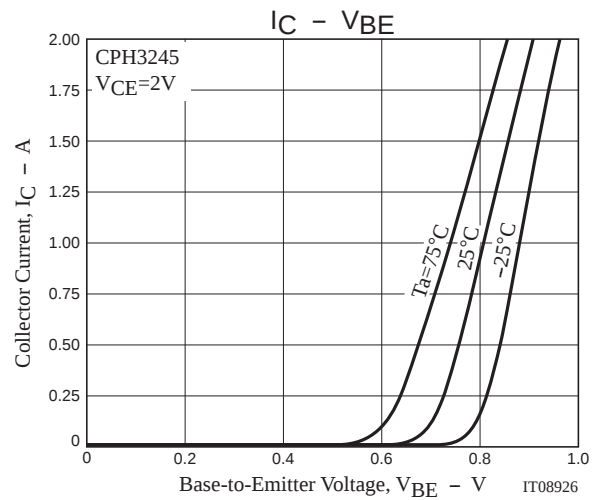
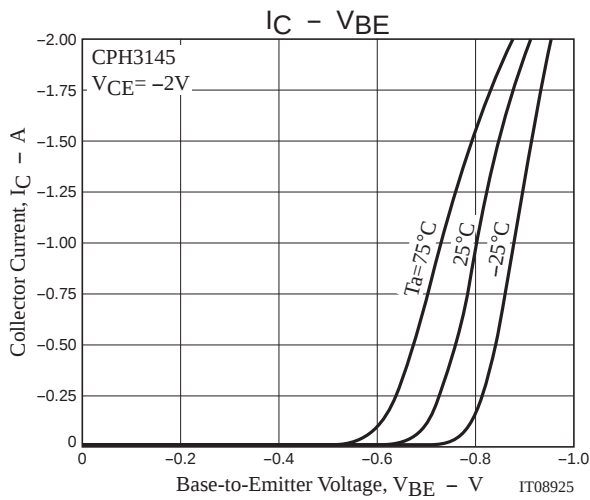


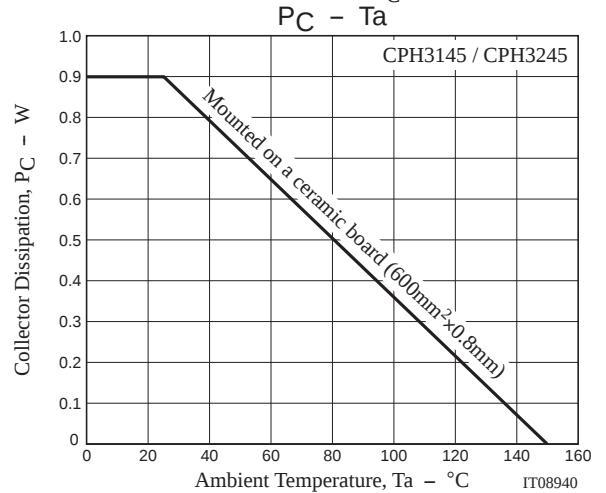
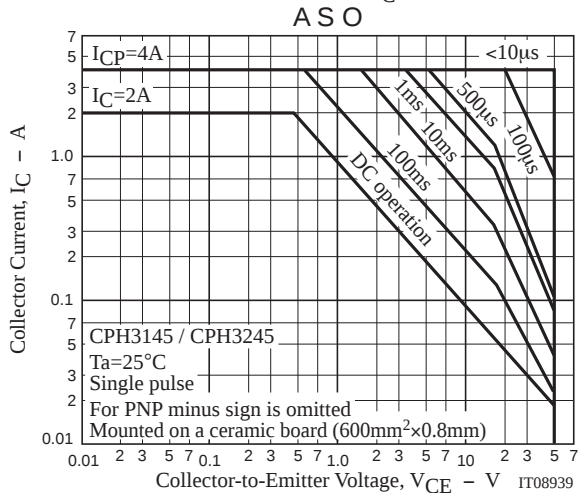
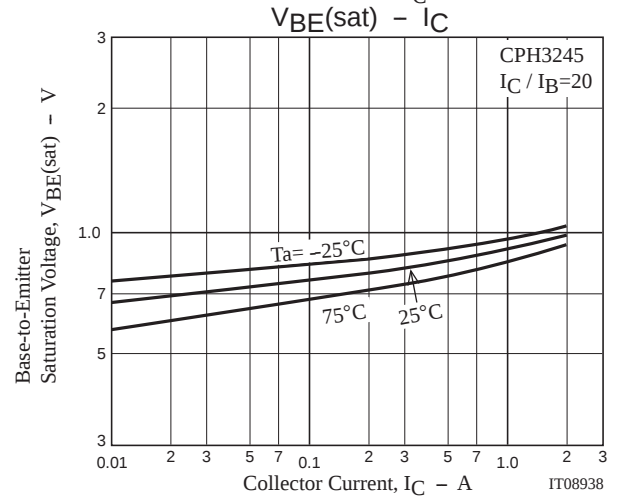
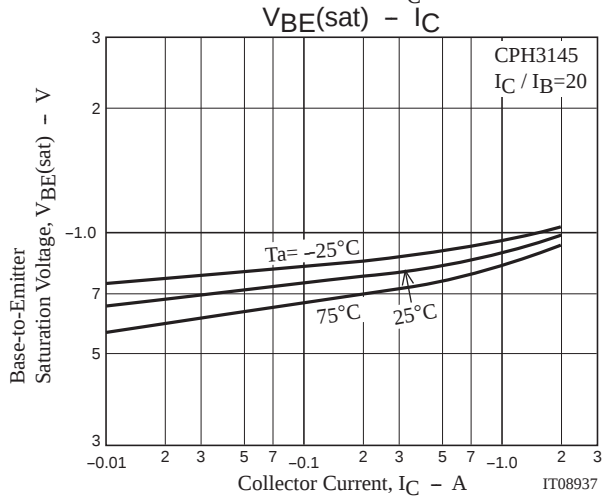
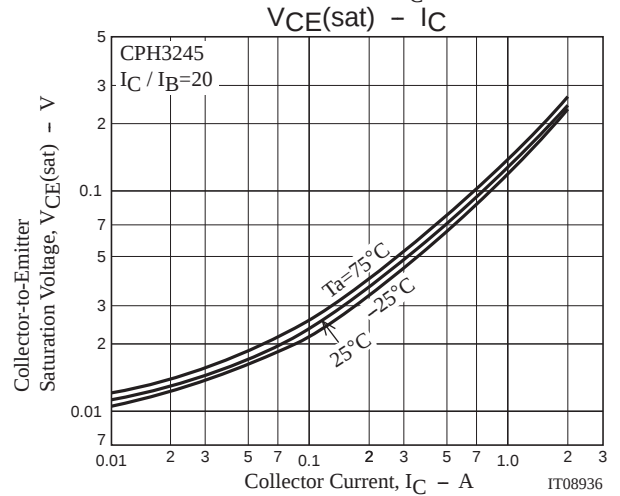
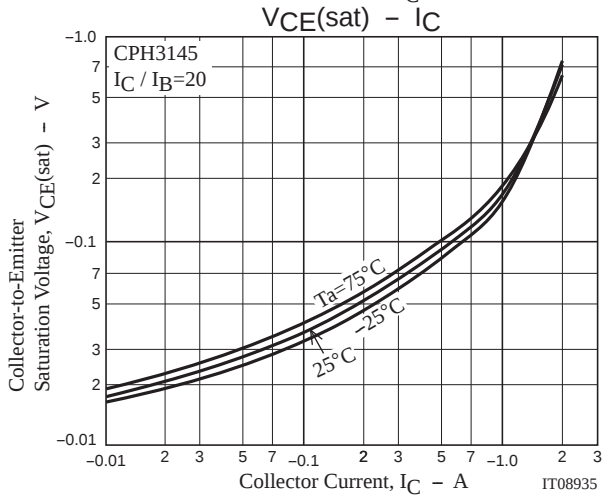
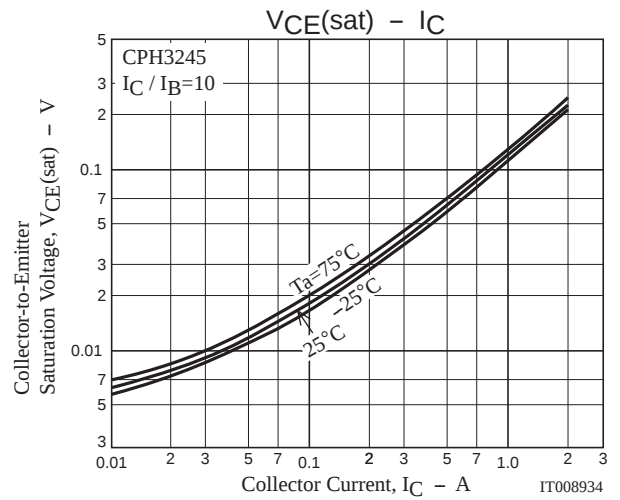
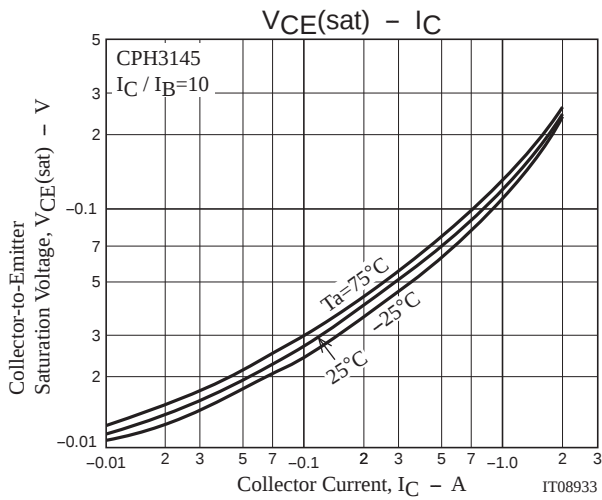
$I_C=10I_{B1}=-10I_{B2}=0.7A$
CPH3245

Ordering Information

Device	Package	Shipping	memo
CPH3145-TL-E	CPH3	3,000pcs./reel	Pb Free
CPH3245-TL-E	CPH3	3,000pcs./reel	Pb Free

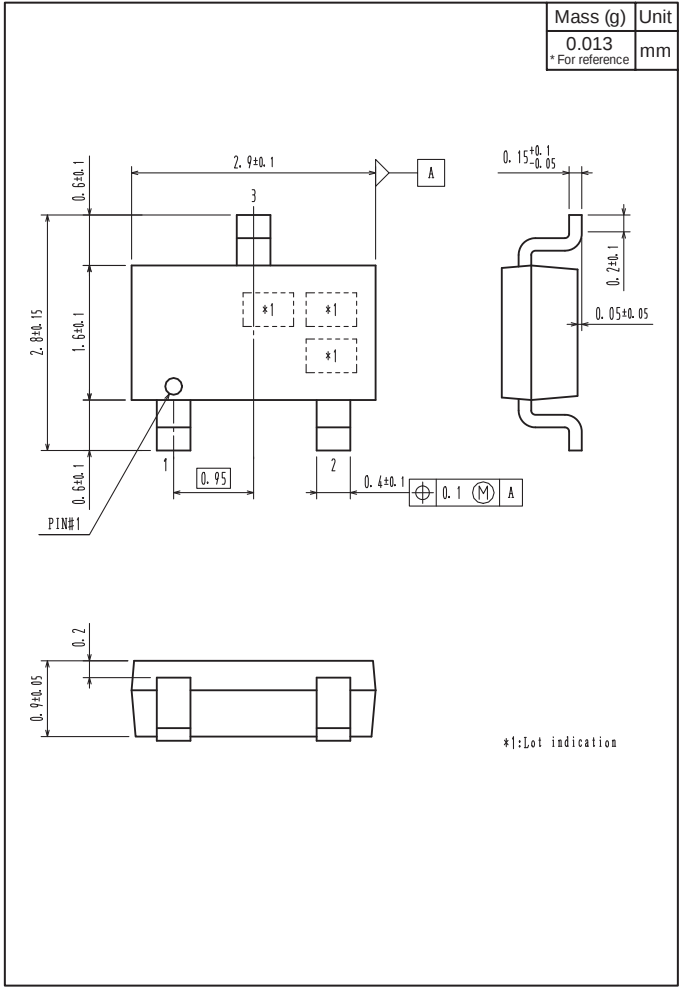




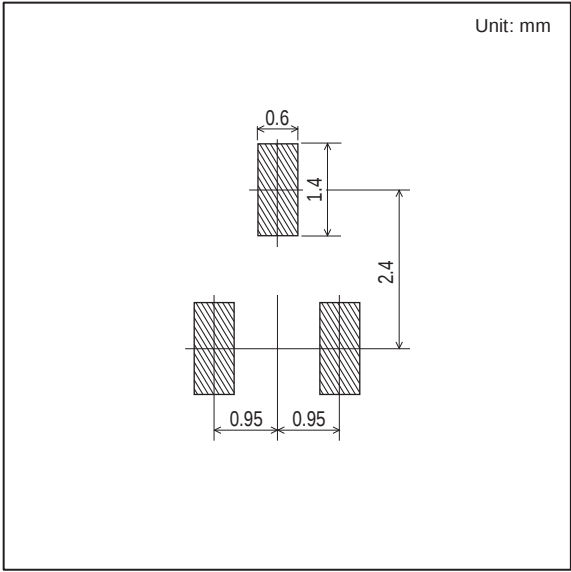


Outline Drawing

CPH3145-TL-E, CPH3245-TL-E



Land Pattern Example



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