

CPH3145/CPH3245

Low VCE (sat) Bipolar Transistor (PNP)NPN, (–)50V, (–)2A

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

Typical Applications

- Relay Drivers
- Lamp Drivers
- Motor Drivers
- Flash

SPECIFICATIONS () : CPH3145

ABSOLUTE MAXIMUM RATING at Ta = 25°C (Note 1)

Parameter	Symbol	Value	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 When mounted on ceramic substrate (600mm ² × 0.8mm)	PC	0.9	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	–55 to +150	°C

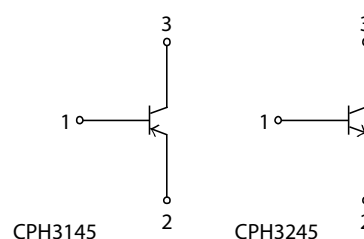
Note 1 : Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



ON Semiconductor®

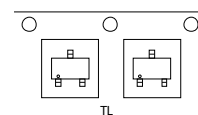
www.onsemi.com

ELECTRICAL CONNECTION

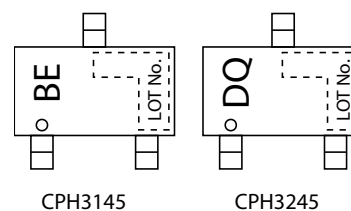


1 : Base
2 : Emitter
3 : Collector

PACKING TYPE : TL



MARKING



CPH3145

CPH3245

ORDERING INFORMATION

See detailed ordering and shipping information on page 5 of this data sheet.

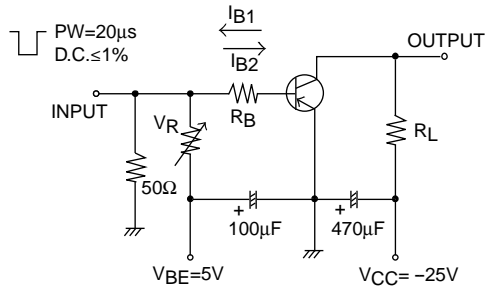
CPH3145/CPH3245

ELECTRICAL CHARACTERISTICS at Ta = 25°C (Note 2)

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V _{CB} =(-)40V, I _E =0A			(-)1	μA
Emitter Cutoff Current	IEBO	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)}			(-)0.9	(-)1.2	V
Collector to Base Breakdown Voltage	V _{(BR)CBO}	I _C =(-)10μA, I _E =0A	(-50)80			V
Collector to Emitter Breakdown Voltage	V _{(BR)CES}	I _C =(-)100μA, R _{BE} =0Ω	(-50)80			V
Collector to Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =(-)1mA, R _{BE} =∞	(-)50			V
Emitter to Base Breakdown Voltage	V _{(BR)EBO}	I _E =(-)10μA, 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

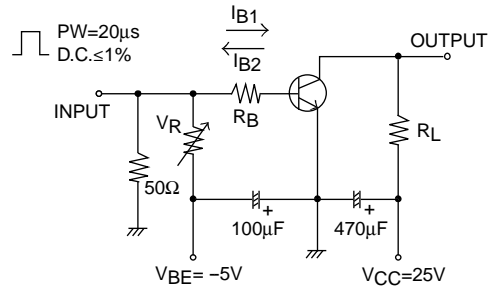
Note 2 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Switching Time Test Circuit



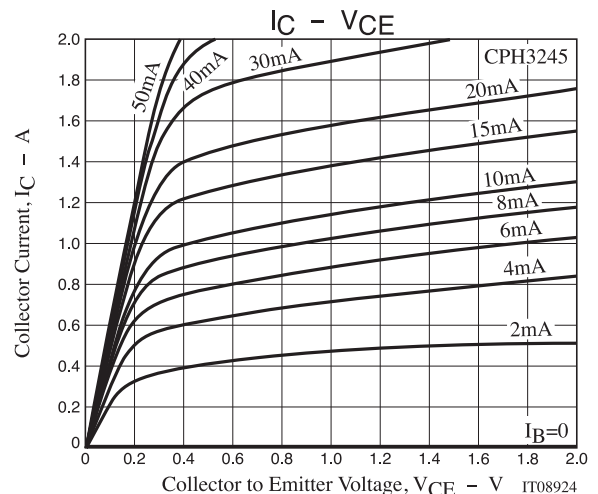
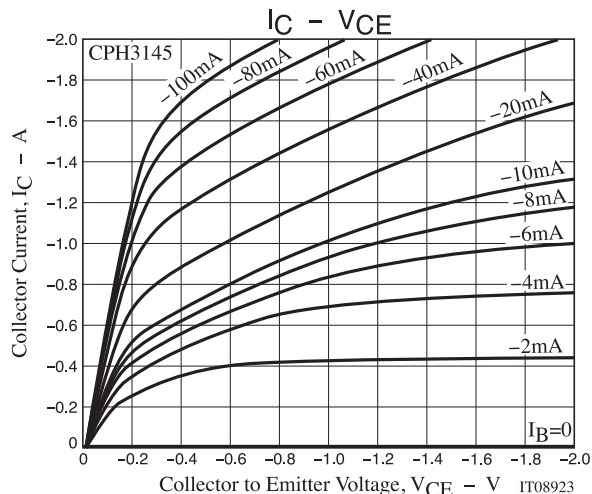
$$I_C = -10I_{B1} = 10I_{B2} = -0.7A$$

CPH3145

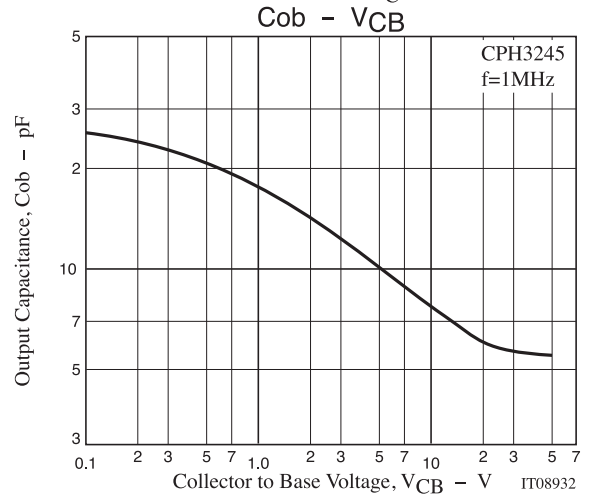
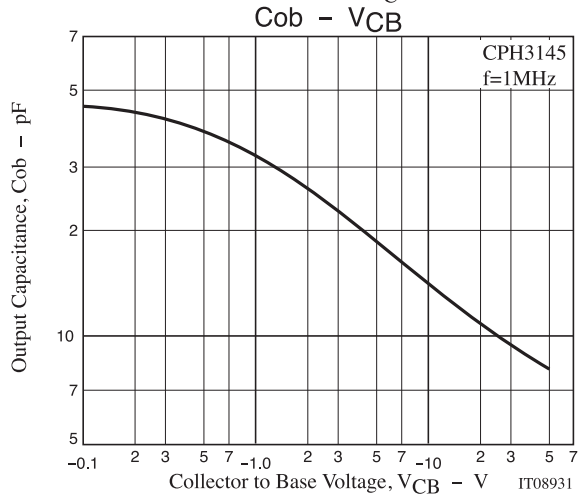
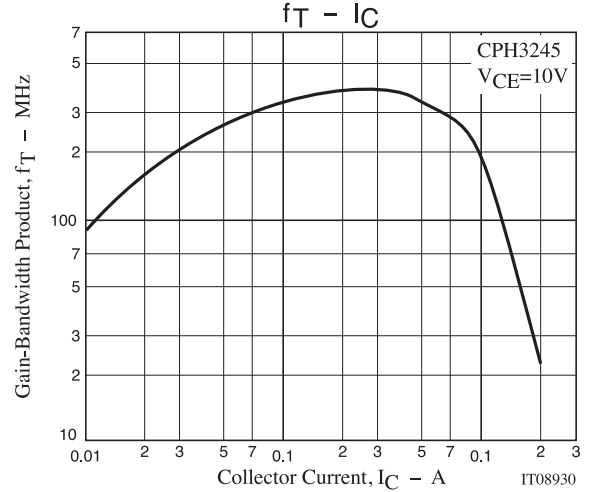
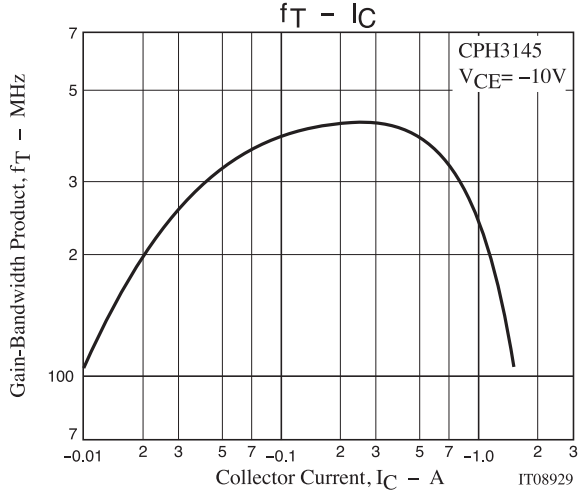
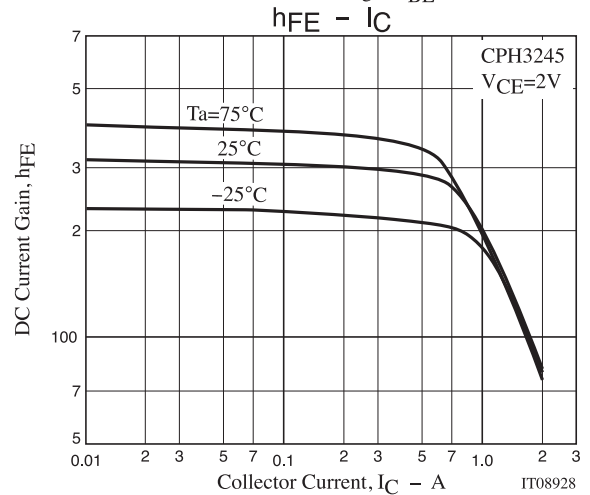
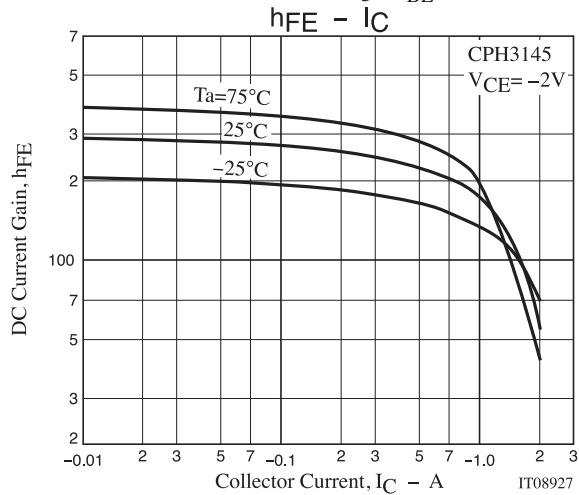
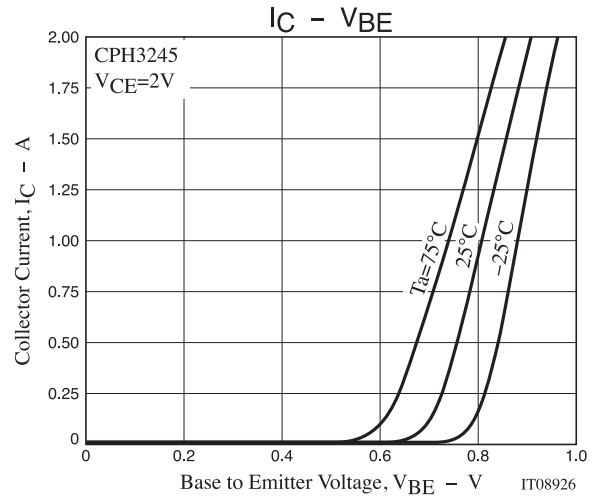
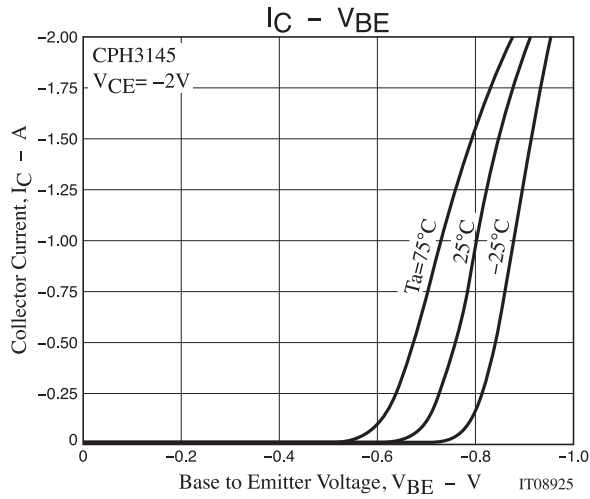


$$I_C = 10I_{B1} = -10I_{B2} = 0.7A$$

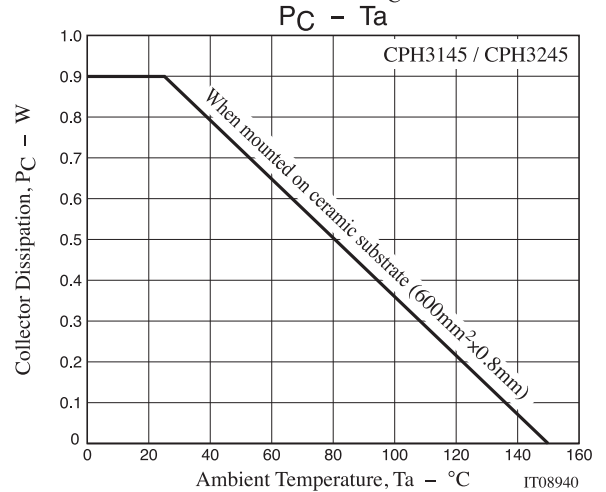
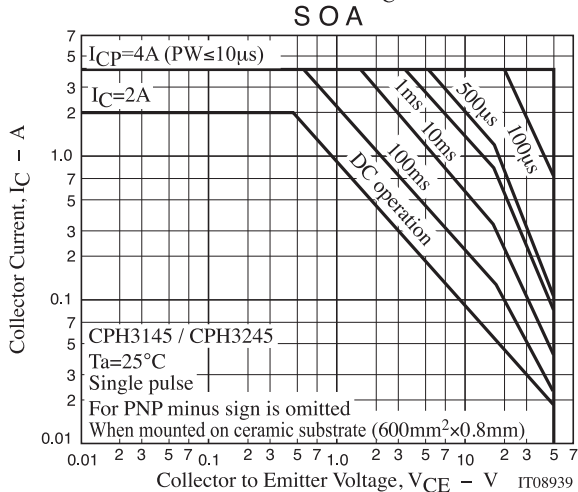
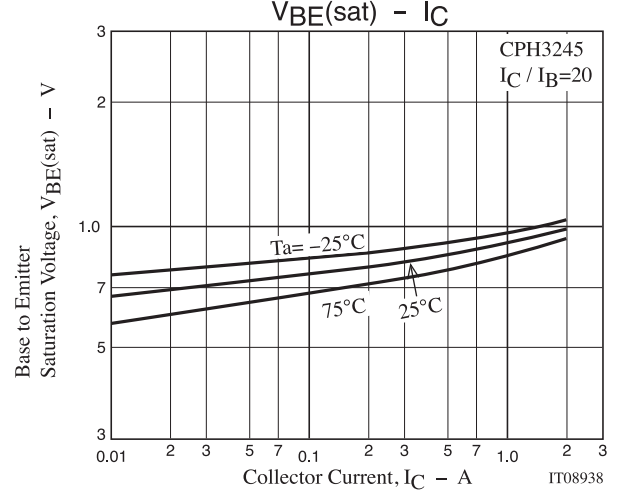
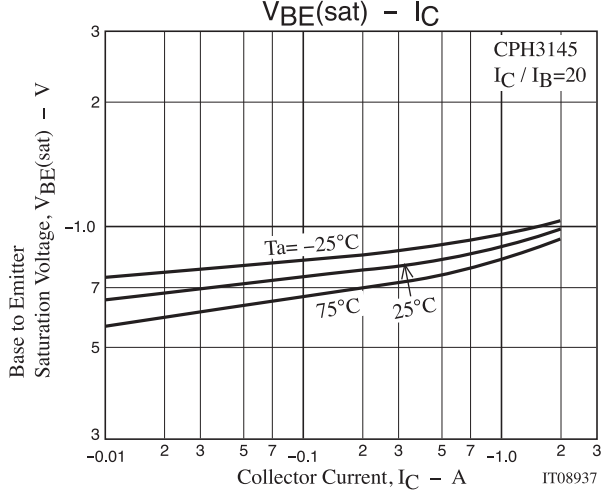
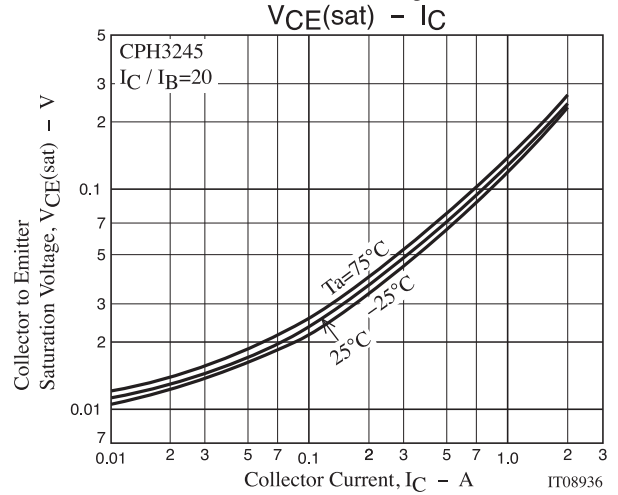
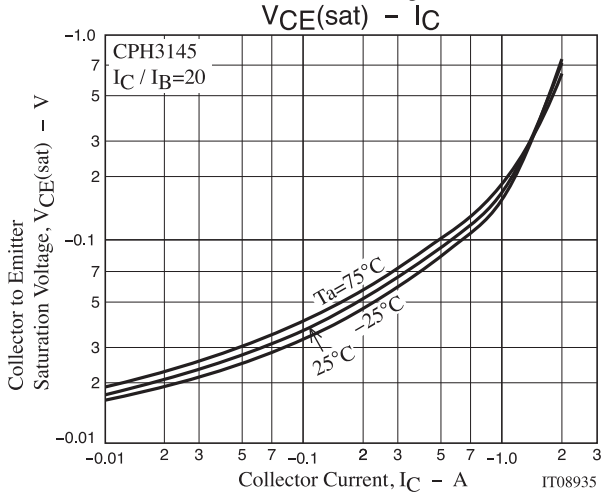
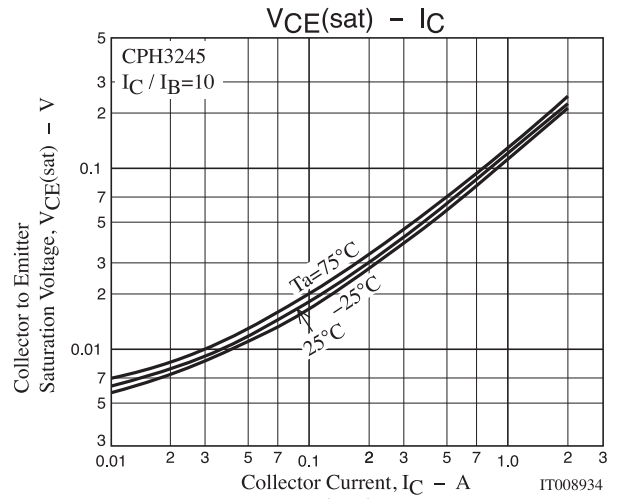
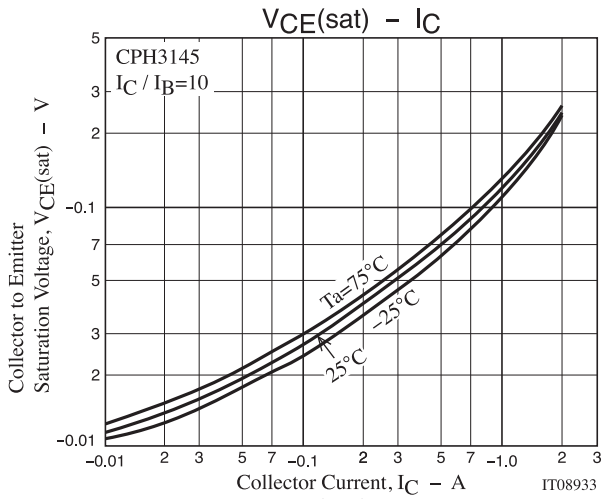
CPH3245



CPH3145/CPH3245



CPH3145/CPH3245

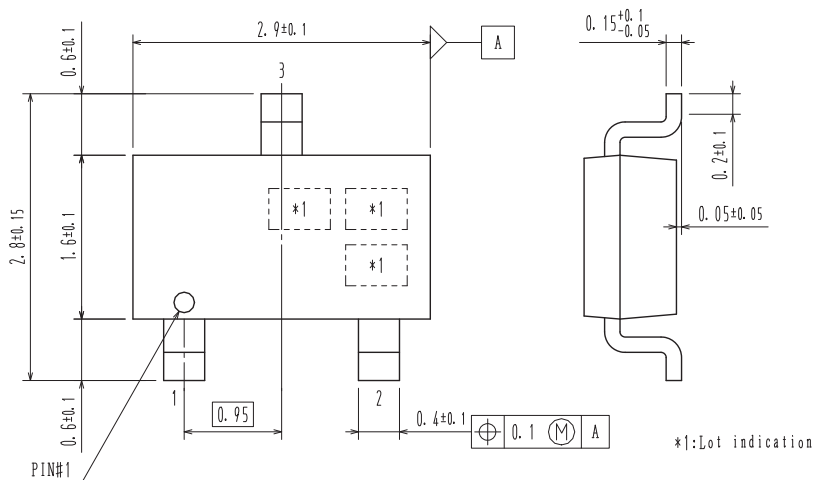


CPH3145/CPH3245

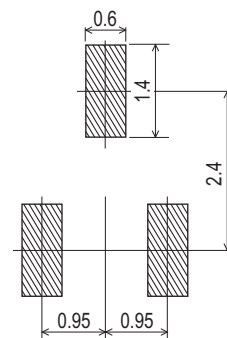
PACKAGE DIMENSIONS

unit : mm

CPH3
CASE 318BA
ISSUE 0



Recommended Soldering Footprint



ORDERING INFORMATION

Device	Marking	Package	Shipping (Qty / Packing)
CPH3145-TL-E	BE	CPH3 SC-59, SOT-23, TO-236 (Pb-Free)	3,000 / Tape & Reel
CPH3245-TL-E	DQ		

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D. http://www.onsemi.com/pub_link/Collateral/BRD8011-D.PDF

ON Semiconductor and the ON logo are registered trademarks of Semiconductor Components Industries, LLC (SCILLC) or its subsidiaries in the United States and/or other countries. SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[onsemi:](#)

[CPH3245-TL-E](#) [CPH3145-TL-E](#)