Ordering number : EN7353B

15C02CH

Bipolar Transistor
15V, 1A, Low V_{CE}(sat) NPN Single CPH3

ON Semiconductor®
http://onsemi.com

Applications

- Low-frequency amplifer, high-speed switching, small motor drive

Features

- Large current capacity
- Low collector-to-emitter saturation voltage (resistance) R_{CE}(sat) typ.=300mΩ [I_C=1A, I_B=50mA]
- Ultrasmall package facilitates miniaturization in end products
- Small ON-resistance (Ron)

Specifications

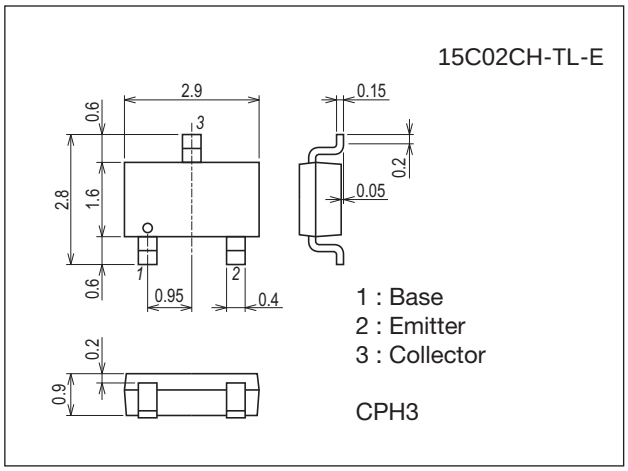
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		20	V
Collector-to-Emitter Voltage	V_{CEO}		15	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		1	A
Collector Current (Pulse)	I_{CP}		2	A
Collector Dissipation	P_C	Mounted on a ceramic board (600mm²×0.8mm)	700	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

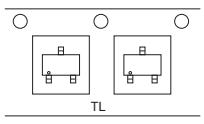
unit : mm (typ)
7015A-003



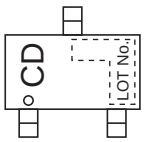
Product & Package Information

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

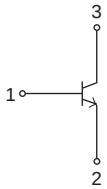
Packing Type: TL



Marking



Electrical Connection

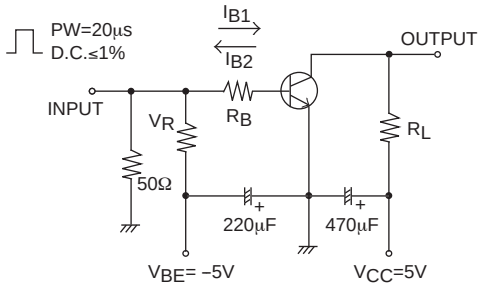


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Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=12V, I_E=0A			100	nA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0A			100	nA
DC Current Gain	h_{FE}	V_{CE}=2V, I_C=50mA	300		800	
Gain-Bandwidth Product	f_T	V_{CE}=2V, I_C=50mA		400		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		4		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=400mA, I_B=20mA		140	280	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=400mA, I_B=20mA		0.9	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0A	20			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0A	5			V
Turn-On Time	t_{on}	See specified Test Circuit.		30		ns
Storage Time	t_{stg}			165		ns
Fall Time	t_f			25		ns

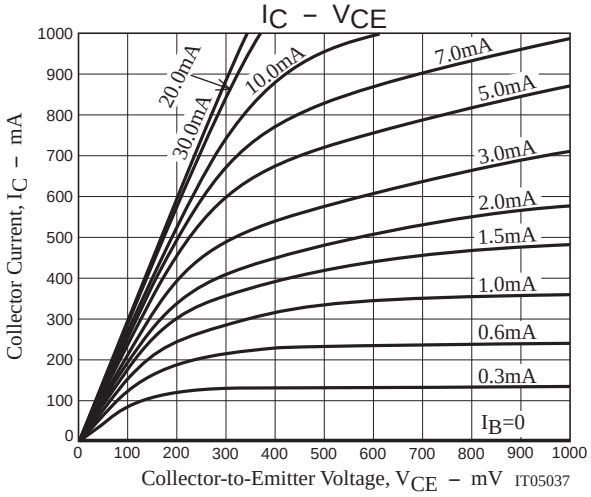
Switching Time Test Circuit

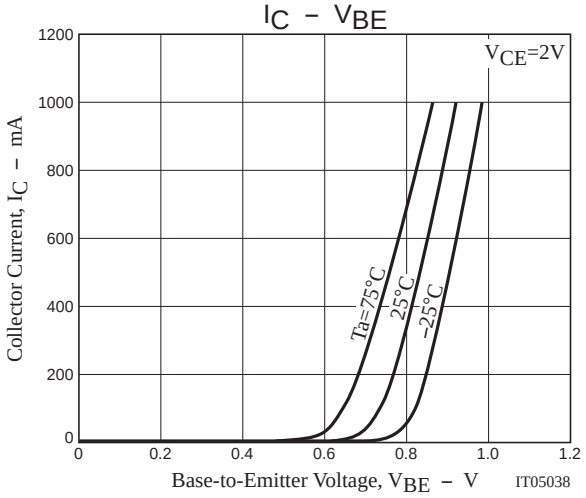


I_C=20I_{B1}= −20I_{B2}=400mA

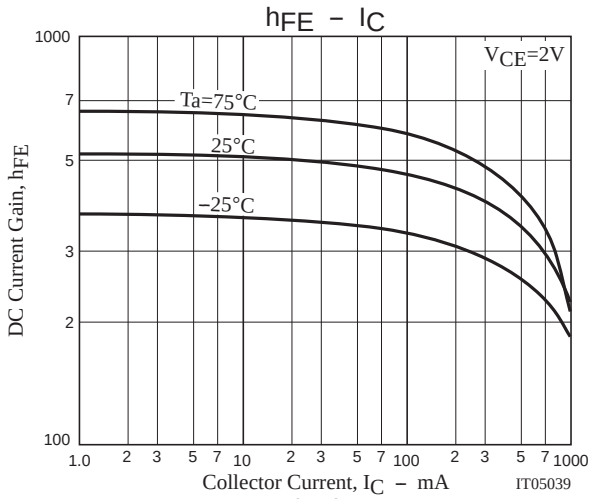
Ordering Information

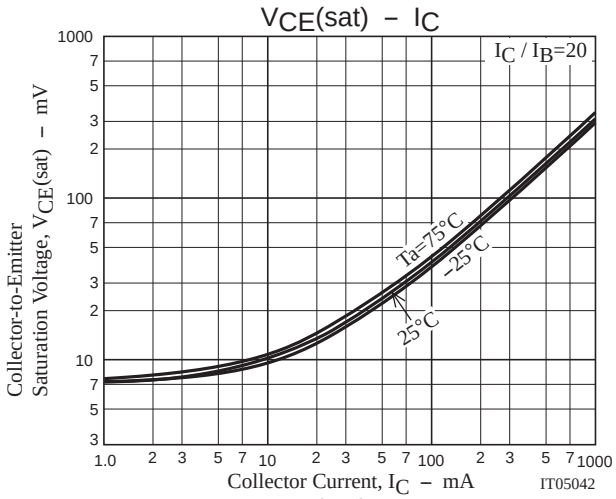
Device	Package	Shipping	memo
15C02CH-TL-E	CPH3	3,000pcs./reel	Pb Free

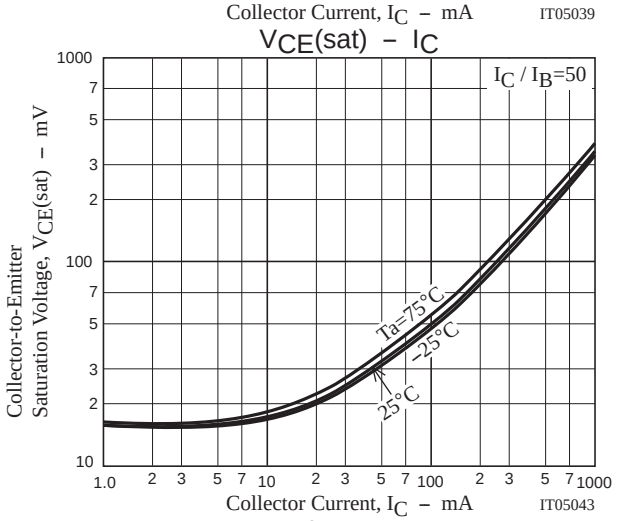


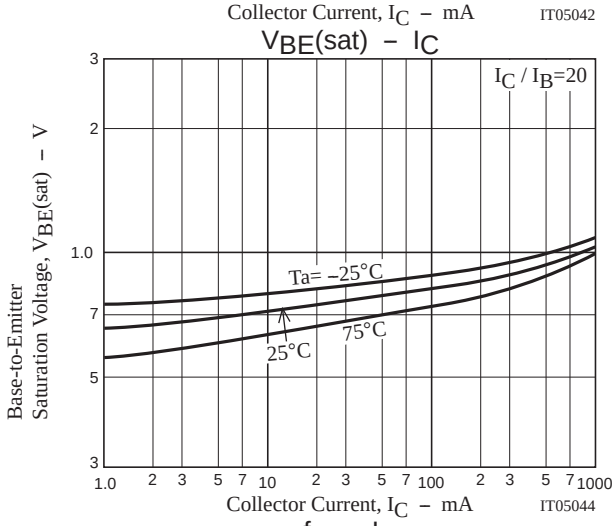


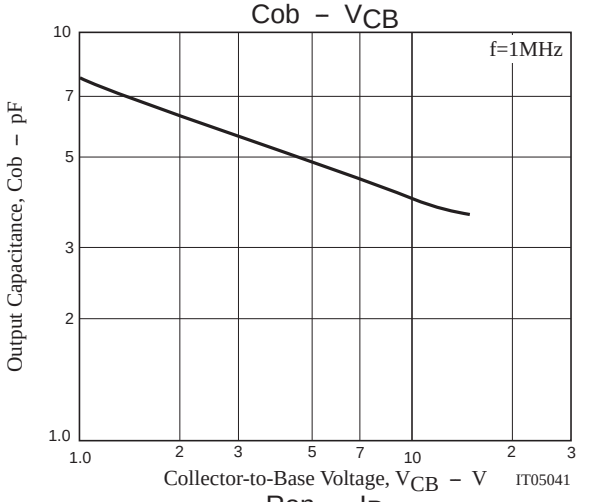
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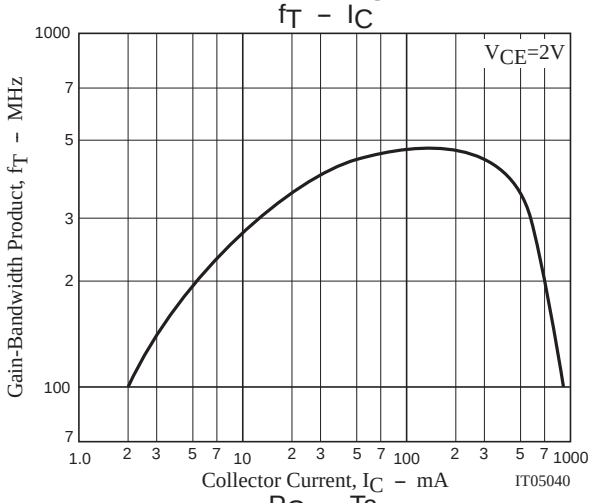


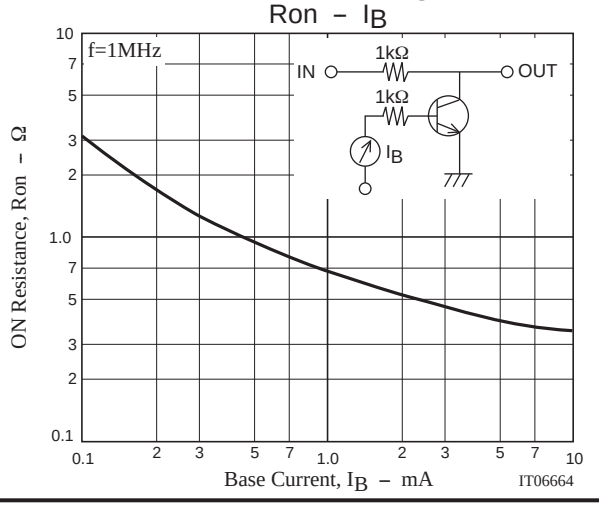


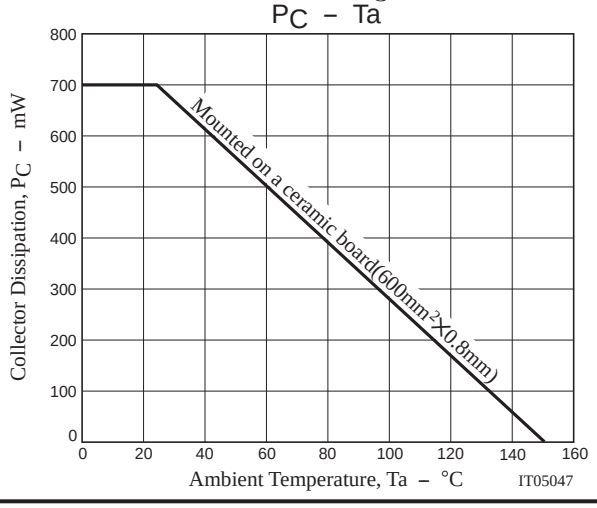












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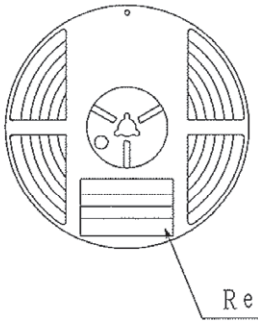
Embossed Taping Specification

15C02CH-TL-E

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
CPH3	CPH3	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

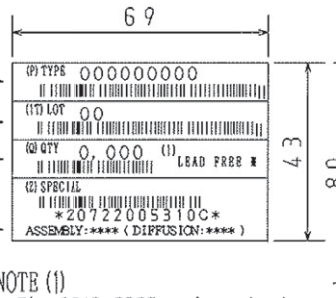
Packing method



Reel label

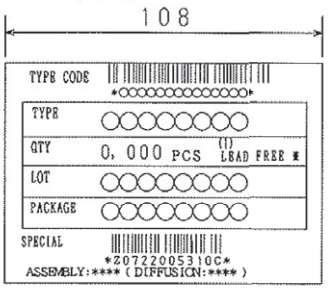
Reel label, Inner box label

(unit:mm)



Outer box label

It is a label at the time of factory shipments. The form of a label may change in physical distribution process.

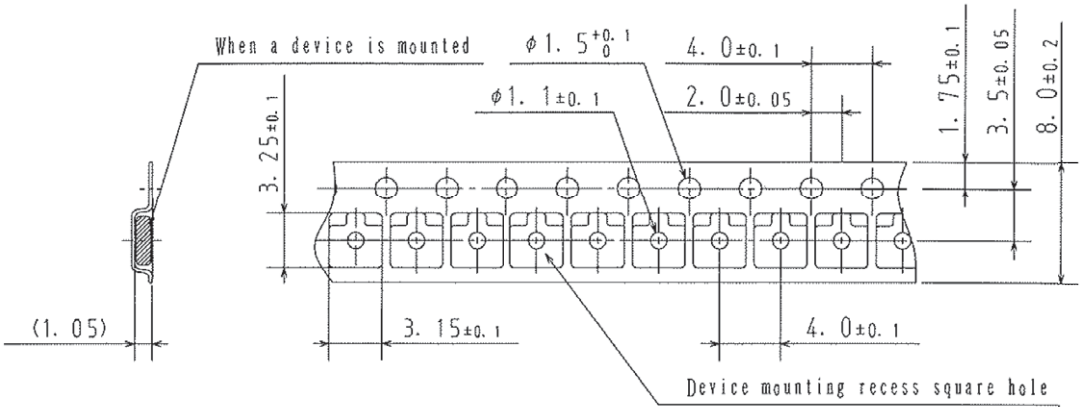


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

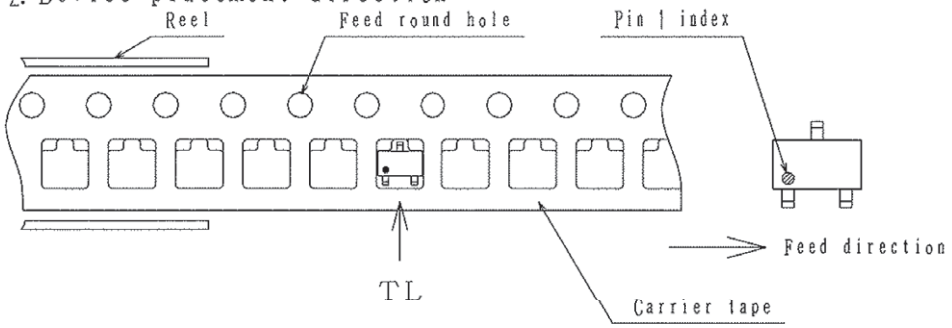
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



2-2. Device placement direction

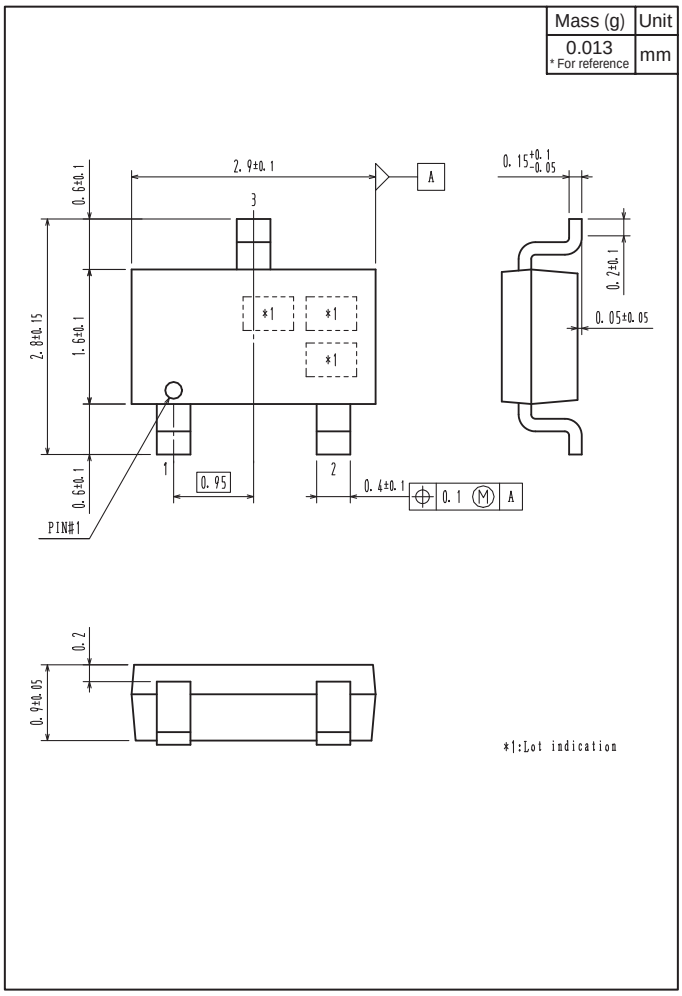


Those with one electrode terminal on the feed hole side·····TL

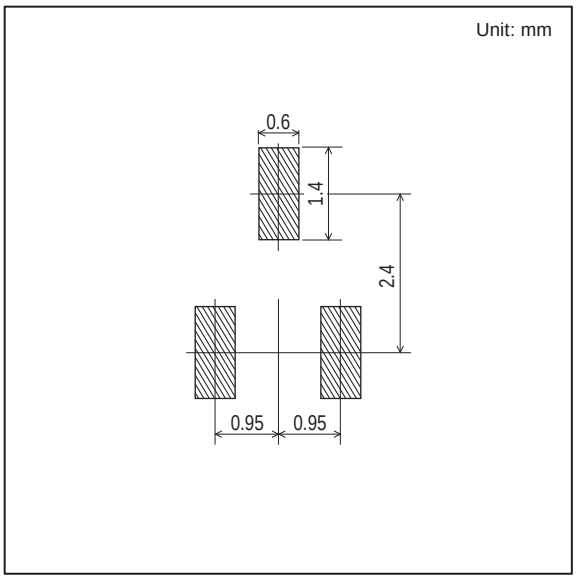
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Outline Drawing

15C02CH-TL-E



Land Pattern Example



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