Ordering number : EN7504A

15C01C

Bipolar Transistor
15V, 0.7A, Low V_{CE}(sat) NPN Single CP

ON Semiconductor®
http://onsemi.com

Applications

- Low-frequency Amplifier, muting circuit

Features

- Large current capacity
- Low collector-to-emitter saturation voltage (resistance) R_{CE} (sat) typ.=0.58Ω [I_C=0.7A, I_B=35mA]
- Ultrasmall package facilitates miniaturization in end products
- Small ON-resistance (Ron)

Specifications

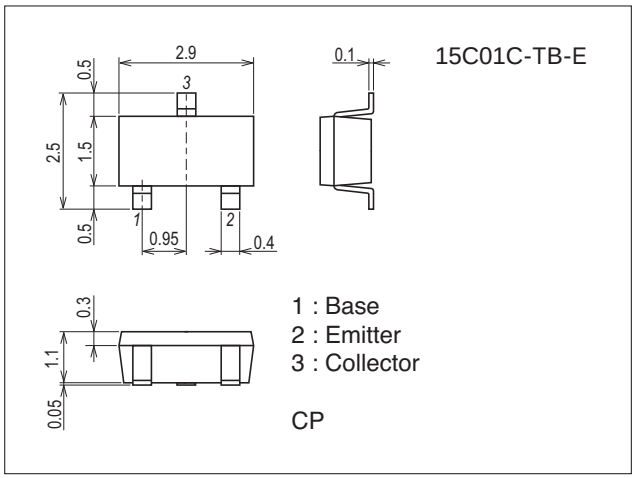
Absolute Maximum Ratings at Ta=25°C

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		700	mA
Collector Current (Pulse)	I_{CP}		1.4	A
Collector Dissipation	P_C	Mounted on a glass epoxy board (20×30×1.6mm)	300	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

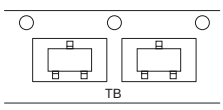
unit : mm (typ)
7013A-009



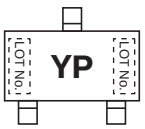
Product & Package Information

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

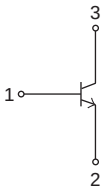
Packing Type: TB



Marking



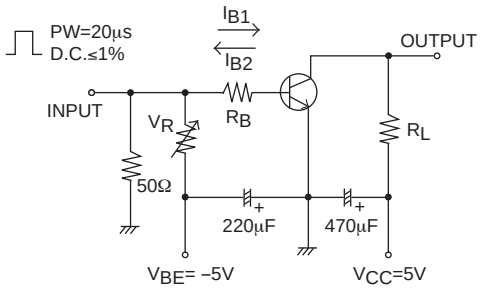
Electrical Connection



Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=15V, I_E=0A			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0A			0.1	μA
DC Current Gain	h_{FE}	V_{CE}=2V, I_C=10mA	300		800	
Gain-Bandwidth Product	f_T	V_{CE}=2V, I_C=50mA		330		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		3.2		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=200mA, I_B=10mA		150	300	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=200mA, I_B=10mA		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}			77		ns
Fall Time	t_f			40		ns

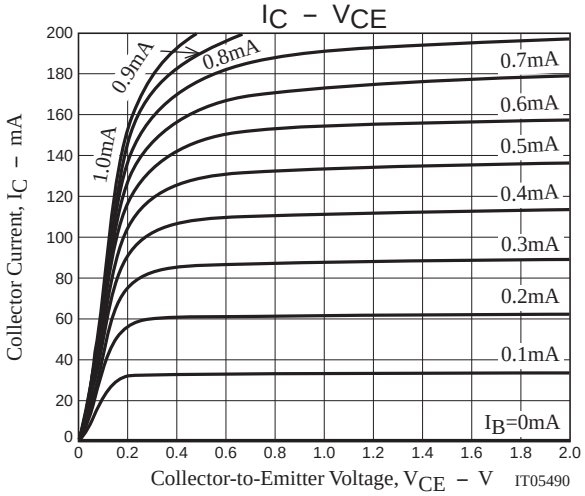
Switching Time Test Circuit

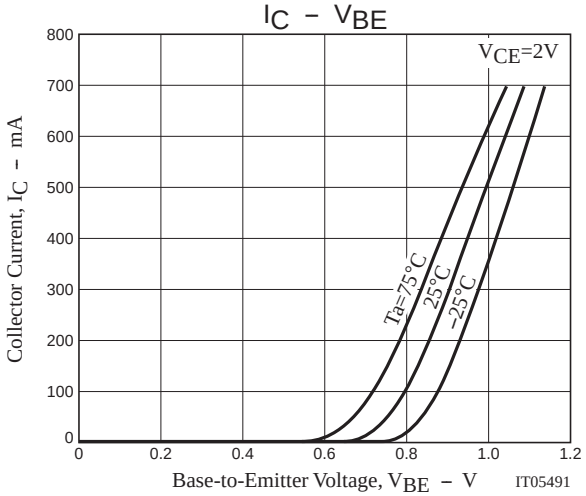


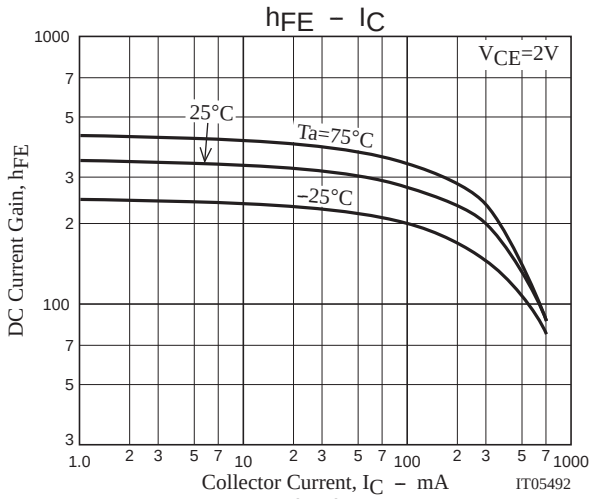
I_C=20I_{B1}= −20I_{B2}=500mA

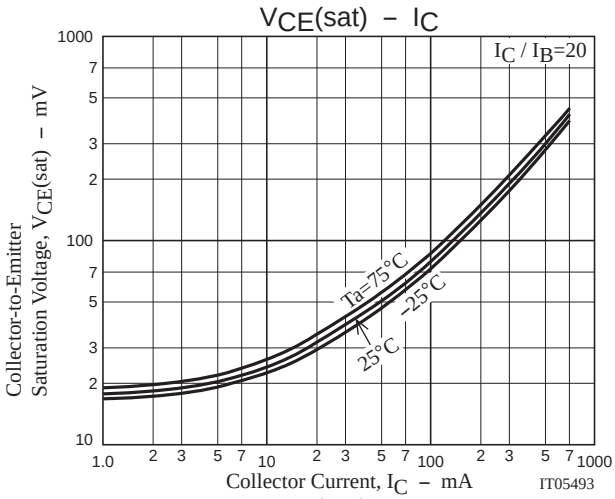
Ordering Information

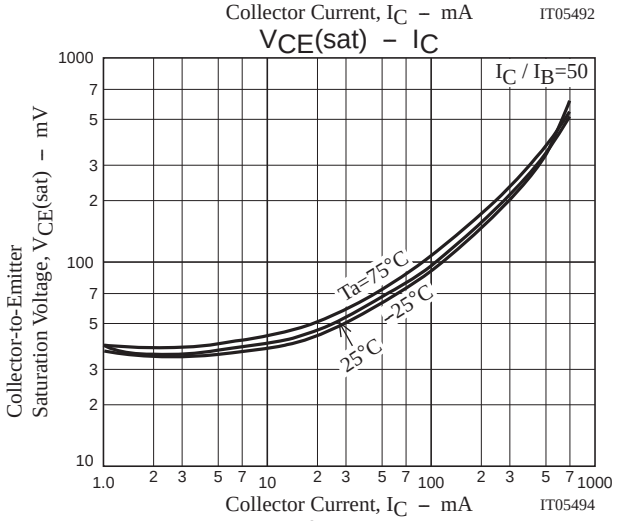
Device	Package	Shipping	memo
15C01C-TB-E	CP	3,000pcs./reel	Pb Free

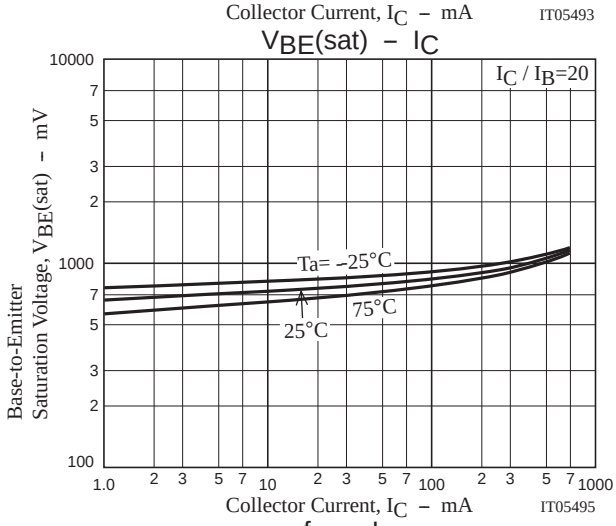


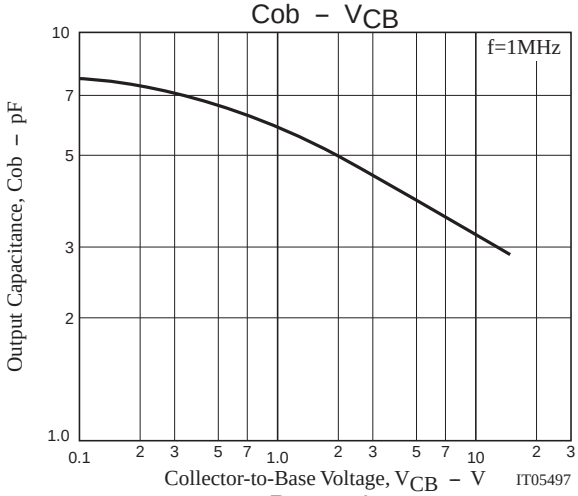


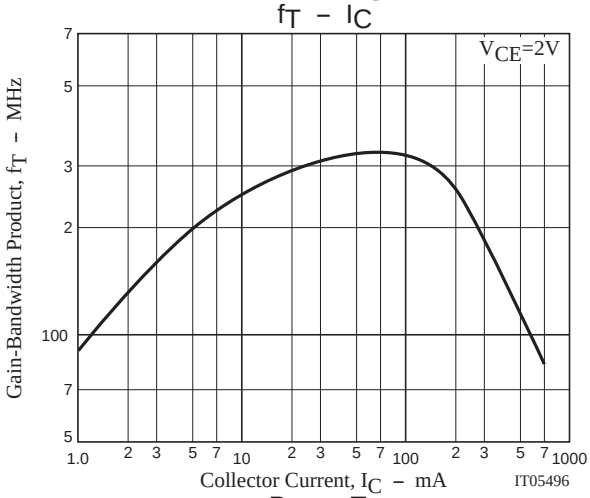

hFE – IC
VCE=2V
25°C
Ta=75°C
–25°C
DC Current Gain, hFE
Collector Current, IC – mA
IT05492

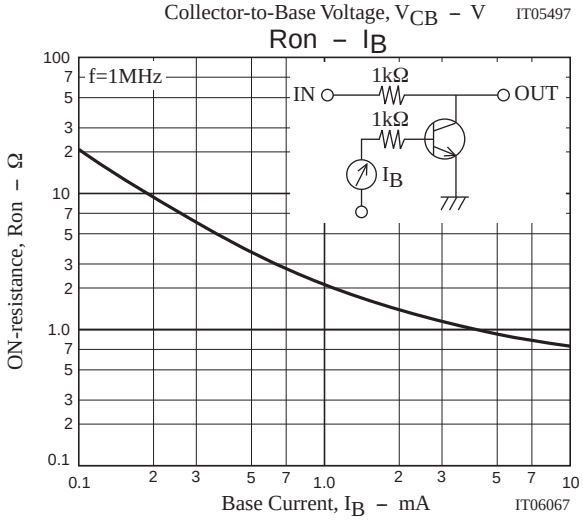

VCE(sat) – IC
IC / IB=20
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – mA
IT05493

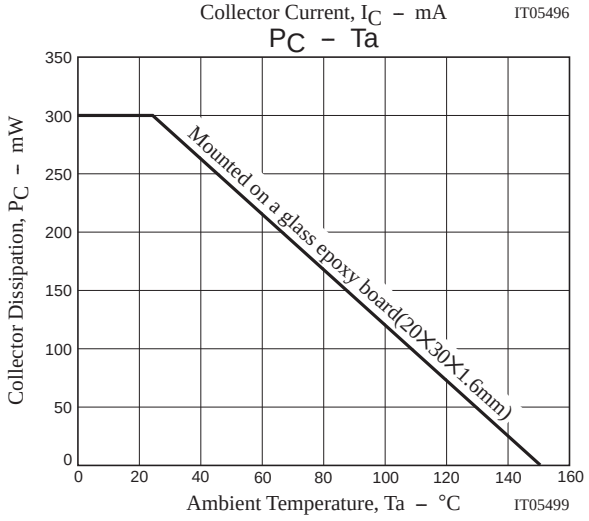

VCE(sat) – IC
IC / IB=50
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – mA
IT05494


VBE(sat) – IC
IC / IB=20
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – mV
Collector Current, IC – mA
IT05495


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT05497


fT – IC
VCE=2V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
IT05496


Ron – IB
f=1MHz
IN
1kΩ
1kΩ
OUT
IB
ON-resistance, Ron – Ω
Base Current, IB – mA
IT06067


PC – Ta
Mounted on a glass epoxy board(20X30X1.6mm)
Collector Dissipation, PC – mW
Ambient Temperature, Ta – °C
IT05499

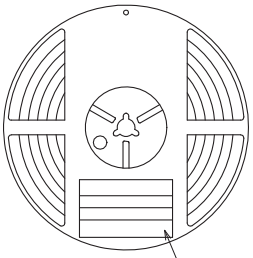
Embossed Taping Specification

15C01C-TB-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)
CP	CP	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

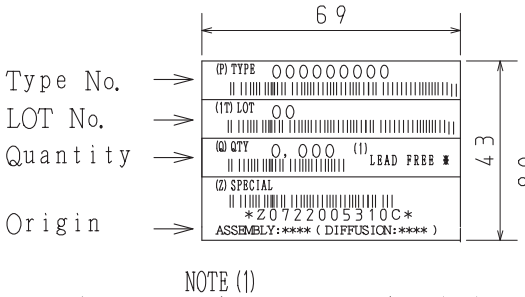
Packing method



Reel label

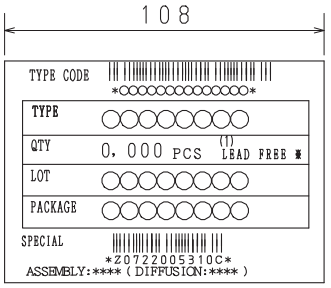
Reel label, Inner box label

(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.

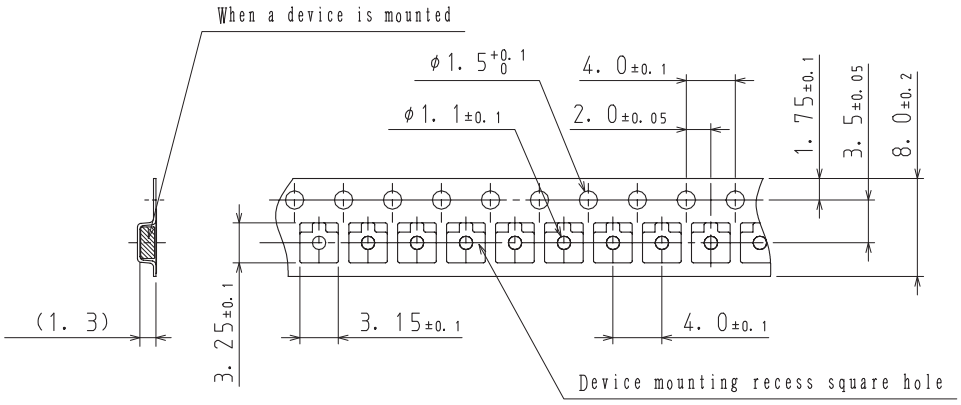


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

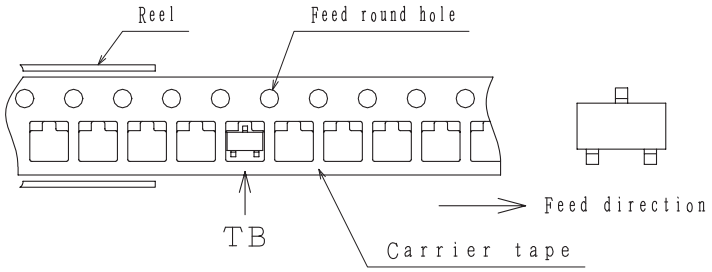
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



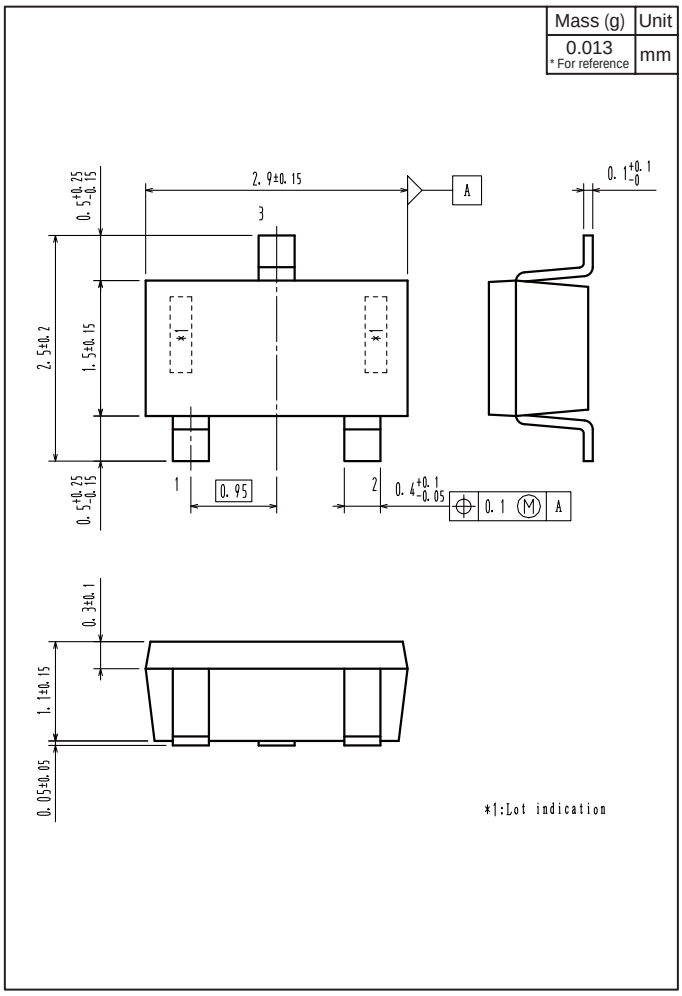
2-2. Device placement direction



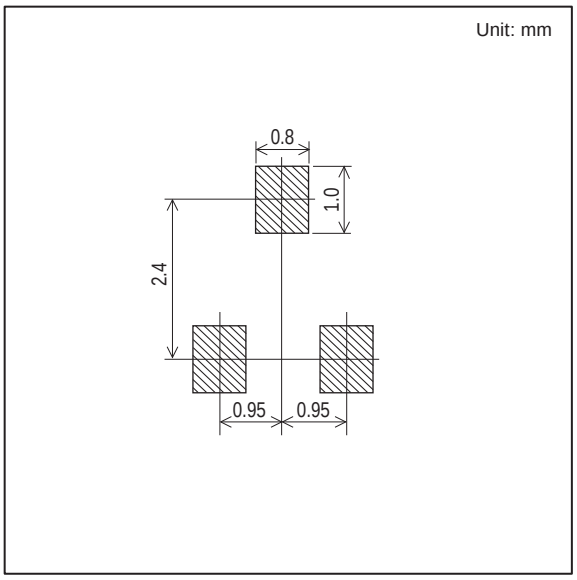
Those with one electrode terminal on the feed hole side……TB

Outline Drawing

15C01C-TB-E



Land Pattern Example



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