Ordering number : ENA1758A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

ECH8502 — PNP/NPN Epitaxial Planar Silicon Transistors Gate Drive Applications

Features

- Composite type, facilitating high-density mounting
- Mounting height 0.9mm
- Low collector-to-emitter saturation voltage NPN : $V_{CE}(sat)$=0.08V(typ.)@I_C=2.5A
  PNP : $V_{CE}(sat)$= –0.12V(typ.)@I_C= –2.5A
- Halogen free compliance

Specifications ( ): PNP

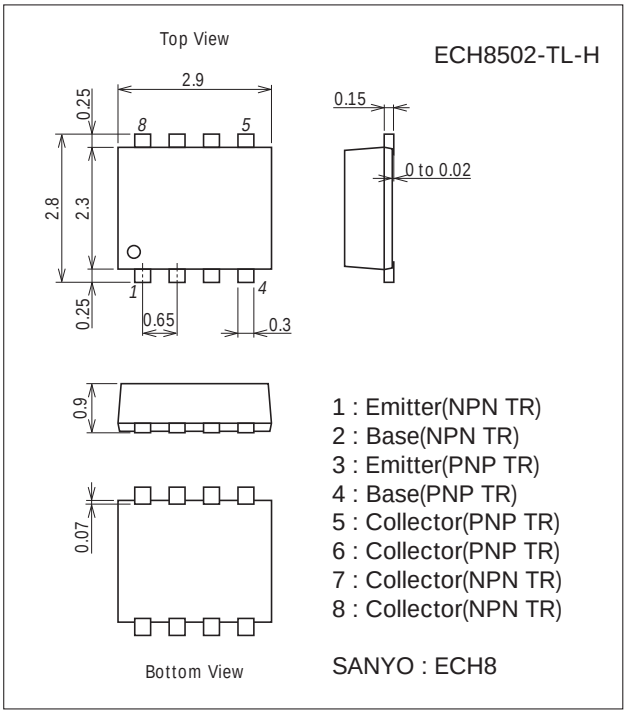
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–50)100	V
Collector-to-Emitter Voltage	V_{CEO}		(–)50	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)5	A
Collector Current (Pulse)	I_{CP}	PW≤1μs, duty cycle≤1%	(–)30	A
Base Current	I_B		(–)600	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (900mm²×0.8mm) 1unit	1.3	W
Total Dissipation	P_T	When mounted on ceramic substrate (900mm²×0.8mm)	1.6	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

Package Dimensions

unit : mm (typ)

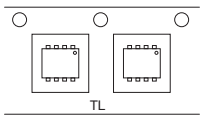
7011A-007



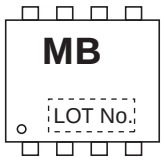
Product & Package Information

- Package : ECH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

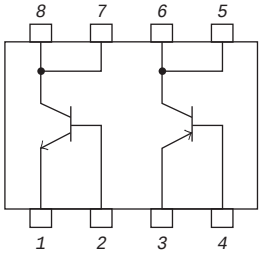
Packing Type : TL



Marking



Electrical Connection

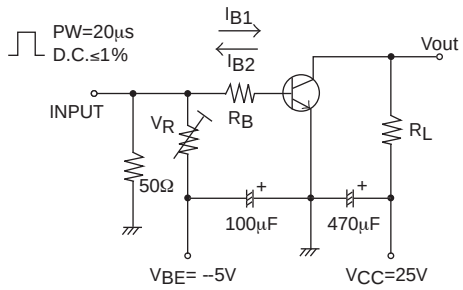


Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(−)50V, 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=(−)500mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}=(−)10V, I_C=(−)500mA		(260)290		MHz
Output Capacitance	Cob	V_{CB}=(−)10V, f=1MHz		(45)25		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=(−)2.5A, I_B=(−)125mA		(−120)80	(−200)120	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=(−)2.5A, I_B=(−)125mA		(−)0.85	(−)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(−)10μA, I_E=0A	(−50)100			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.		(30)30		ns
Storage Time	t_{stg}			(180)280		ns
Fall Time	t_f			(20)25		ns

Note : The specifications shown above are for each individual transistor.

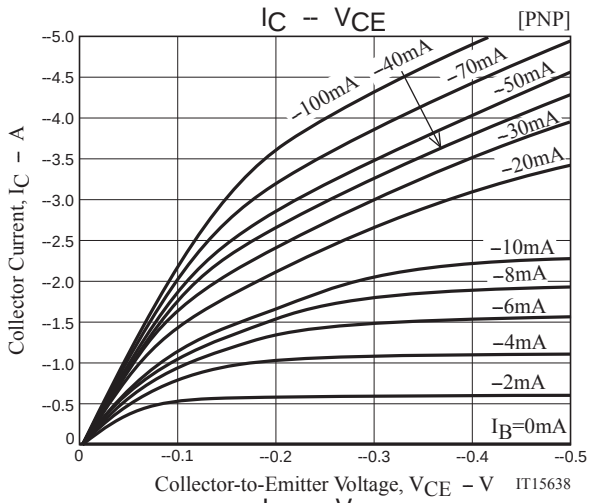
Switching Time Test Circuit

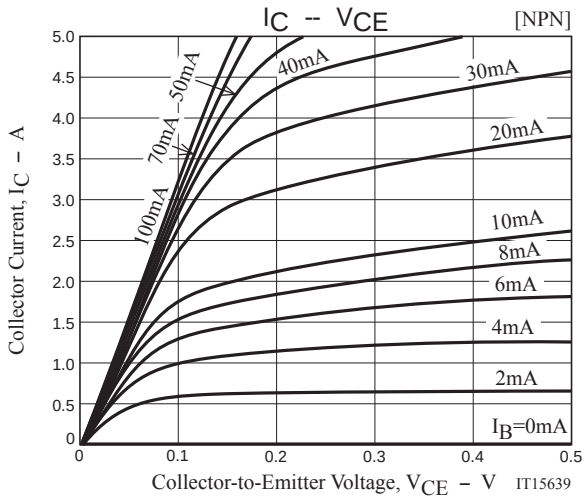


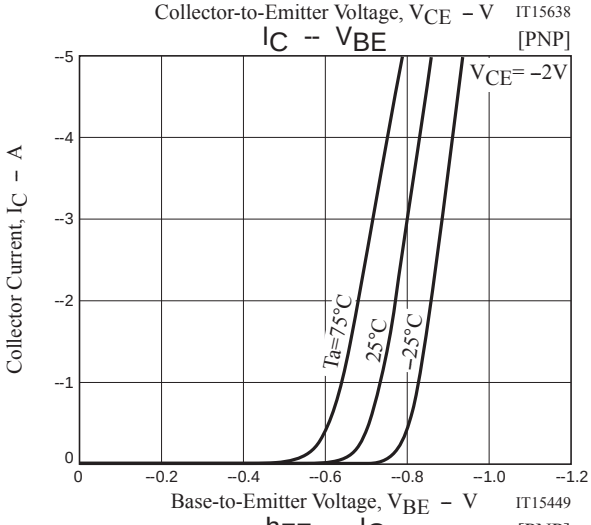
I_C=20I_{B1}= −20I_{B2}=2.5A
(For PNP, the polarity is reversed.)

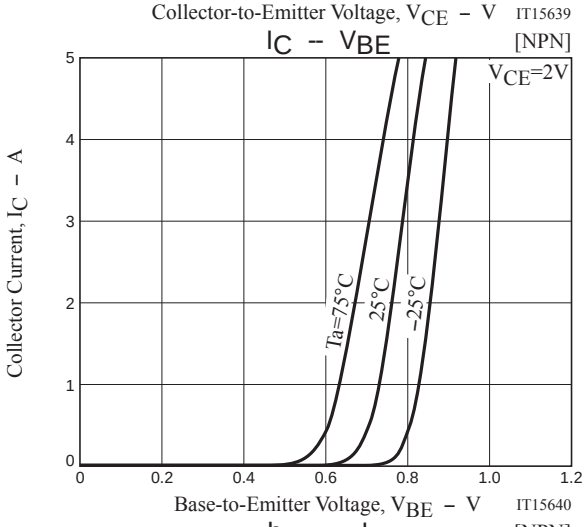
Ordering Information

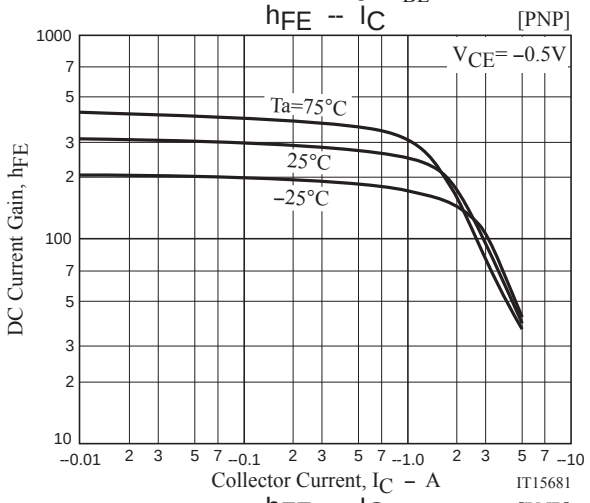
Device	Package	Shipping	memo
ECH8502-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free

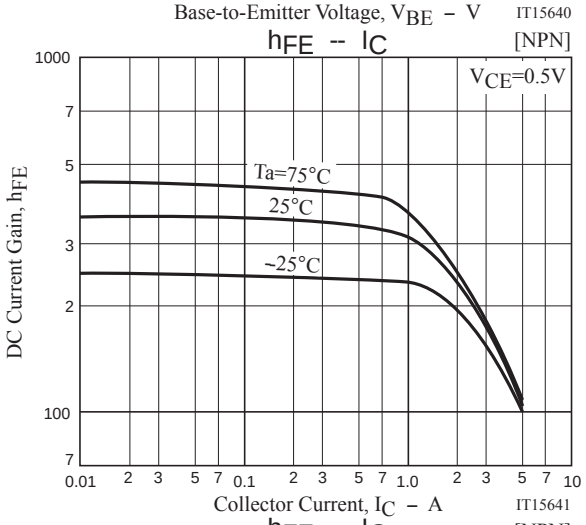

IC -- VCE
[PNP]
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT15638
–100mA
–40mA
–70mA
–50mA
–30mA
–20mA
–10mA
–8mA
–6mA
–4mA
–2mA
IB=0mA

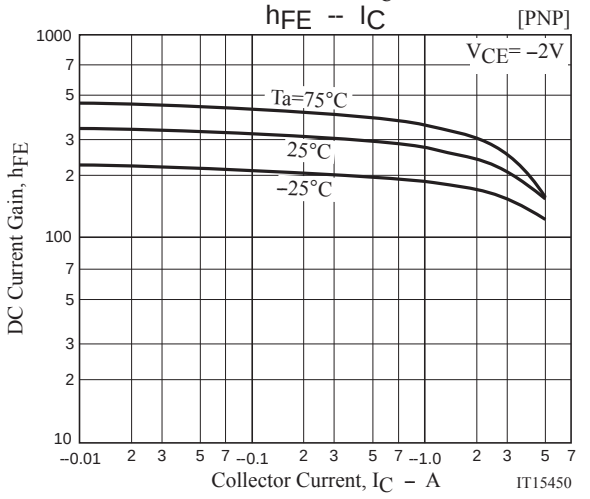

IC -- VCE
[NPN]
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT15639
100mA
70mA
50mA
40mA
30mA
20mA
10mA
8mA
6mA
4mA
2mA
IB=0mA

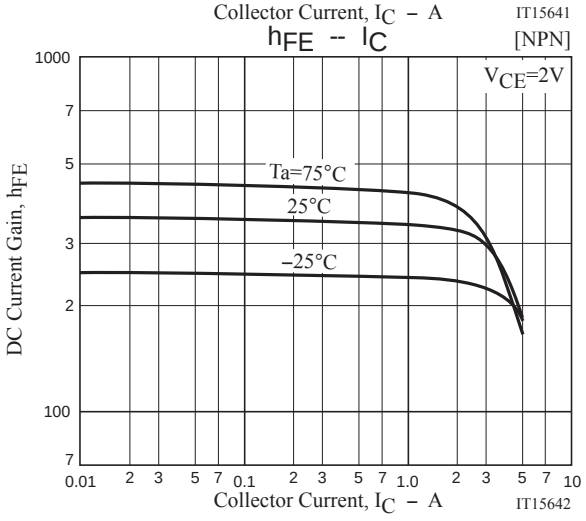

IC -- VBE
[PNP]
VCE= –2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT15449
Ta=75°C
25°C
–25°C

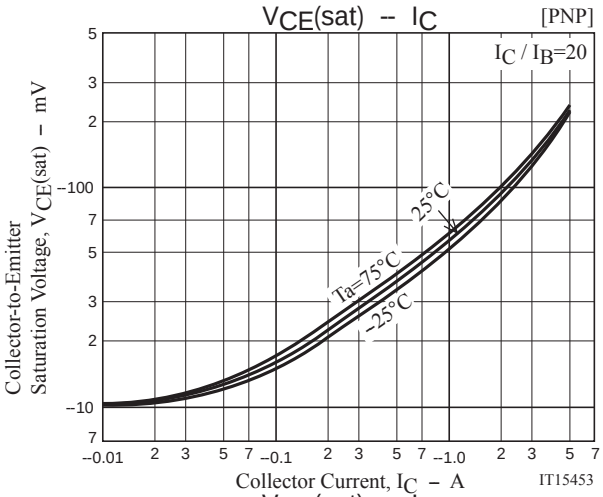

IC -- VBE
[NPN]
VCE=2V
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT15640
Ta=75°C
25°C
–25°C

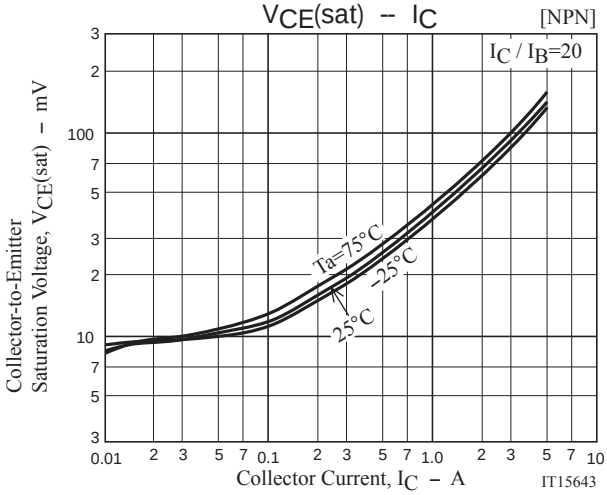

hFE -- IC
[PNP]
VCE= –0.5V
DC Current Gain, hFE
Collector Current, IC – A
IT15681
Ta=75°C
25°C
–25°C

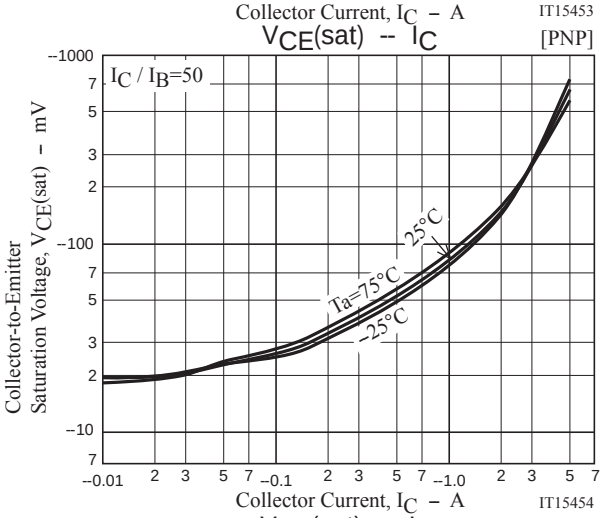

hFE -- IC
[NPN]
VCE=0.5V
DC Current Gain, hFE
Collector Current, IC – A
IT15641
Ta=75°C
25°C
–25°C

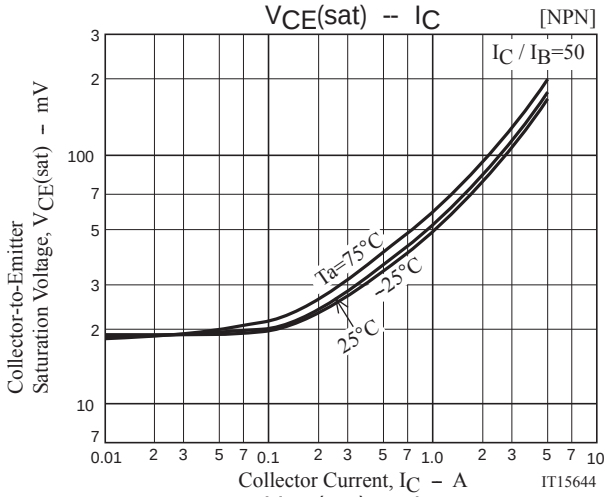

hFE -- IC
[PNP]
VCE= –2V
DC Current Gain, hFE
Collector Current, IC – A
IT15450
Ta=75°C
25°C
–25°C

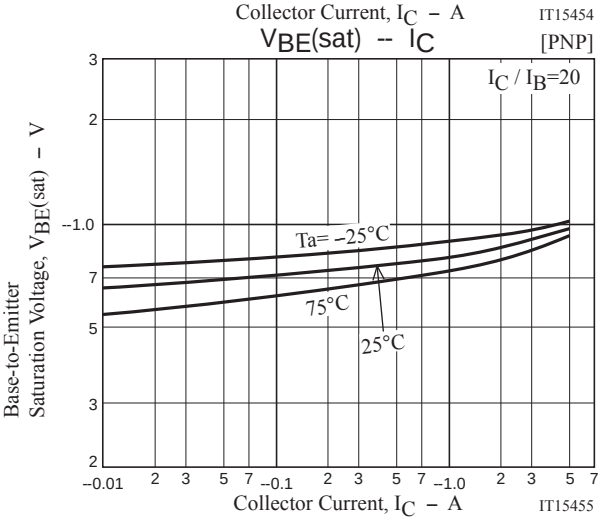

hFE -- IC
[NPN]
VCE=2V
DC Current Gain, hFE
Collector Current, IC – A
IT15642
Ta=75°C
25°C
–25°C

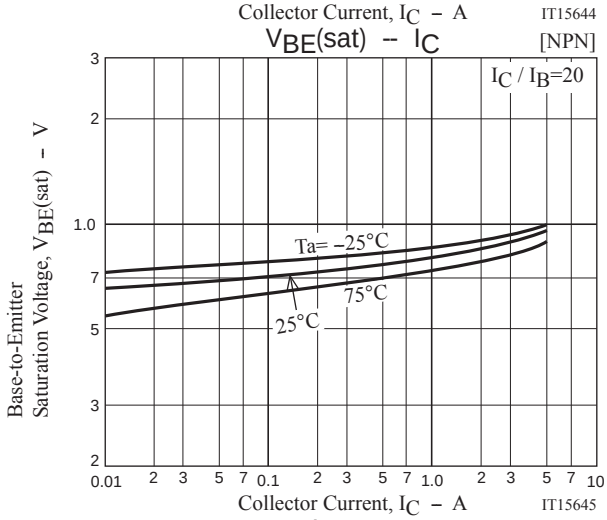

VCE(sat) -- IC
[PNP]
IC / IB=20
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT15453

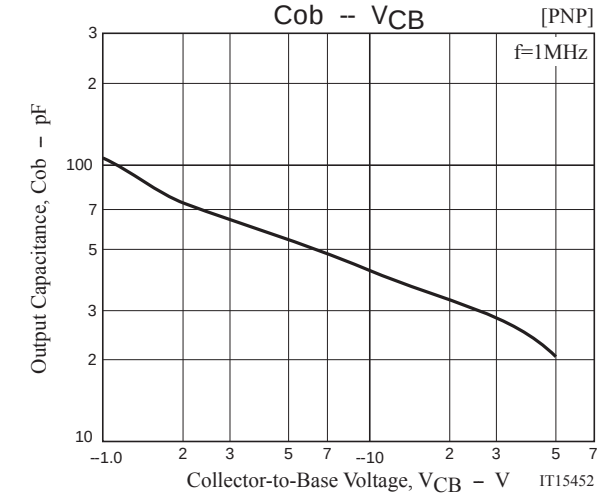

VCE(sat) -- IC
[NPN]
IC / IB=20
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT15643

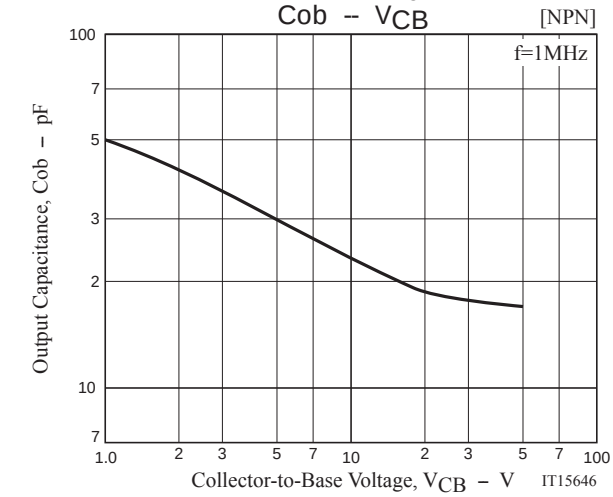

VCE(sat) -- IC
[PNP]
IC / IB=50
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT15454

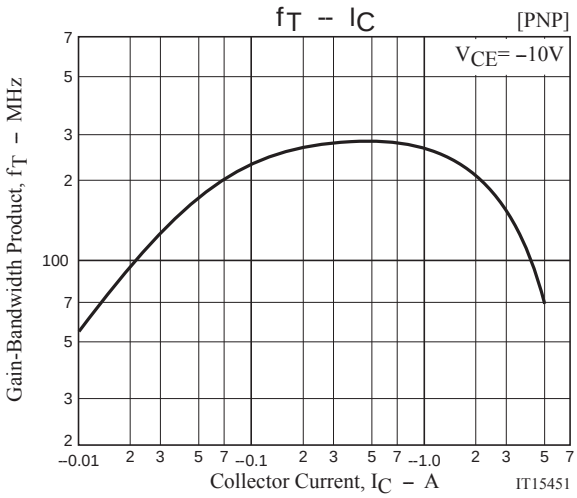

VCE(sat) -- IC
[NPN]
IC / IB=50
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT15644

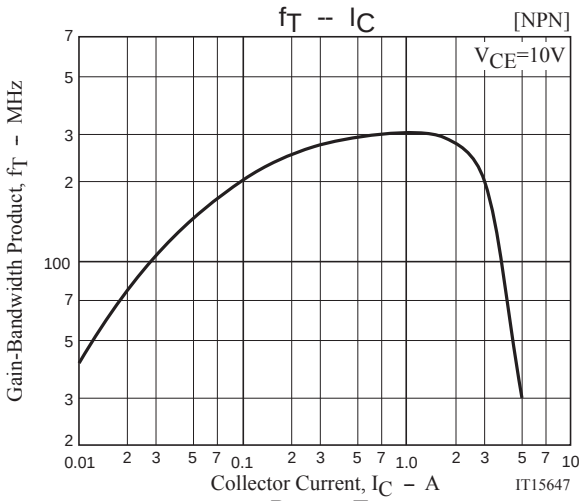

VBE(sat) -- IC
[PNP]
IC / IB=20
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT15455

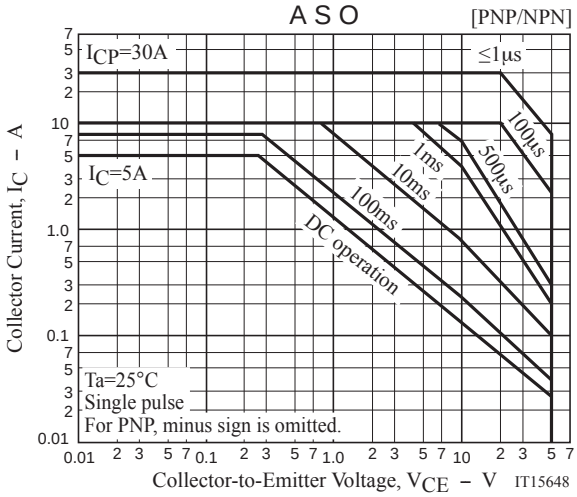

VBE(sat) -- IC
[NPN]
IC / IB=20
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT15645

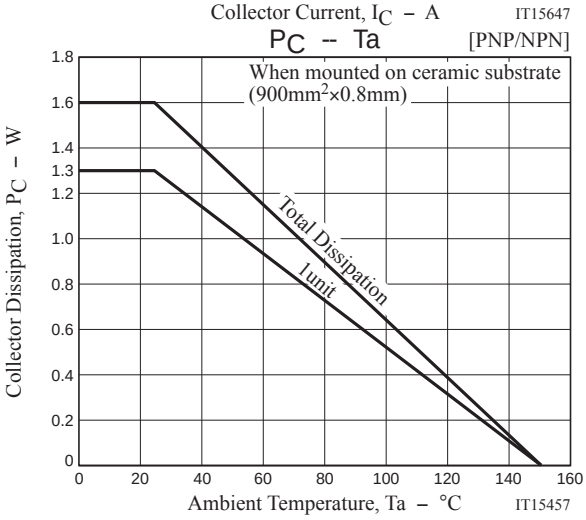

Cob -- VCB
[PNP]
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT15452


Cob -- VCB
[NPN]
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT15646


fT -- IC
[PNP]
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT15451


fT -- IC
[NPN]
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT15647


A S O
[PNP/NPN]
ICP=30A
≤1μs
100μs
500μs
1ms
10ms
100ms
DC operation
IC=5A
Ta=25°C
Single pulse
For PNP, minus sign is omitted.
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT15648


PC -- Ta
[PNP/NPN]
When mounted on ceramic substrate
(900mm2×0.8mm)
Total Dissipation
1unit
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT15457

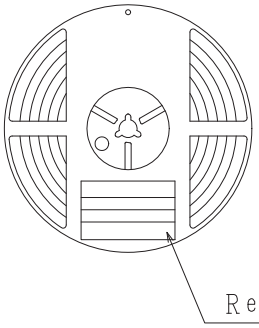
Embossed Taping Specification

ECH8502-TL-H

1. Packing Format

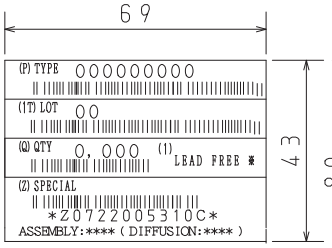
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
ECH8	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm(external) 183×72×185	6 inner boxes contained Dimensions:mm(external) 440×195×210

Packing method



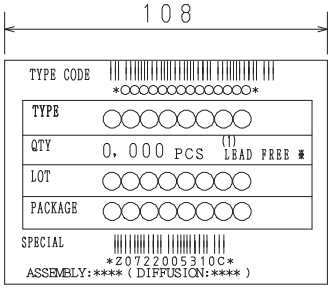
Reel label, Inner box label

(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.



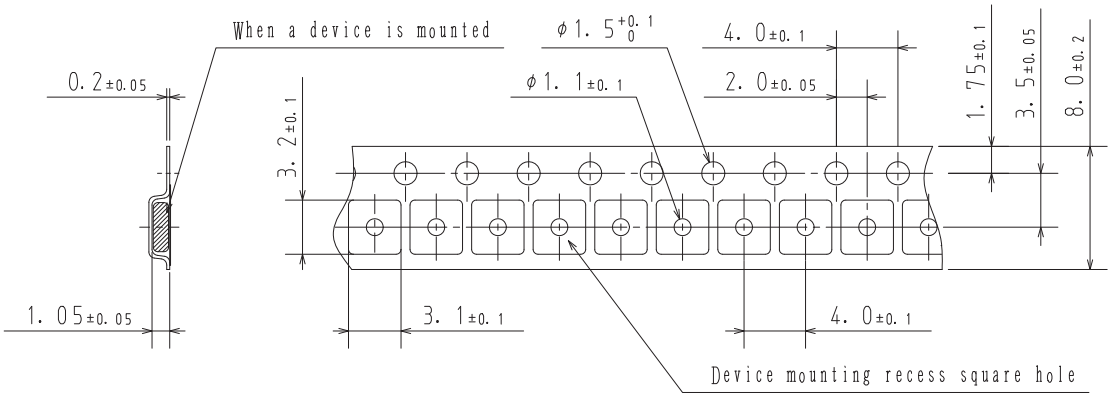
NOTE (1)

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

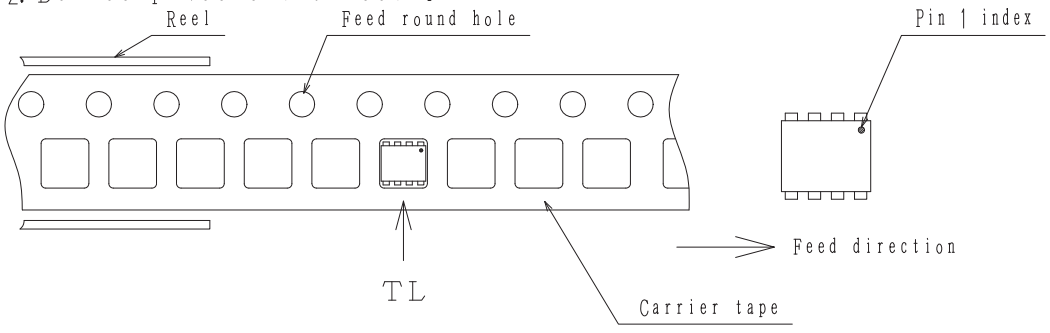
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



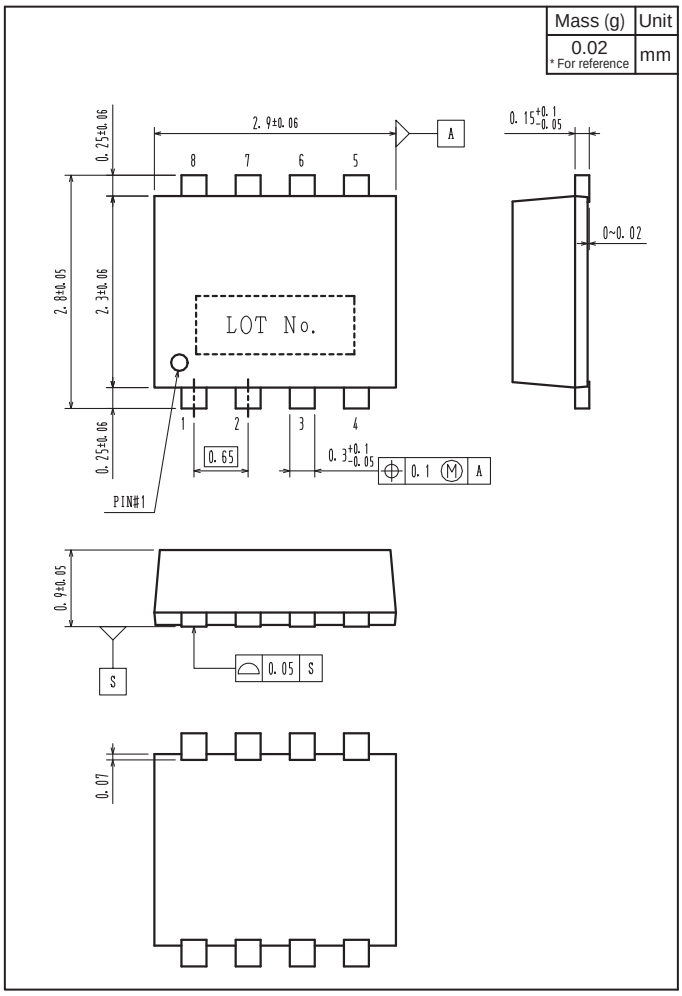
2-2. Device placement direction



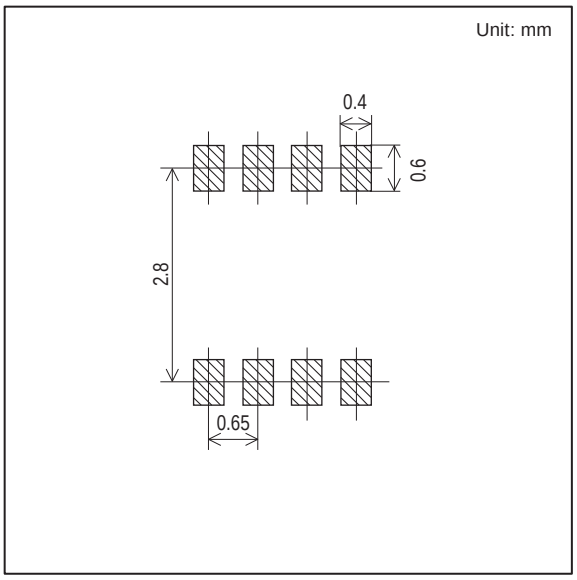
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

ECH8502-TL-H



Land Pattern Example



This catalog provides information as of May, 2012. Specifications and information herein are subject to change without notice.

Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

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С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург, Промышленная ул, дом № 19, литера Н, помещение 100-Н Офис 331