



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SA1507/2SC3902 — PNP / NPN Epitaxial Planar Silicon Transistor 160V / 1.5A Switching Applications

Applications

- Color TV audio output, converters, inverters

Features

- High breakdown voltage
- Large current capacity
- Adoption of FBET and MBIT process
- The plastic-covered heat sink eliminates the need for an insulator when mounting the 2SA1507/2SC3902

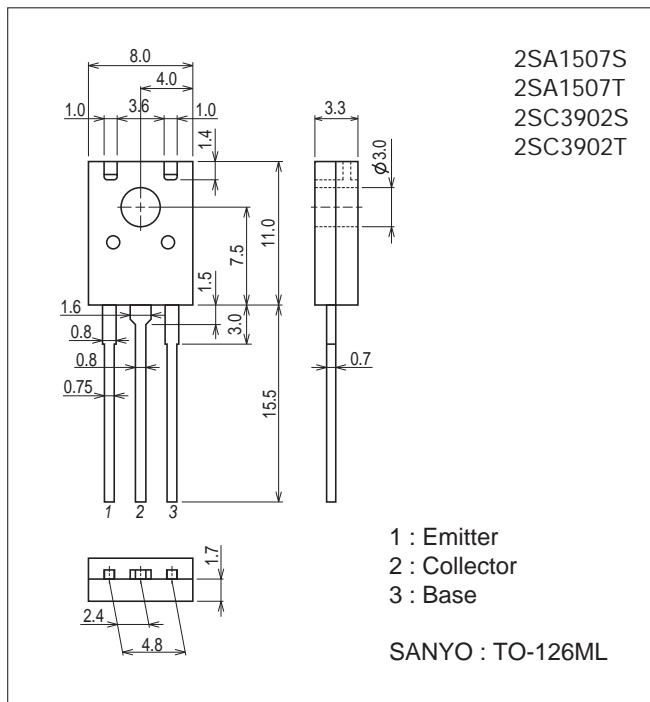
Specifications () : 2SA1507

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-)180	V
Collector-to-Emitter Voltage	V _{CEO}		(-)160	V
Emitter-to-Base Voltage	V _{EBO}		(-)6	V
Collector Current	I _C		(-)1.5	A
Collector Current (Pulse)	I _{CP}		(-)2.5	A
Collector Dissipation	P _C		1.5	W
		T _C =25°C	10	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Package Dimensions

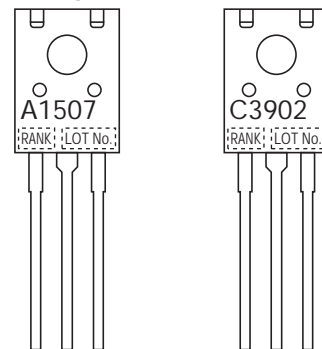
unit : mm (typ)
7516A-002



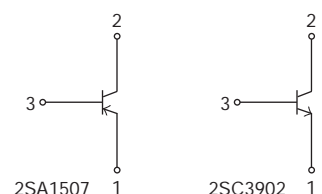
Product & Package Information

- Package : TO-126ML
- JEITA, JEDEC : TO-126
- Minimum Packing Quantity : 200 pcs./bag

Marking



Electrical Connection



2SA1507/2SC3902

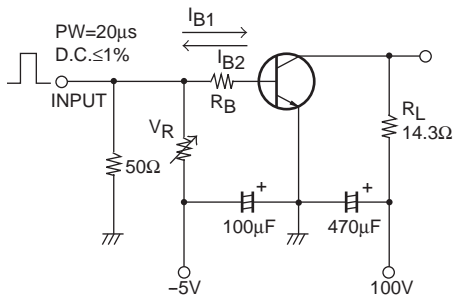
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)120V, I_E=0A$			(-) 1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4V, I_C=0A$			(-) 1.0	μA
DC Current Gain	h_{FE1}	$V_{CE}=(-)5V, I_C=(-)100mA$	100*		400*	
	h_{FE2}	$V_{CE}=(-)5V, I_C=(-)10mA$	90			
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)50mA$		120		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		(22)14		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)500mA, I_B=(-)50mA$		(-0.2)0.13	(-0.5)0.45	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)500mA, I_B=(-)50mA$		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0A$	(-)180			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)160			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.		(0.7)0.04		μs
Storage Time	t_{stg}			(0.7)1.2		μs
Fall Time	t_f			(0.04)0.08		μs

* : The 2SA1507 / 2SC3902 are classified by 100mA h_{FE} as follows:

Rank	R	S	T
h_{FE}	100 to 200	140 to 280	200 to 400

Switching Time Test Circuit

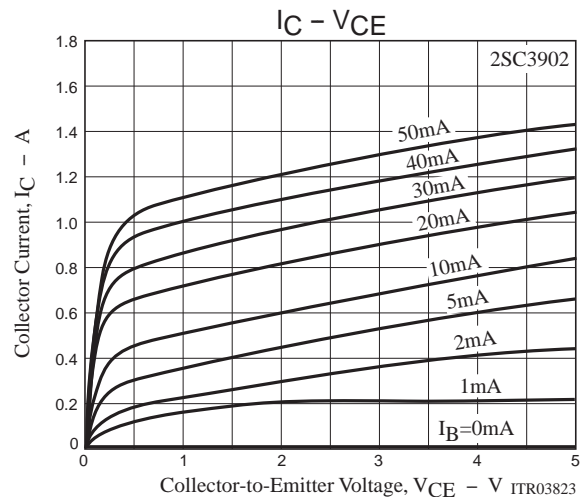
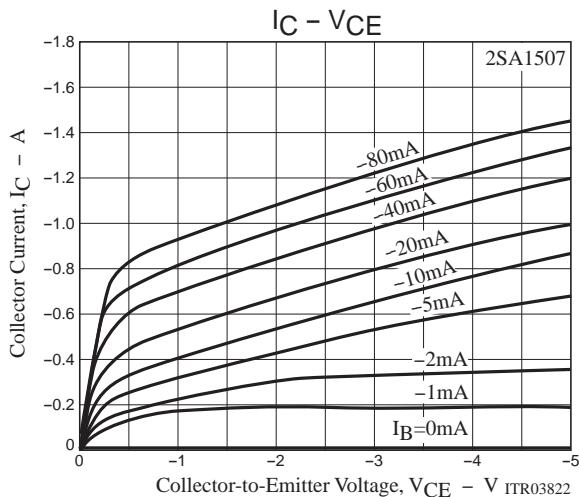


$$I_C = 10I_{B1} = -10I_{B2} = 0.7A$$

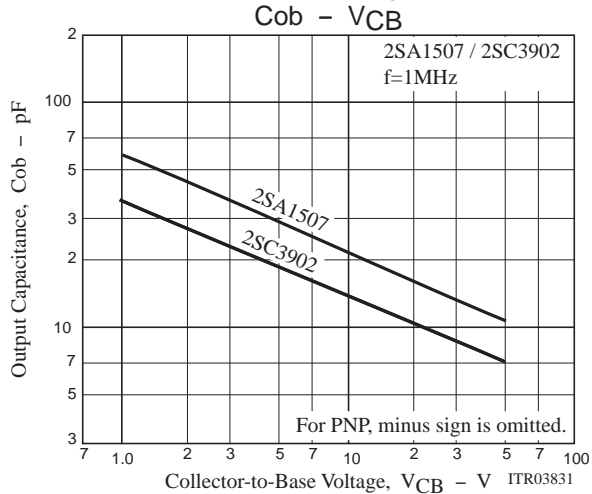
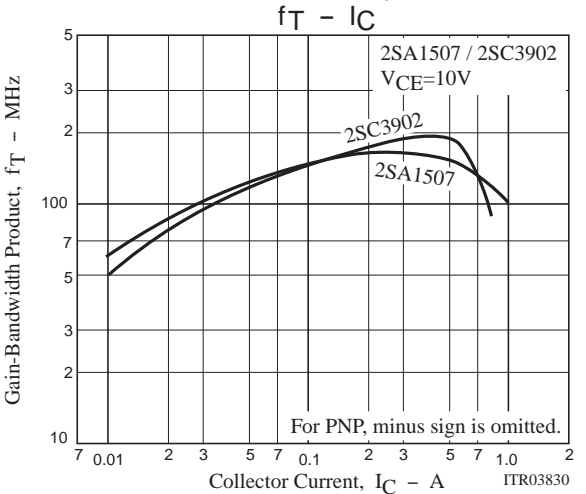
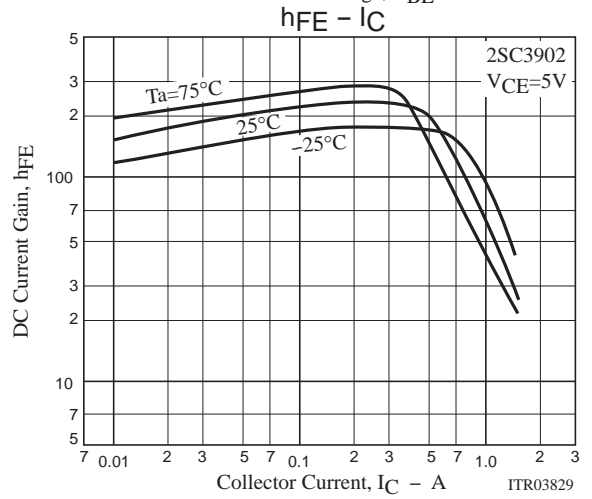
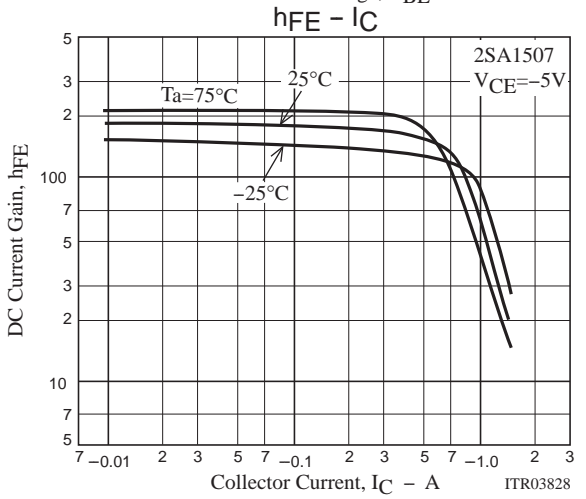
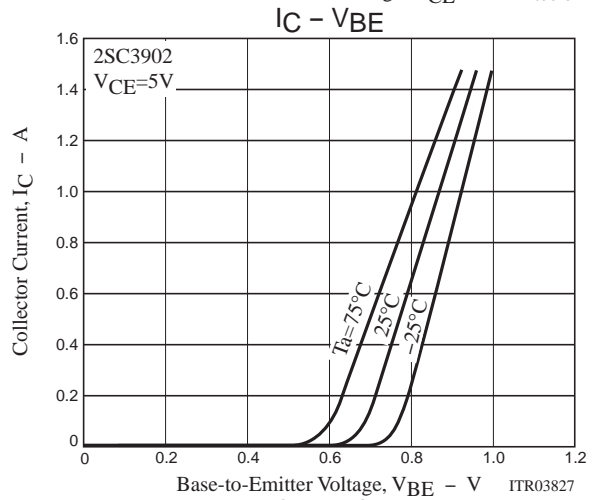
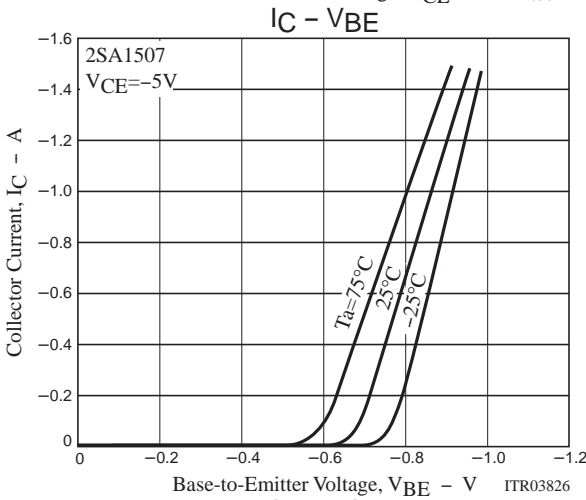
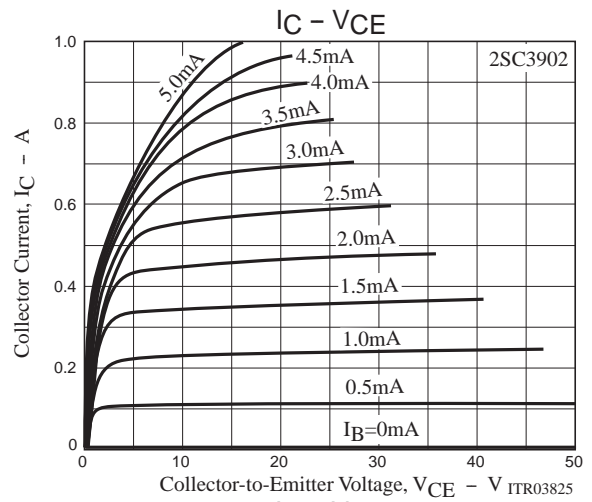
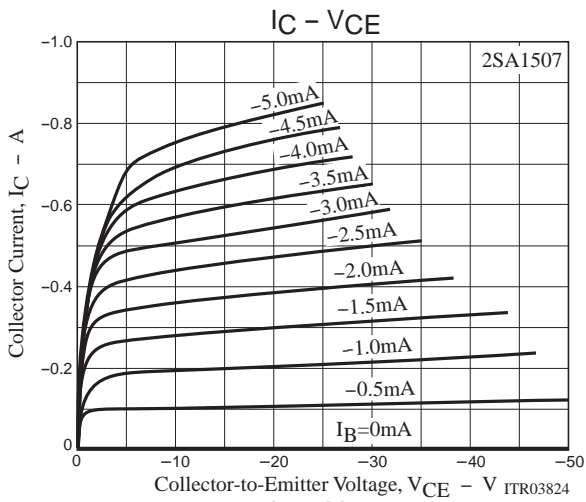
(For PNP, the polarity is reversed.)

Ordering Information

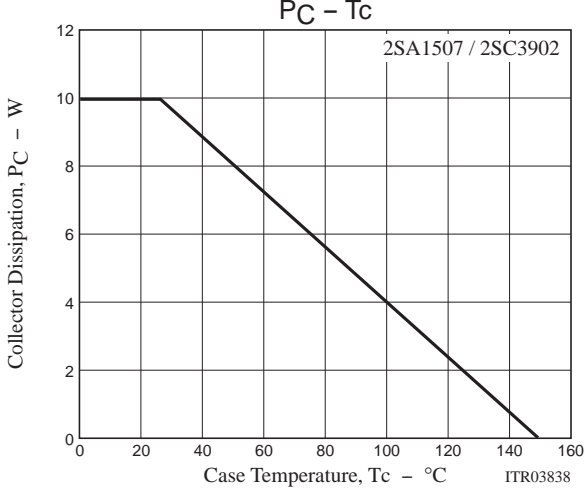
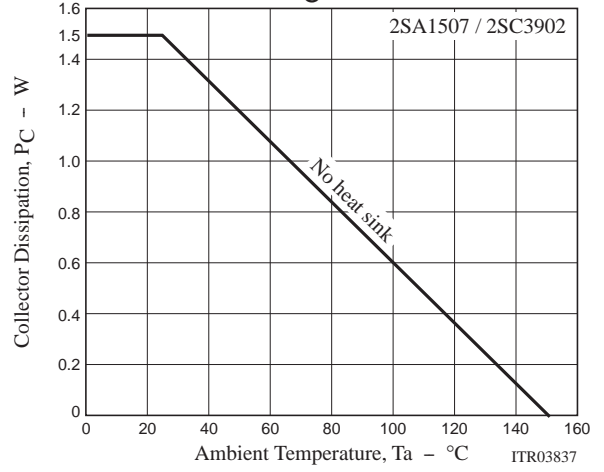
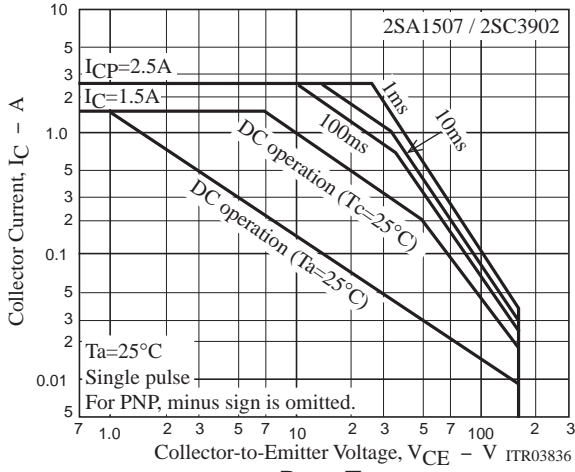
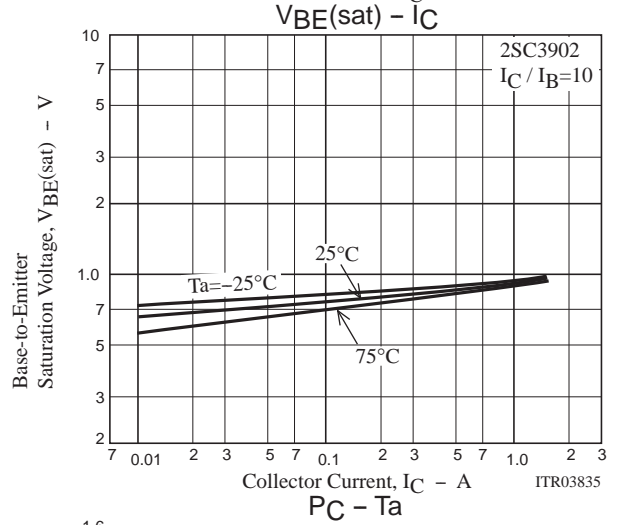
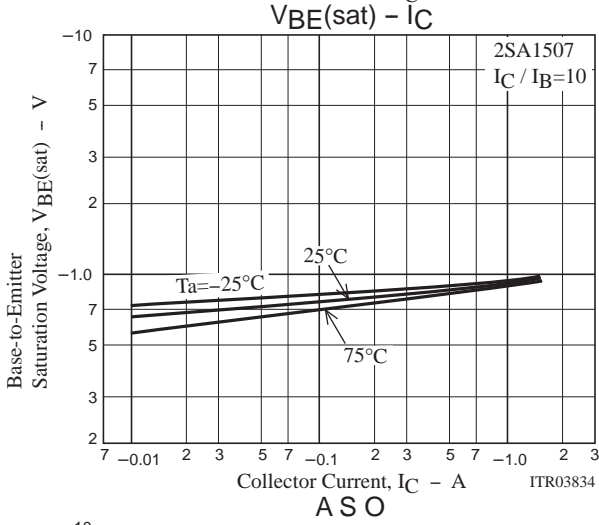
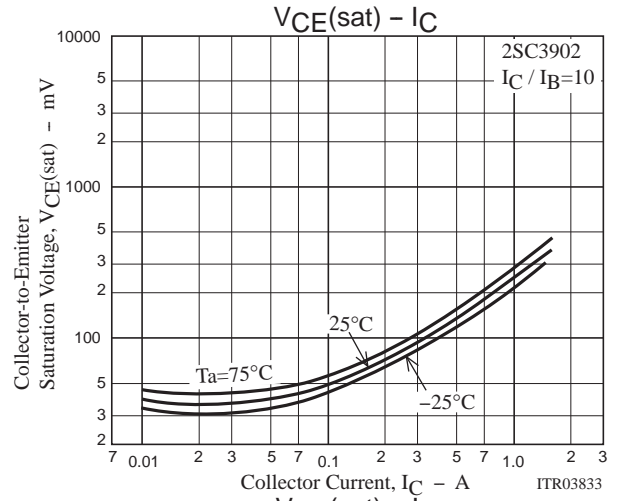
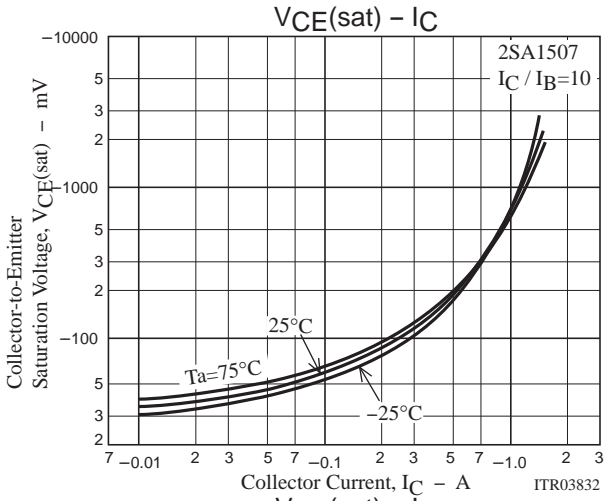
Device	Package	Shipping	memo
2SA1507S	TO-126ML	200pcs./bag	Pb Free
2SA1507T	TO-126ML	200pcs./bag	
2SC3902S	TO-126ML	200pcs./bag	
2SC3902T	TO-126ML	200pcs./bag	



2SA1507/2SC3902



2SA1507/2SC3902



Bag Packing Specification

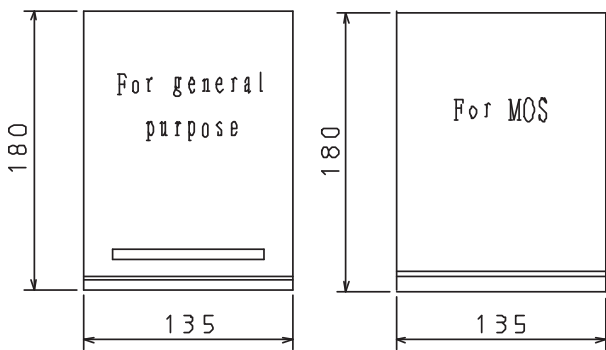
2SA1507S, 2SA1507T, 2SC3902S, 2SC3902T

1. Packing Format

Package Name	Maximum Number of devices contained (pcs)			Packing format	
	Bag	Inner box	Outer box	Inner BOX	Outer BOX
TO-126ML	200	4,000	12,000	B-1 20 bags contained Dimensions:mm (external) 445×225×55	A-2 3 inner boxes contained Dimensions:mm (external) 470×250×190

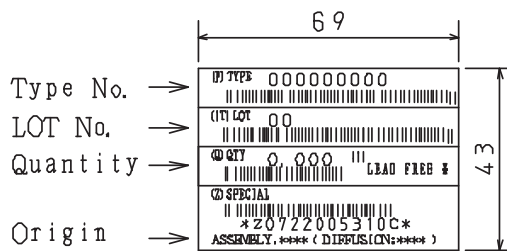
2. Bag dimensions

(unit:mm)



3. Bag label, Inner box label

(unit:mm)



NOTE (1)

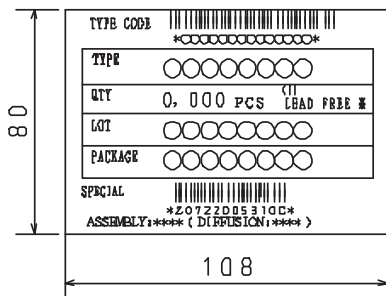
The LEAD FREE # description shows that the surface treatment of the terminal is lead free.

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

4. Outer box label

(unit:mm)

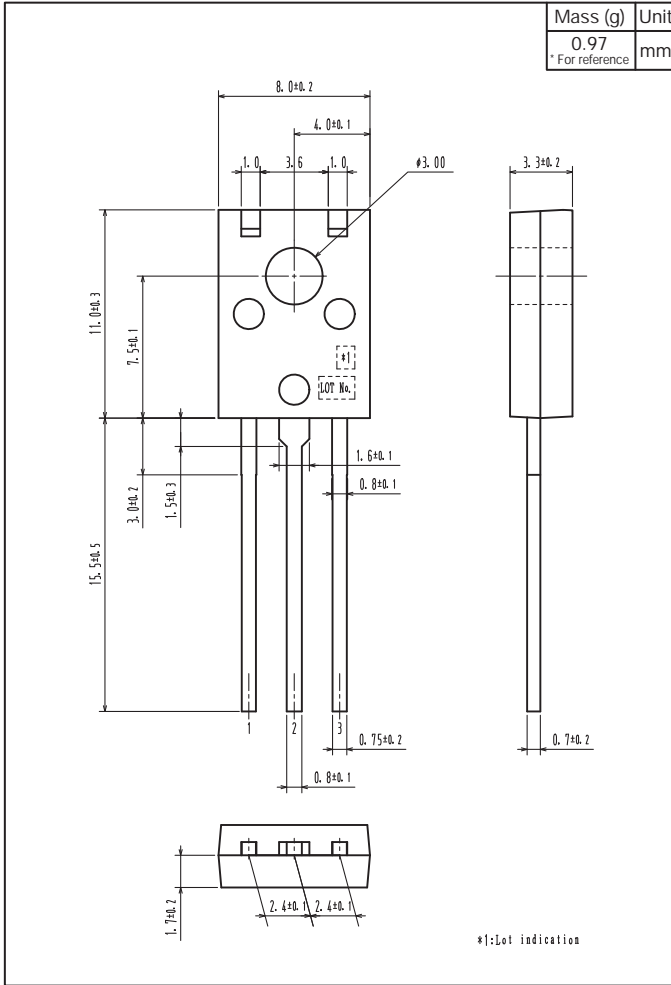
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.



2SA1507/2SC3902

Outline Drawing

2SA1507S, 2SA1507T, 2SC3902S, 2SC3902T



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