



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

15GN01MA

NPN Epitaxial Planar Silicon Transistor

VHF to UHF Band High-Frequency Switching,
High-Frequency General-Purpose Amplifier Applications

Features

- Small ON-resistance [$R_{on}=2\Omega$ ($I_B=3mA$)]
- Small output capacitance [$C_{ob}=1.1pF$ ($V_{CB}=10V$)]

Specifications

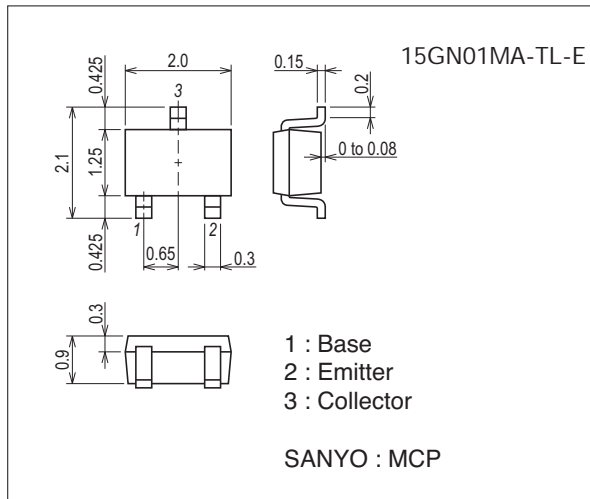
Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		15	V
Collector-to-Emitter Voltage	V_{CEO}		8	V
Emitter-to-Base Voltage	V_{EBO}		3	V
Collector Current	I_C		50	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (250mm ² x0.8mm)	400	mW
Junction Temperature	T_j		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

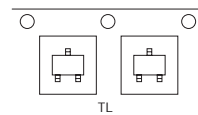
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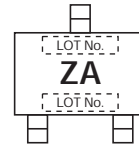
Product & Package Information

- Package : MCP
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

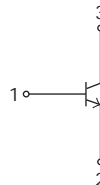
Packing Type: TL



Marking



Electrical Connection



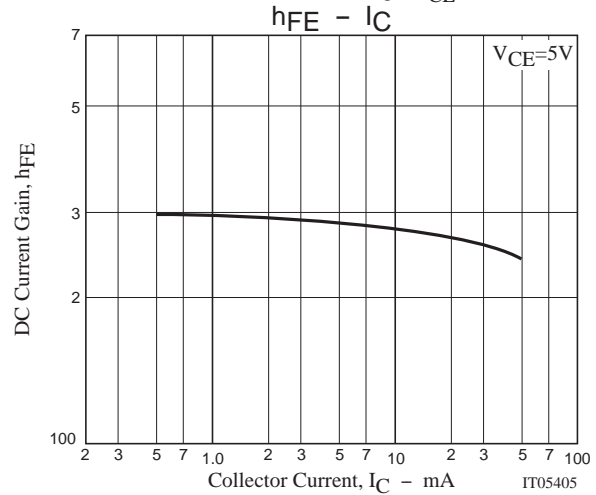
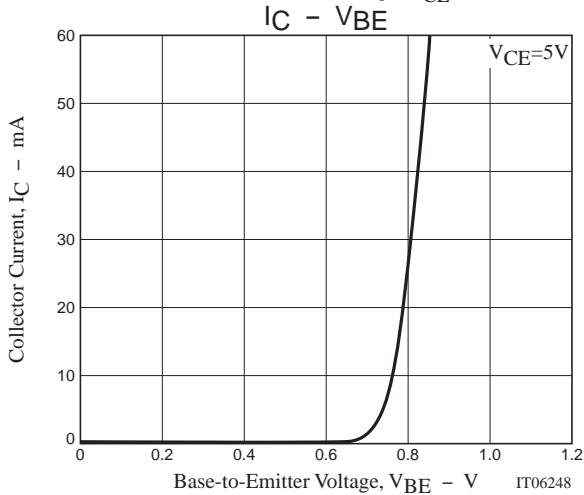
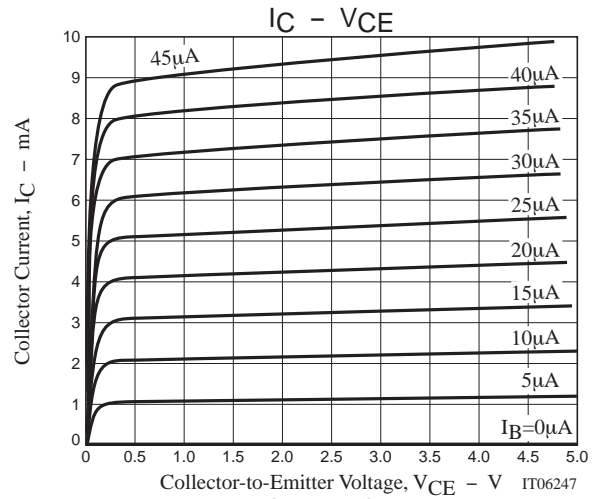
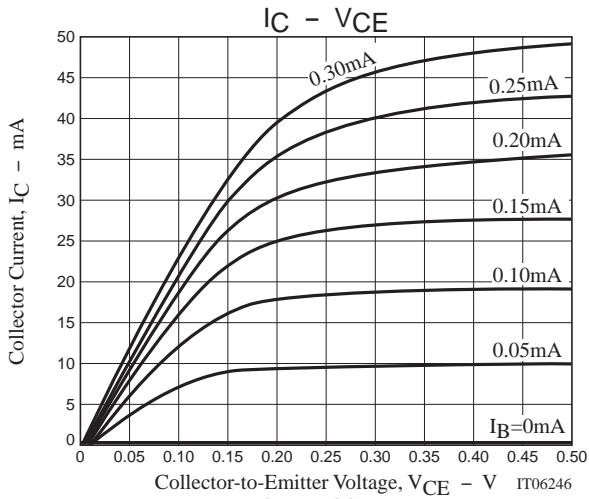
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Electrical Characteristics at Ta=25°C

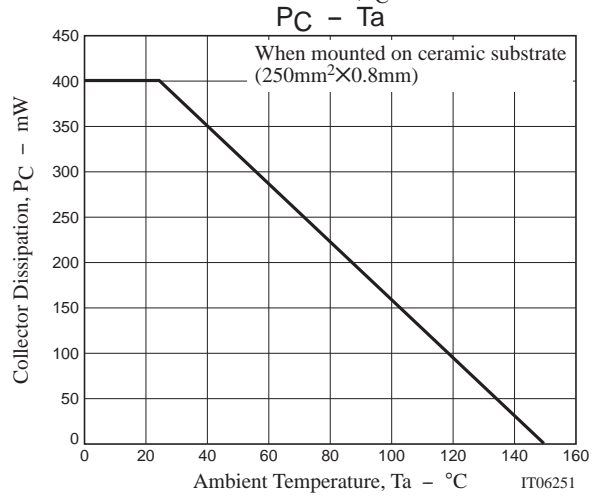
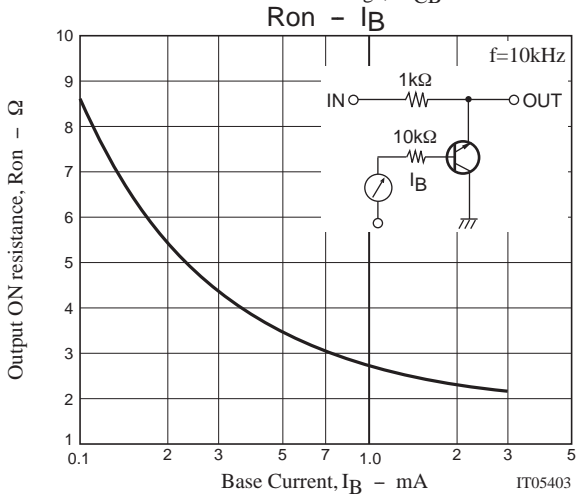
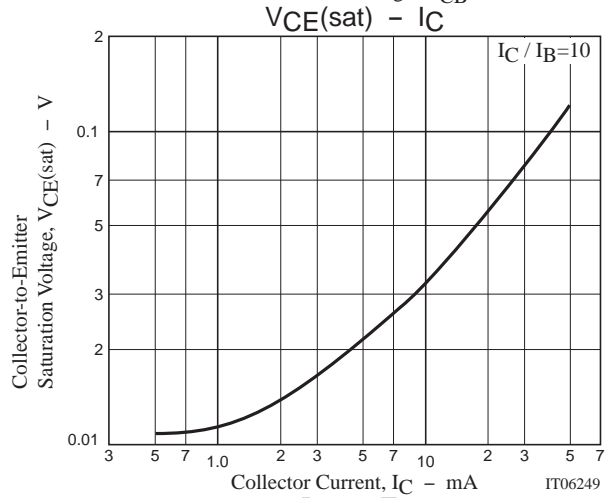
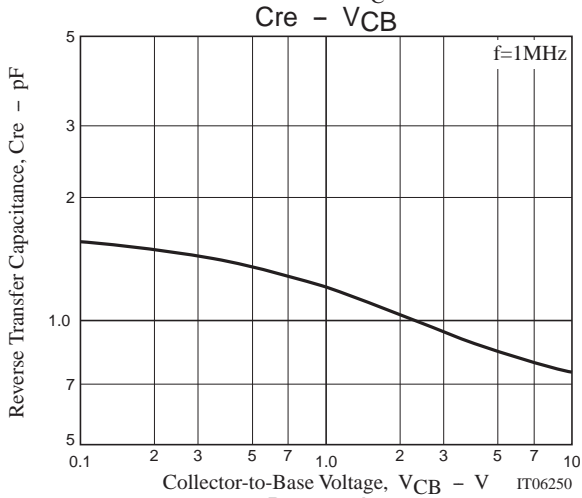
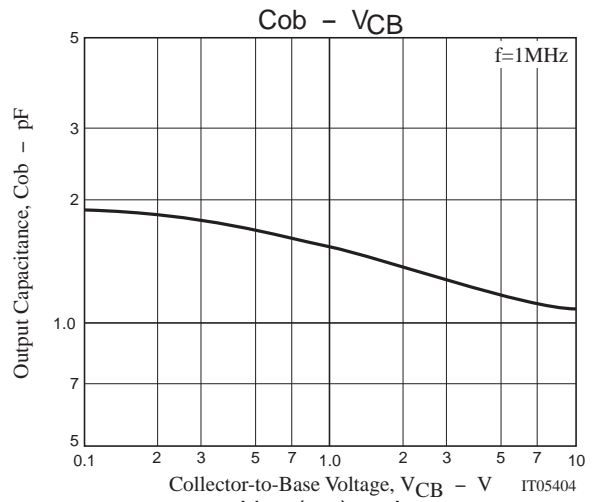
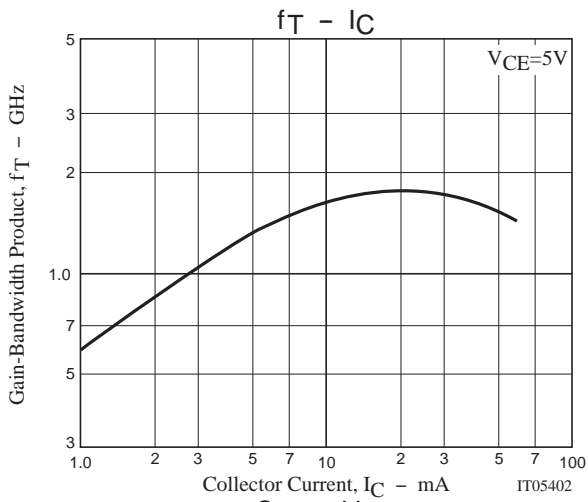
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=10V, I_E=0A$			0.5	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=2V, I_C=0A$			0.5	μA
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=10mA$	200		400	
Gain-Bandwidth Product	f_T	$V_{CE}=5V, I_C=10mA$	1.0	1.5		GHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		1.1	1.5	pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=20mA, I_B=2mA$		0.06	0.12	V
Output ON resistance	R_{on}	$I_B=3mA, f=10kHz$		2.0		Ω

Ordering Information

Device	Package	Shipping	memo
15GN01MA-TL-E	MCP	3,000pcs./reel	Pb Free



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S Parameters (Common emitter)

$V_{CE}=5V, I_C=5mA, Z_O=50\Omega$

Freq(MHz)	S11	$\angle S11$	S21	$\angle S21$	S12	$\angle S12$	S22	$\angle S22$
100	0.662	-25.65	4.631	122.00	0.028	71.36	0.765	-10.50
200	0.582	-36.72	3.028	112.20	0.051	68.80	0.732	-14.15
300	0.529	-47.21	2.353	104.69	0.071	65.59	0.713	-17.91
400	0.487	-56.61	1.955	97.68	0.088	63.00	0.700	-21.58
500	0.459	-65.82	1.691	91.07	0.103	60.43	0.689	-25.23
600	0.429	-74.14	1.496	85.11	0.116	57.83	0.679	-28.81
700	0.409	-82.44	1.353	79.01	0.128	56.22	0.674	-32.38
800	0.388	-89.94	1.239	73.29	0.138	54.76	0.671	-35.89
900	0.374	-96.79	1.149	67.98	0.148	53.44	0.671	-39.34
1000	0.365	-103.28	1.072	63.13	0.156	52.60	0.670	-42.75

$V_{CE}=5V, I_C=10mA, Z_O=50\Omega$

Freq(MHz)	S11	$\angle S11$	S21	$\angle S21$	S12	$\angle S12$	S22	$\angle S22$
100	0.587	-31.65	6.647	118.78	0.026	71.86	0.694	-11.96
200	0.502	-46.40	4.239	108.57	0.046	68.22	0.653	-15.76
300	0.444	-59.47	3.227	100.32	0.064	65.90	0.630	-19.10
400	0.405	-70.80	2.616	93.18	0.079	63.91	0.619	-22.50
500	0.381	-81.80	2.217	86.64	0.093	62.30	0.607	-25.83
600	0.356	-91.29	1.922	80.82	0.105	60.39	0.598	-29.19
700	0.342	-101.15	1.715	74.86	0.115	59.29	0.596	-32.72
800	0.329	-109.42	1.544	69.40	0.125	58.34	0.593	-36.10
900	0.319	-116.99	1.414	64.16	0.135	57.86	0.594	-39.48
1000	0.315	-124.06	1.305	59.41	0.144	57.47	0.593	-42.80

$V_{CE}=5V, I_C=20mA, Z_O=50\Omega$

Freq(MHz)	S11	$\angle S11$	S21	$\angle S21$	S12	$\angle S12$	S22	$\angle S22$
100	0.505	-41.07	8.945	114.82	0.023	71.42	0.611	-13.64
200	0.417	-60.49	5.500	103.75	0.042	69.03	0.568	-16.14
300	0.369	-76.83	4.039	95.20	0.056	67.39	0.548	-18.89
400	0.341	-90.31	3.197	88.11	0.070	66.22	0.539	-21.75
500	0.328	-102.08	2.654	81.71	0.082	65.43	0.533	-24.77
600	0.316	-112.57	2.264	76.38	0.094	64.49	0.528	-27.99
700	0.311	-122.49	1.988	70.80	0.104	64.03	0.530	-31.32
800	0.306	-130.50	1.771	65.75	0.115	63.95	0.530	-34.57
900	0.304	-137.80	1.605	60.92	0.125	64.09	0.534	-37.93
1000	0.306	-144.30	1.470	56.51	0.135	64.16	0.537	-41.24

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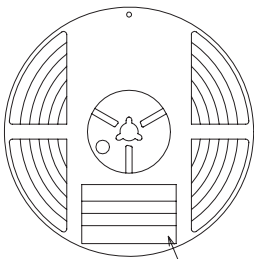
Embossed Taping Specification

15GN01MA-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)
MCP	MCP	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

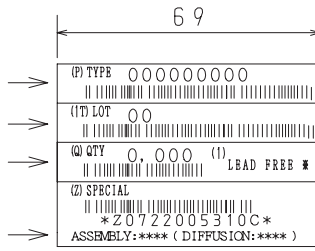
Packing method



Reel label

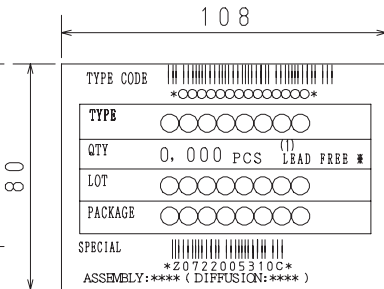
Type No.
LOT No.
Quantity
Origin

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.



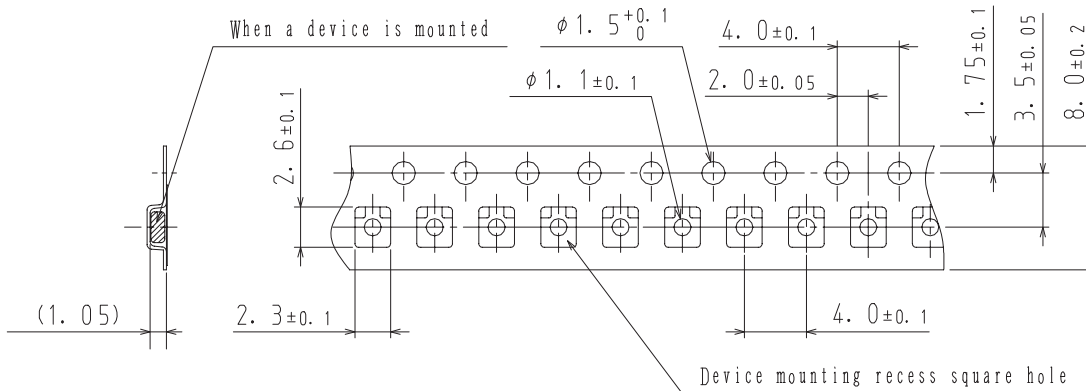
NOTE (1)

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

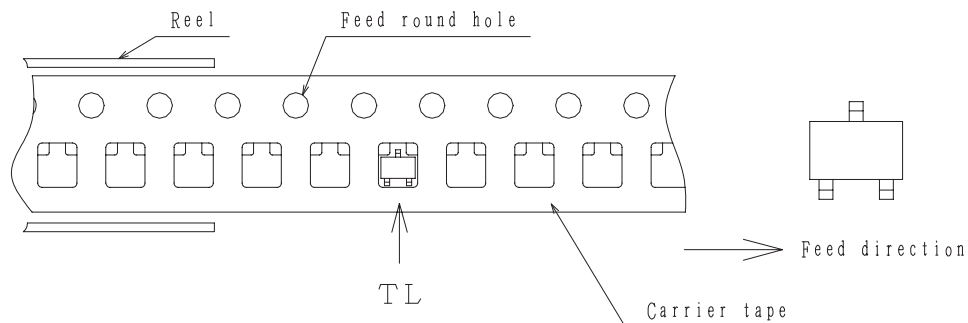
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

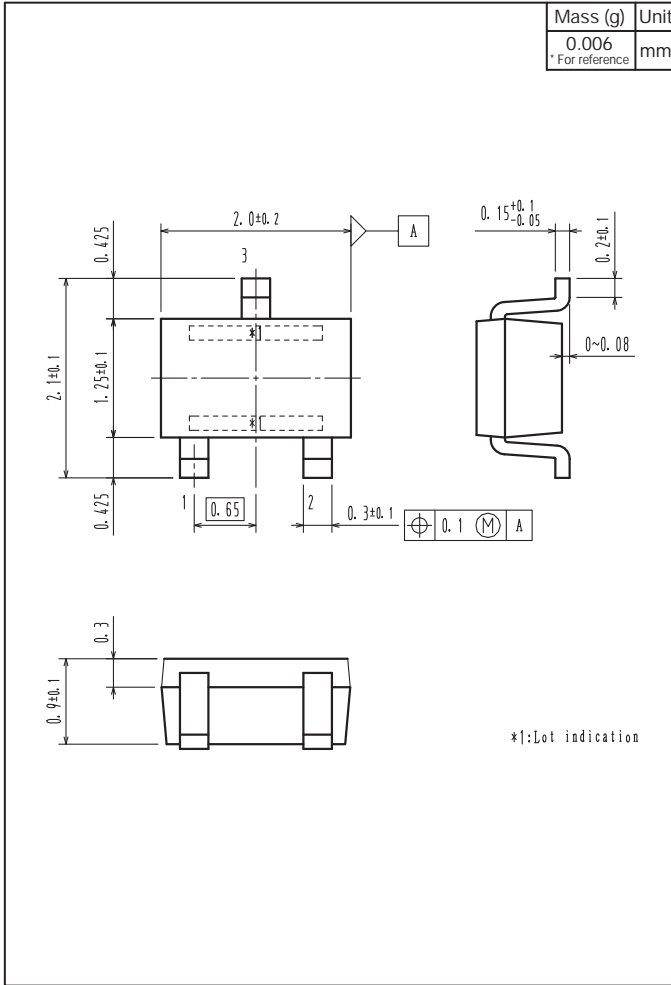


Those with one electrode terminal on the feed hole side.....TL

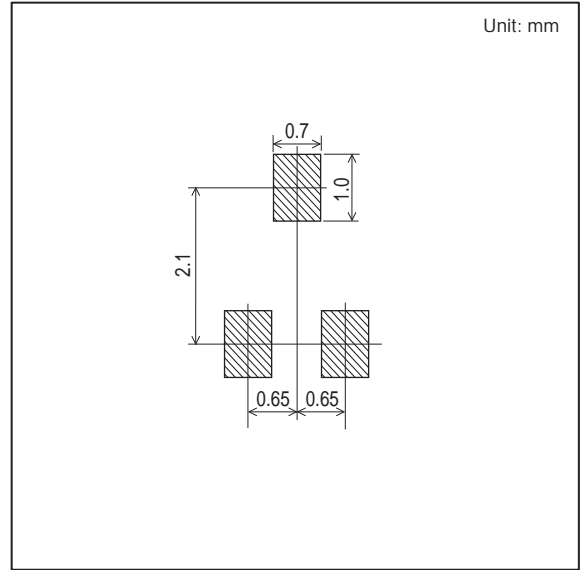
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Outline Drawing

15GN01MA-TL-E



Land Pattern Example



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