Ordering number : ENA1092A

2SC5536A

RF Transistor
12V, 50mA, fT=1.7GHz, NPN Single SSFP

ON Semiconductor®
http://onsemi.com

Features

- Low-noise : NF=1.8dB typ (f=150MHz)
- High gain : $|S21e|^2$=16dB typ (f=150MHz)
- Ultrasmall, slim flat-lead package (1.4mm×0.8mm×0.6mm)
- Halogen free compliance

Specifications

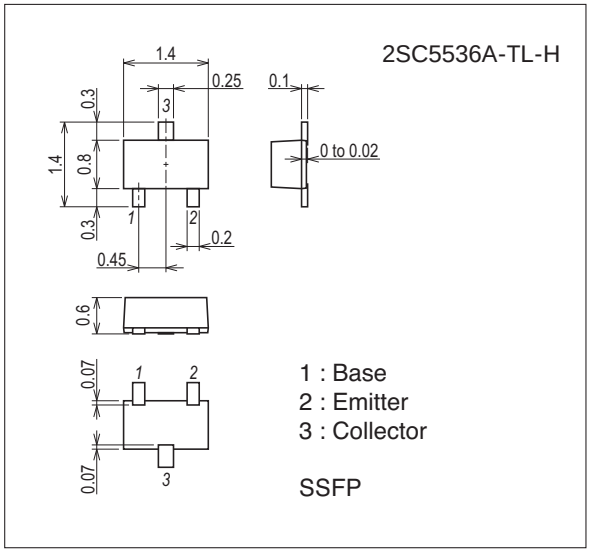
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		20	V
Collector-to-Emitter Voltage	V_{CEO}		12	V
Emitter-to-Base Voltage	V_{EBO}		2	V
Collector Current	I_C		50	mA
Collector Dissipation	P_C		100	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

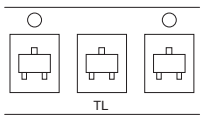
unit : mm (typ)
7029A-002



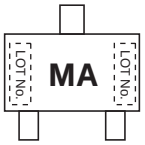
Product & Package Information

- Package : SSFP
- JEITA, JEDEC : SC-81
- Minimum Packing Quantity : 8,000 pcs./reel

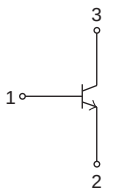
Packing Type: TL



Marking



Electrical Connection



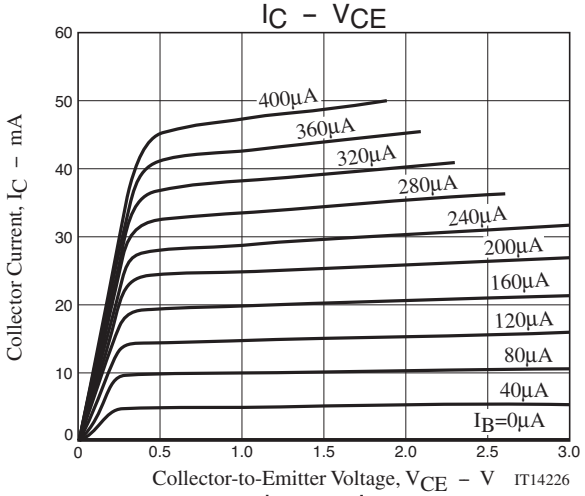
Semiconductor Components Industries, LLC, 2013

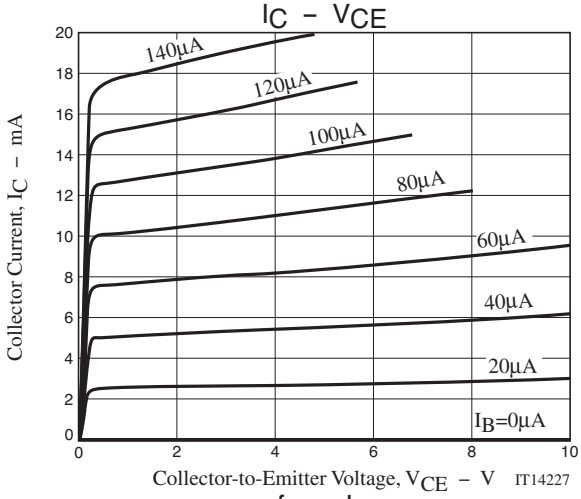
Electrical Characteristics at Ta=25°C

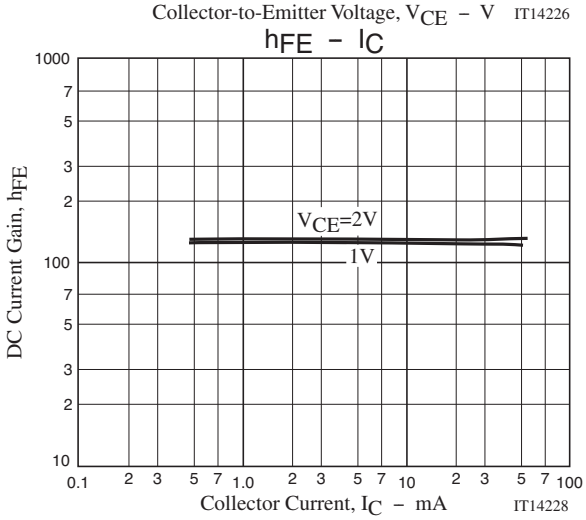
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=10V, I_E=0A			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=1V, I_C=0A			10	μA
DC Current Gain	$h_{FE}1$	V_{CE}=2V, I_C=3mA	80		200	
	$h_{FE}2$	V_{CE}=2V, I_C=50mA	70			
Gain-Bandwidth Product	f_T	V_{CE}=2V, I_C=3mA	1.0	1.7		GHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		1.1	1.8	pF
Reverse Transfer Capacitance	Cre			0.8		pF
Forward Transfer Gain	$\|S21e\|^2$	V_{CE}=2V, I_C=3mA, f=150MHz	13	16		dB
Noise Figure	NF			1.8	3.0	dB

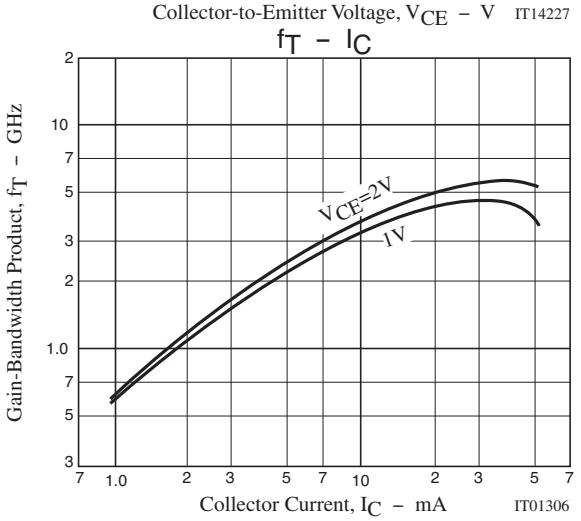
Ordering Information

Device	Package	Shipping	memo
2SC5536A-TL-H	SSFP	8,000pcs./reel	Pb Free and Halogem Free

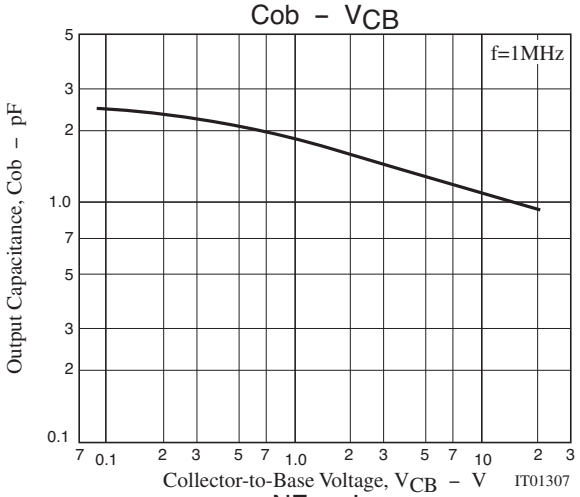




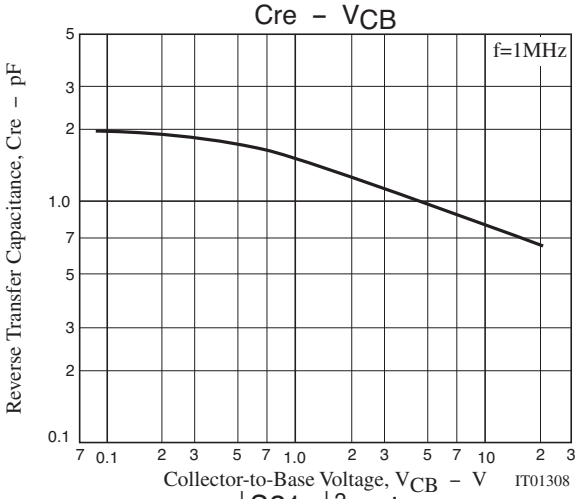




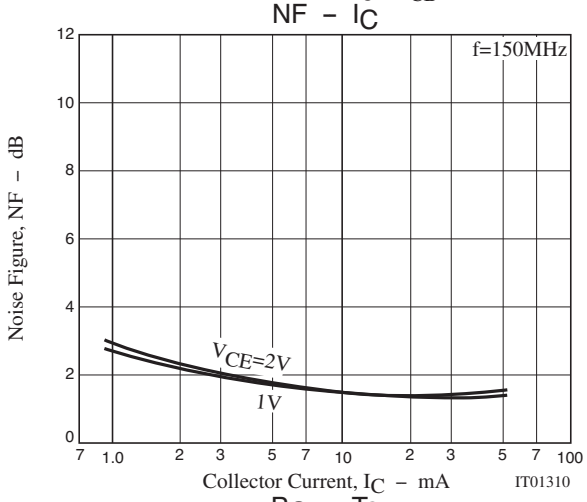
Cob – V_{CB}



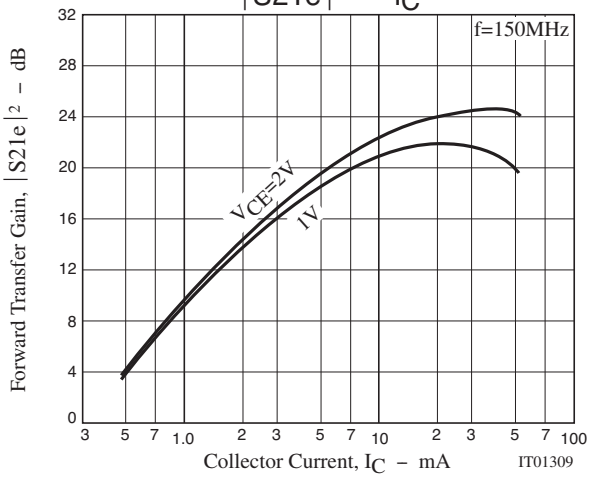
Cre – V_{CB}



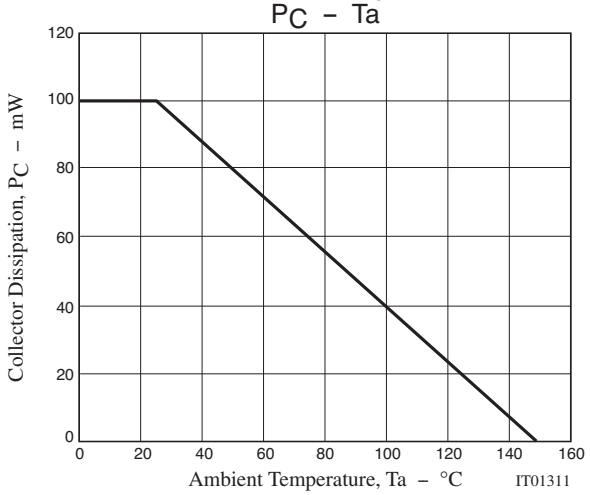
NF – I_C



$|S21e|^2$ – I_C



P_C – Ta



S Parameters (Common emitter)

V_{CE}=2V, I_C=1mA, Z_O=50Ω

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
50	0.961	-26.3	3.67	162.9	0.040	74.8	0.980	-7.3
100	0.937	-52.0	2.90	148.5	0.074	61.5	0.938	-13.4
150	0.917	-72.8	2.69	135.6	0.099	50.4	0.890	-18.0
200	0.890	-89.5	2.47	125.0	0.114	41.3	0.843	-21.5
250	0.893	-100.7	2.23	116.6	0.124	33.8	0.803	-24.4
300	0.880	-111.3	1.93	108.8	0.130	28.3	0.785	-26.5
350	0.868	-122.4	1.83	102.9	0.135	23.9	0.747	-28.6
400	0.873	-127.6	1.58	96.8	0.136	19.9	0.747	-30.5
450	0.858	-135.4	1.52	92.7	0.137	16.8	0.720	-32.3
500	0.866	-138.9	1.31	87.3	0.135	14.0	0.724	-34.3

V_{CE}=2V, I_C=3mA, Z_O=50Ω

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
50	0.888	-37.5	9.15	157.9	0.038	69.9	0.942	-15.0
100	0.860	-68.6	8.01	140.2	0.064	54.0	0.829	-26.1
150	0.835	-91.8	6.76	127.0	0.080	43.3	0.723	-32.9
200	0.810	-108.7	5.56	117.8	0.088	35.6	0.636	-36.7
250	0.800	-121.4	4.93	110.1	0.095	30.8	0.581	-39.1
300	0.792	-130.6	4.17	104.6	0.098	27.4	0.533	-40.9
350	0.791	-137.9	3.73	98.9	0.098	24.8	0.510	-42.2
400	0.787	-143.8	3.28	95.2	0.100	23.0	0.482	-43.3
450	0.785	-148.4	2.99	91.0	0.098	22.2	0.472	-44.6
500	0.783	-152.5	2.69	88.1	0.100	21.3	0.457	-45.7

V_{CE}=2V, I_C=10mA, Z_O=50Ω

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
50	0.733	-64.8	22.70	145.6	0.031	60.7	0.825	-33.9
100	0.722	-105.2	16.71	125.0	0.046	44.9	0.605	-53.9
150	0.719	-126.7	12.55	113.3	0.052	38.2	0.462	-64.8
200	0.713	-139.6	9.94	106.2	0.055	36.3	0.371	-71.4
250	0.716	-147.8	8.10	101.0	0.059	35.6	0.314	-76.1
300	0.716	-153.8	6.88	96.9	0.060	36.2	0.276	-79.7
350	0.716	-158.8	5.96	93.4	0.062	37.4	0.248	-82.6
400	0.717	-162.1	5.25	90.7	0.065	38.6	0.228	-85.1
450	0.715	-165.3	4.70	88.2	0.067	40.6	0.215	-86.7
500	0.716	-167.6	4.24	85.9	0.069	42.1	0.204	-88.6

V_{CE}=2V, I_C=30mA, Z_O=50Ω

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
50	0.605	-104.0	36.87	131.9	0.022	54.3	0.672	-59.9
100	0.660	-137.6	23.04	112.9	0.030	44.3	0.450	-89.4
150	0.677	-151.7	16.23	104.1	0.034	45.3	0.352	-106.7
200	0.681	-159.5	12.43	99.4	0.038	47.4	0.302	-118.6
250	0.686	-164.5	10.04	95.6	0.042	50.8	0.276	-127.0
300	0.687	-168.1	8.44	92.8	0.045	53.9	0.260	-133.7
350	0.689	-170.8	7.27	90.2	0.050	56.5	0.251	-138.8
400	0.691	-173.0	6.38	88.3	0.055	58.3	0.244	-142.9
450	0.691	-174.8	5.70	86.4	0.059	60.5	0.239	-145.6
500	0.691	-176.5	5.14	84.7	0.064	61.5	0.237	-148.2

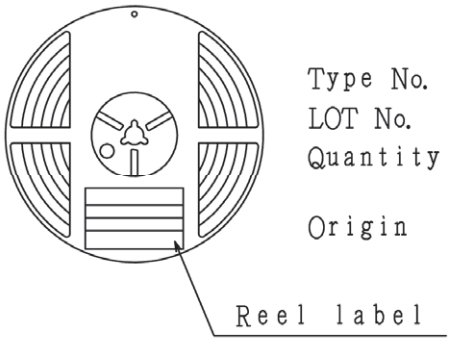
Embossed Taping Specification

2SC5536A-TL-H

1. Packing Format

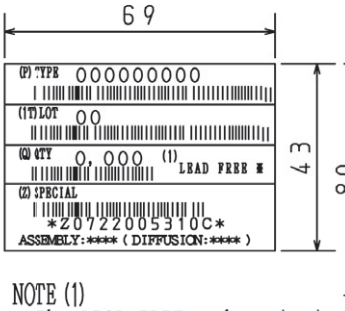
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
SSFP	SSFP	8,000	40,000	240,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



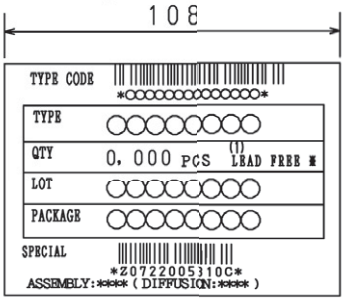
Reel label, Inner box label

(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.

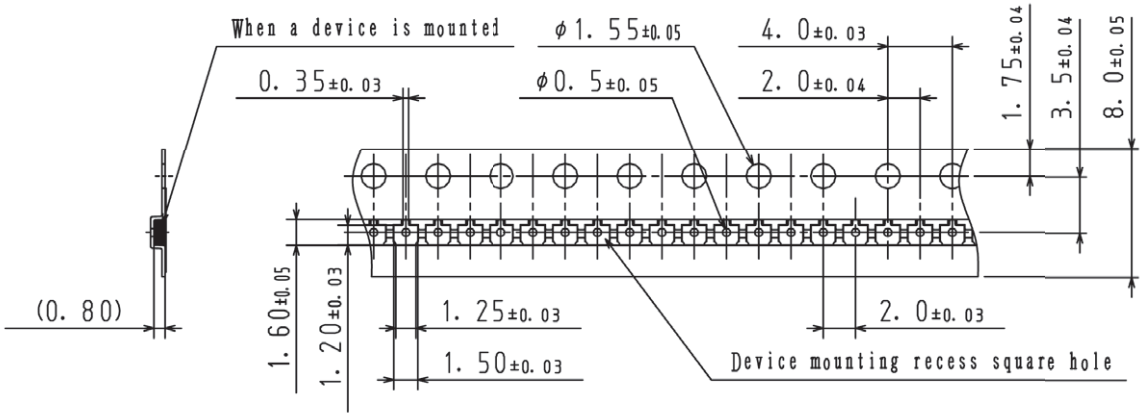


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

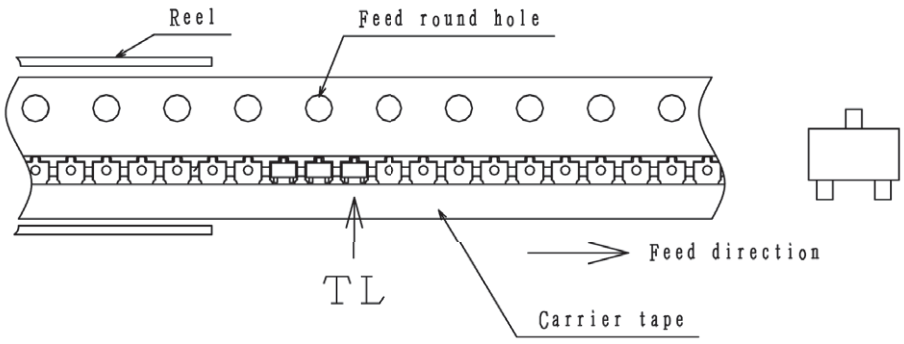
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



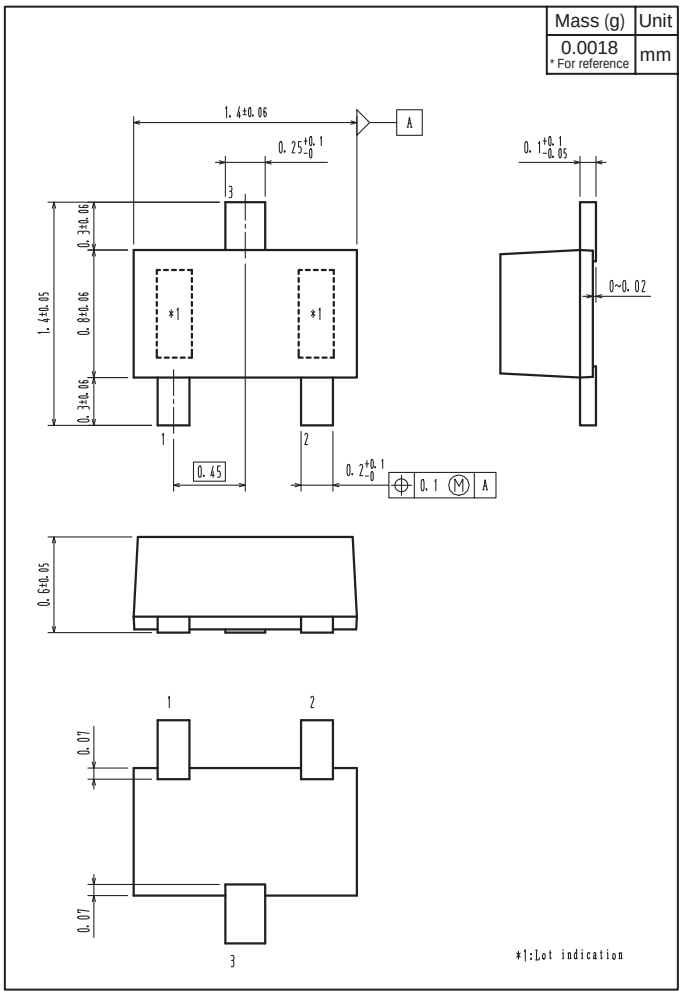
2-2. Device placement direction



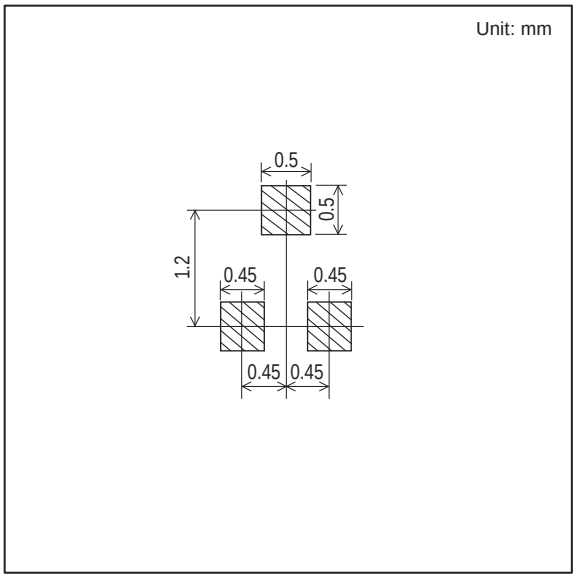
Those with pin 1 index on the feed hole side……TL

Outline Drawing

2SC5536A-TL-H



Land Pattern Example



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