〈SMALL-SIGNAL TRANSISTOR〉

2SC5635

FOR HIGH FREQUENCY AMPLIFY APPLICATION
SILICON NPN EPITAXIAL TYPE

DESCRIPTION

Mitsubishi 2SC5635 is a super mini package resin sealed silicon NPN epitaxial transistor.It is designed for high frequency application.

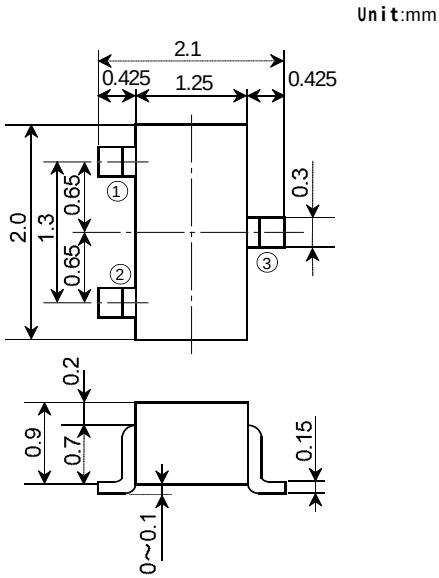
FEATURE

- High gain bandwidth product.
  fT=8.0GHz
- High gain,low noise.
- Can operate at low voltage.
- Super mini package for easy mounting.

APPLICATION

For TV tuners,high frequency amplifier,celluar phone system.

OUTLINE DRAWING



TERMINAL CONNECTOR
① : BASE
② : EMITTER
③ : COLLECTOR

JEITA:SC-70

MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V_{CBO}	Collector to Base voltage	15	V
V_{CEO}	Collector to Emitter voltage	6	V
V_{EBO}	Emitter to Base voltage	1.5	V
I_C	Collector current	50	mA
P_C	Collector dissipation	125	mW
T_j	Junction temperature	+125	°C
T_{stg}	Storage temprature	-55~+125	°C

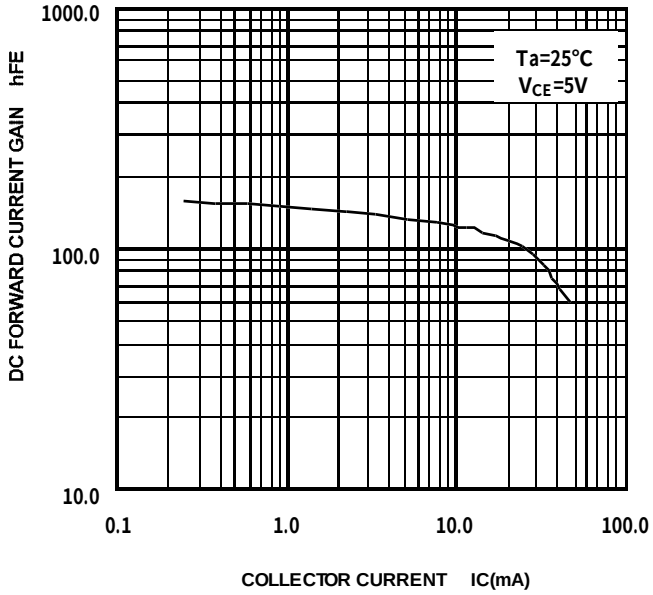
ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{CBO}	Collector cut off current	V_{CB}=10V, I_E=0mA			1.0	µA
I_{EBO}	Emitter cut off current	V_{EB}=1V, I_C=0mA			1.0	µA
h_{FE}	DC forward current gain	V_{CE}=5V, I_C=10mA	50		250	
f_T	Gain bandwidth product	V_{CE}=5V, I_E=10mA	5.0	8.0		GHz
C_{ob}	Collector output capacitance	V_{CB}=5V, I_E=0mA, f=1MHz		1.0		pF
$\|S_{21}\|^2$	Insertion power gain	V_{CE}=5V, I_C=10mA, f=1GHz	9.0	12.0		dB
NF	Noise figure	V_{CE}=5V, I_C=5mA, f=1GHz		1.4		dB

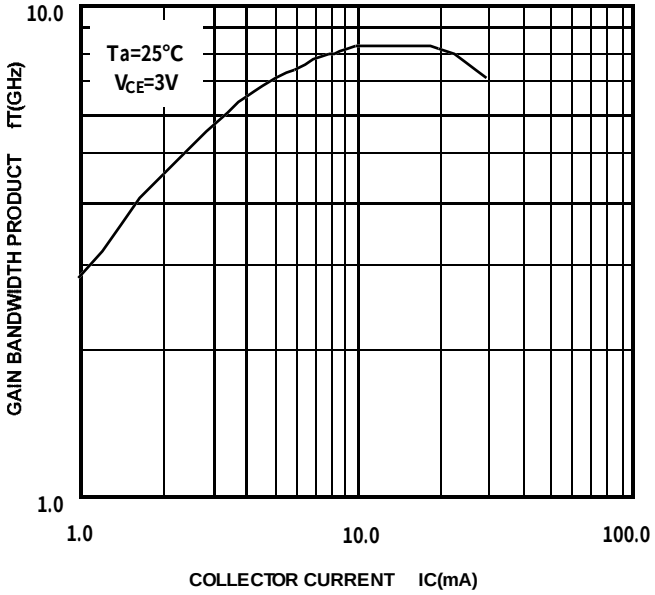
2SC5635

FOR HIGH FREQUENCY AMPLIFY APPLICATION
SILICON NPN EPITAXIAL TYPE

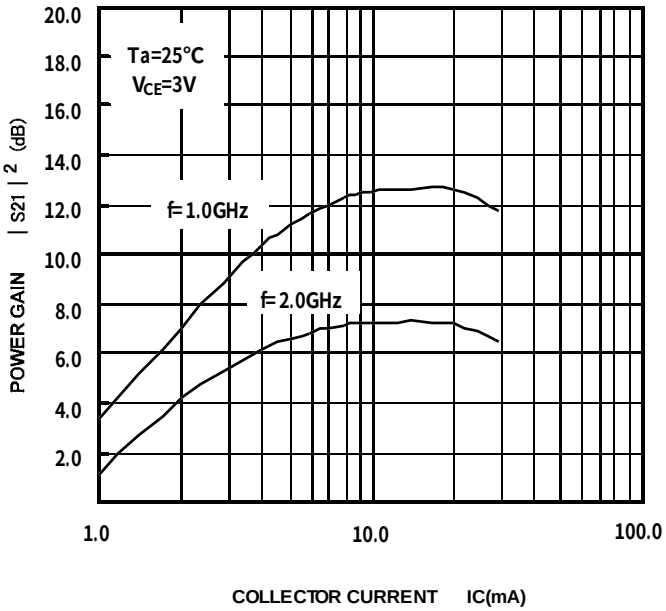
DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT



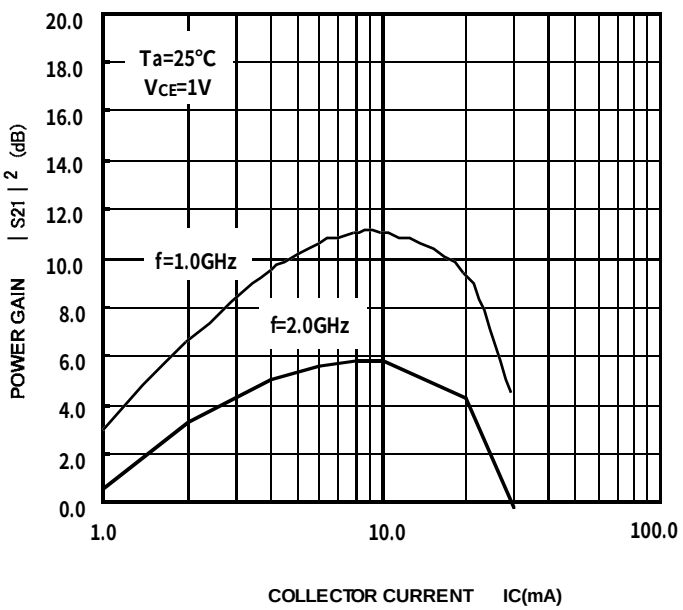
GAIN BANDWIDTH PRODUCT
VS. COLLECTOR CURRENT



POWER GAIN VS. COLLECTOR CURRENT



POWER GAIN VS. COLLECTOR CURRENT



2SC5635

FOR HIGH FREQUENCY AMPLIFY APPLICATION
SILICON NPN EPITAXIAL TYPE

S PARAMETER

V_{CE}=1V,I_C=10mA

FREQUENCY	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	0.462	-121.3	6.597	102.5	0.087	48.1	0.352	-84.5
600	0.440	-131.7	5.854	97.0	0.094	48.9	0.320	-87.7
700	0.434	-143.9	5.029	91.8	0.102	48.7	0.278	-100.6
800	0.423	-149.9	4.569	88.0	0.109	49.7	0.254	-101.8
900	0.413	-155.5	4.031	84.1	0.117	51.0	0.233	-107.1
1000	0.407	-159.7	3.685	82.1	0.124	51.3	0.220	-109.7
1100	0.407	-164.6	3.367	78.5	0.133	51.8	0.211	-114.9
1200	0.397	-167.5	3.141	76.4	0.140	52.3	0.201	-116.5
1300	0.395	-171.3	2.880	73.7	0.150	52.8	0.192	-120.3
1400	0.393	-173.3	2.712	72.2	0.157	53.0	0.187	-122.0
1500	0.389	-175.7	2.574	69.9	0.164	53.2	0.181	-122.4
1600	0.392	-179.0	2.435	67.0	0.173	53.2	0.176	-124.9
1700	0.384	179.1	2.307	65.3	0.180	53.0	0.178	-126.3
1800	0.386	177.0	2.178	63.8	0.189	52.8	0.174	-128.4
1900	0.383	174.5	2.089	61.8	0.197	52.8	0.175	-130.4
2000	0.379	173.1	2.011	60.4	0.204	52.4	0.177	-131.1

V_{CE}=3V,I_C=10mA

FREQUENCY	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	0.473	-102.1	7.745	108.2	0.076	52.4	0.420	-60.1
600	0.434	-113.7	6.955	102.1	0.082	53.1	0.389	-62.1
700	0.410	-127.8	6.038	95.9	0.089	52.5	0.325	-69.8
800	0.391	-134.7	5.488	92.5	0.096	53.4	0.302	-69.2
900	0.375	-141.5	4.872	87.9	0.104	54.4	0.273	-71.5
1000	0.365	-146.5	4.457	85.6	0.110	54.7	0.258	-71.7
1100	0.361	-152.6	4.073	82.1	0.118	55.1	0.242	-74.8
1200	0.350	-155.8	3.805	79.7	0.125	55.7	0.232	-74.9
1300	0.345	-160.2	3.486	77.1	0.133	56.0	0.219	-76.7
1400	0.342	-162.7	3.279	75.5	0.140	56.1	0.213	-77.0
1500	0.337	-165.4	3.106	73.8	0.147	56.4	0.211	-77.1
1600	0.337	-169.4	2.928	70.3	0.155	56.2	0.205	-78.4
1700	0.330	-171.3	2.772	69.2	0.161	56.2	0.205	-79.9
1800	0.332	-174.0	2.617	67.0	0.170	56.3	0.198	-80.6
1900	0.328	-176.5	2.511	65.2	0.176	56.0	0.197	-82.2
2000	0.325	-178.4	2.413	63.4	0.184	55.6	0.200	-84.2

V_{CE}=5V,I_C=10mA

FREQUENCY	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	0.483	-94.6	8.003	110.1	0.071	54.4	0.458	-52.0
600	0.436	-106.1	7.231	104.2	0.077	54.8	0.428	-52.8
700	0.405	-120.3	6.321	97.7	0.085	54.0	0.360	-59.2
800	0.381	-127.6	5.738	94.0	0.091	54.8	0.340	-58.2
900	0.361	-134.6	5.103	89.6	0.099	55.8	0.312	-59.8
1000	0.349	-139.9	4.683	87.0	0.104	56.3	0.297	-59.2
1100	0.342	-146.3	4.290	83.4	0.112	56.5	0.280	-61.4
1200	0.330	-149.6	3.990	81.2	0.119	57.0	0.270	-61.6
1300	0.323	-154.5	3.669	78.4	0.126	57.5	0.256	-61.7
1400	0.321	-157.2	3.455	76.2	0.133	57.4	0.254	-62.9
1500	0.314	-160.0	3.273	74.3	0.140	57.6	0.252	-62.7
1600	0.313	-164.3	3.086	71.2	0.147	57.8	0.245	-63.3
1700	0.305	-166.2	2.915	70.4	0.153	57.4	0.244	-65.4
1800	0.308	-169.1	2.765	67.9	0.162	57.4	0.240	-66.2
1900	0.304	-171.9	2.648	65.9	0.169	57.3	0.237	-67.3
2000	0.299	-173.6	2.538	64.7	0.175	57.0	0.239	-69.1

ISAHAYA ELECTRONICS CORPORATION

Marketing division, Marketing planning department

6-41 Tsukuba, Isahaya, Nagasaki, 854-0065 Japan

Keep safety first in your circuit designs!

·ISAHAYA Electronics Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (1) placement of substitutive, auxiliary, (2) use of non-farmable material or (3) prevention against any malfunction or mishap.

Notes regarding these materials

·These materials are intended as a reference to our customers in the selection of the ISAHAYA products best suited to the customer's application; they don't convey any license under any intellectual property rights, or any other rights, belonging ISAHAYA or third party.

·ISAHAYA Electronics Corporation assumes no responsibility for any damage, or infringement of any third party's rights, originating in the use of any product data, diagrams, charts or circuit application examples contained in these materials.

·All information contained in these materials, including product data, diagrams and charts, represent information on products at the time of publication of these materials, and are subject to change by ISAHAYA Electronics Corporation without notice due to product improvements or other reasons. It is therefore recommended that customers contact ISAHAYA Electronics Corporation or an authorized ISAHAYA products distributor for the latest product information before purchasing product listed herein.

·ISAHAYA Electronics Corporation products are not designed or manufactured for use in a device or system that is used under circumstances in which human life is potentially at stake. Please contact ISAHAYA electronics corporation or an authorized ISAHAYA products distributor when considering the use of a product contained herein for any specific purposes, such as apparatus or systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use.

·The prior written approval of ISAHAYA Electronics Corporation is necessary to reprint or reproduce in whole or in part these materials.

·If these products or technologies are subject to the Japanese export control restrictions, they must be exported under a license from the Japanese government and cannot be imported into a country other than the approved destination. Any diversion or re-export contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.

·Please contact ISAHAYA Electronics Corporation or authorized ISAHAYA products distributor for further details on these materials or the products contained therein.