〈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

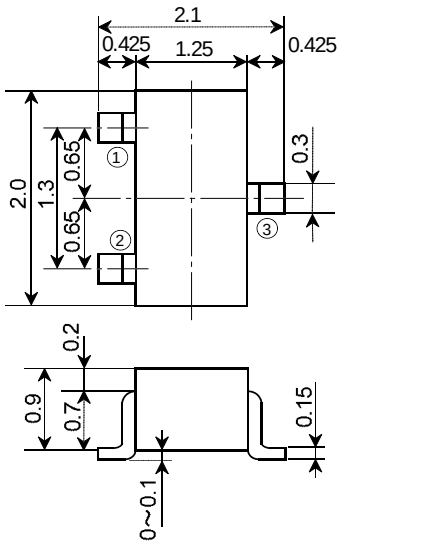
- High gain bandwidth product.
  fT=8.0GHz
- High gain,low noise.
- Can operate at low voltage.
- Super mini package for easy mounting.

APPLICATION

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

OUTLINE DRAWING

Unit:mm



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

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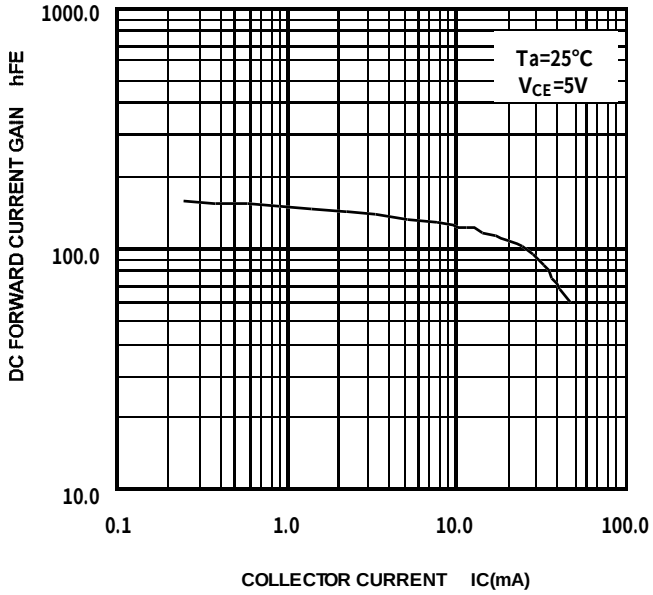
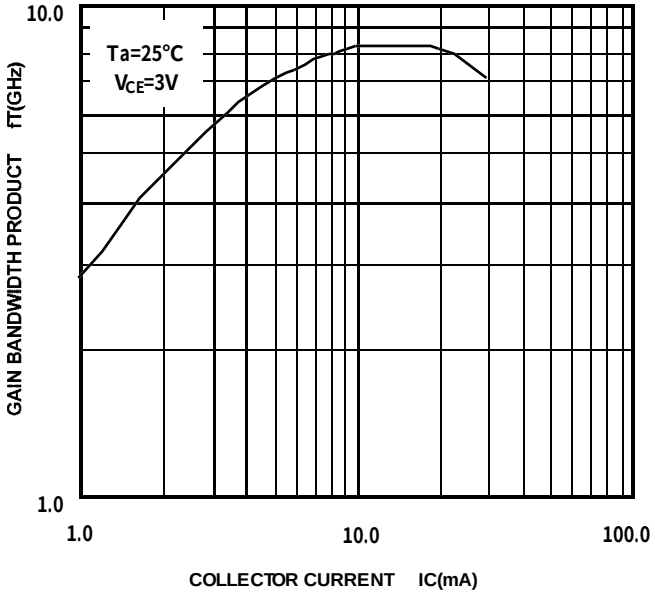
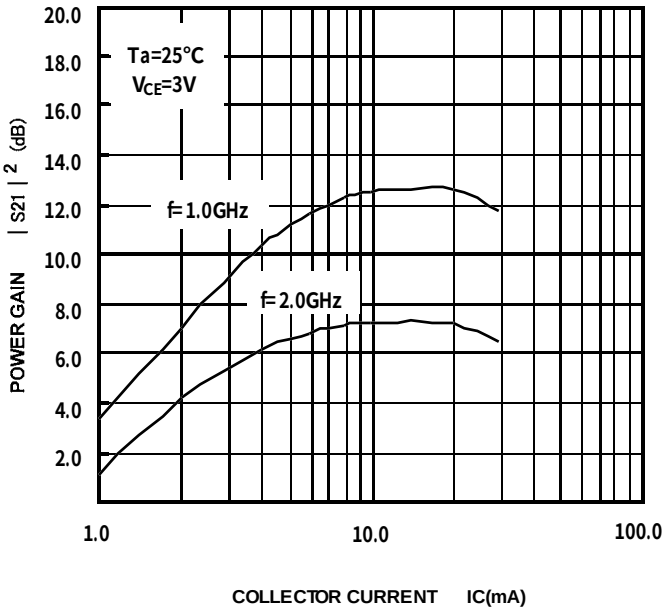
DC FORWARD CURRENT GAIN VS. COLLECTOR CURRENT



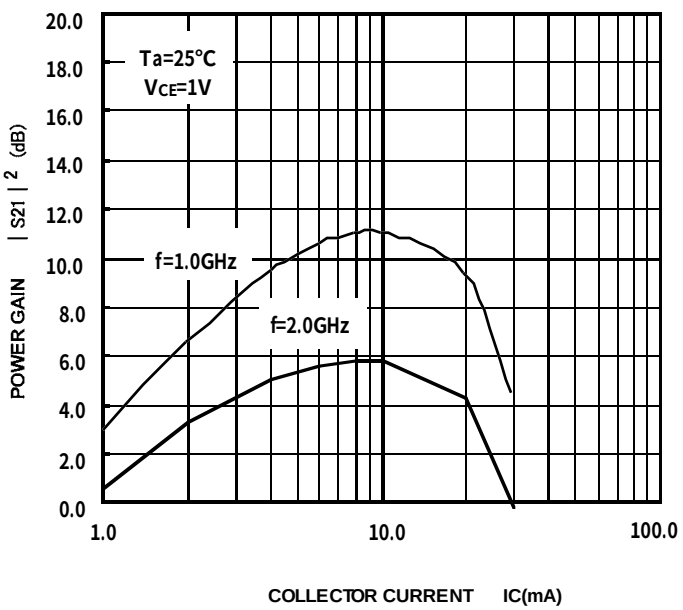
GAIN BANDWIDTH PRODUCT VS. COLLECTOR CURRENT



POWER GAIN VS. COLLECTOR CURRENT



POWER GAIN VS. COLLECTOR CURRENT



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FOR HIGH FREQUENCY AMPLIFY APPLICATION
SILICON NPN EPITAXIAL TYPE

S PARAMETER

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

FREQUENCY	S_{11}		S_{21}		S_{12}		S_{22}	
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	S_{11}		S_{21}		S_{12}		S_{22}	
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	S_{11}		S_{21}		S_{12}		S_{22}	
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

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