

〈SMALL-SIGNAL TRANSISTOR〉

**2SC4258**

FOR HIGH FREQUENCY, MEDIUM FREQUENCY AMPLIFY APPLICATION  
SILICON NPN EPITAXIAL TYPE

**DESCRIPTION**

2SC4258 is a super mini package resin sealed silicon NPN epitaxial type transistor. It is designed for high frequency medium frequency amplify application.

**FEATURE**

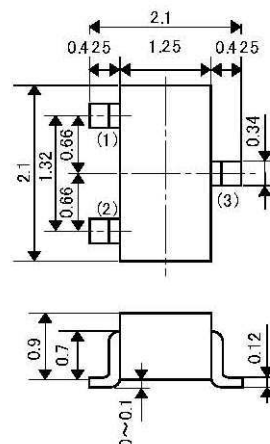
- High gain 10.7MHz, MAG=45dB typ
- Low noise 10.7MHz NF=3.0dB typ
- Super mini package for easy mounting
- Low yre yre=-J0.11ms typ

**APPLICATION**

Small type communication equipment, high frequency amplify, oscillating, mix, frequency exchange of AM/FM radio, medium frequency amplifier.

**OUTLINE DRAWING**

Unit:mm

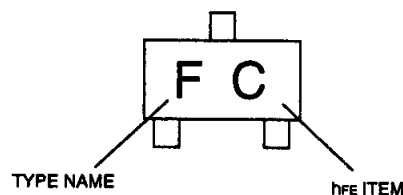


**TERMINAL CONNECTOR**

- ① : BASE
  - ② : EMITTER
  - ③ : COLLECTOR
- EIAJ : SC-70

Note)  
The dimension without tolerance represent central value.

**MARKING**



**MAXIMUM RATINGS (Ta=25°C)**

Symbol	Parameter	Ratings	Unit
Vcbo	Collector to Base voltage	30	V
Vebo	Emitter to Base voltage	4	V
Vceo	Collector to Emitter voltage	25	V
Ic	Collector current	30	mA
Pc	Collector dissipation(Ta=25°C)	150	mW
Tj	Junction temperature	+125	°C
Tstg	Storage temperature	-55 to +125	°C

**ELECTRICAL CHARACTERISTICS (Ta=25°C)**

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
Icbo	Collector cut off current	Vcb=25V, Ie=0			1.0	μA
Iebo	Emitter cut off current	VEB=2V, Ic=0			1.0	μA
hFE *	DC forward current gain	VCE=6V, Ic=1mA	35		180	—
VCE(sat)	C to E saturation voltage	Ic=10mA, Ie=1mA		0.1	0.3	V
fr	Gain band width product	VCE=6V, Ie=1mA	150	200		MHz
Cob	Collector output capacitance	Vcb=6V, Ie=0, f=1MHz		2.0	2.7	pF
Ccr'b	Base time constant	Vcb=6V, Ie=-1mA, f=31.8MHz		20	60	pS
NF	Noise figure	Vcb=6V, Ie=-1mA, f=10.7MHz, Rg=500Ω		3.0		dB

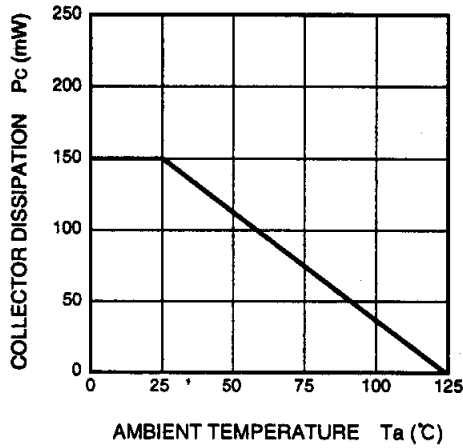
\* : It shows hFE classification in right table.

Item	B	C	D
hFE	35 to 70	55 to 110	90 to 180
Marking	FB	FC	FD

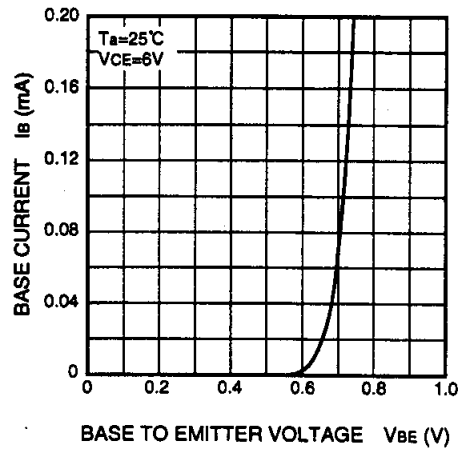
FOR HIGH FREQUENCY, MEDIUM FREQUENCY AMPLIFY APPLICATION  
SILICON NPN EPITAXIAL TYPE

TYPICAL CHARACTERISTICS

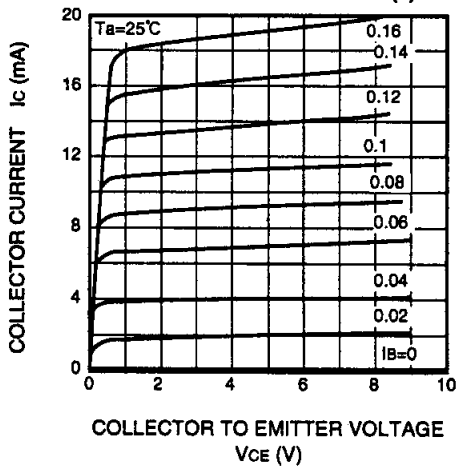
COLLECTOR DISSIPATION VS.  
AMBIENT TEMPERATURE



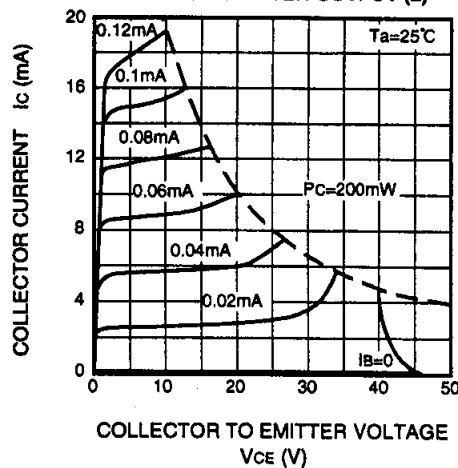
COMMON EMITTER INPUT



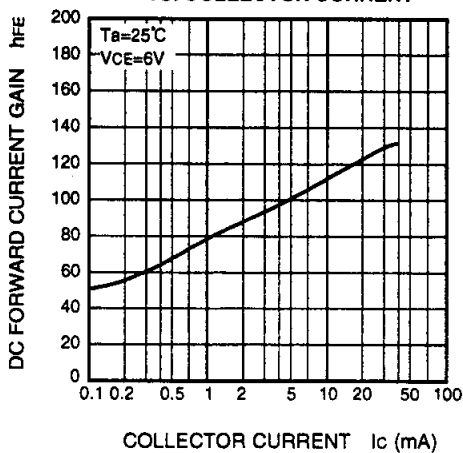
COMMON EMITTER OUTPUT (1)



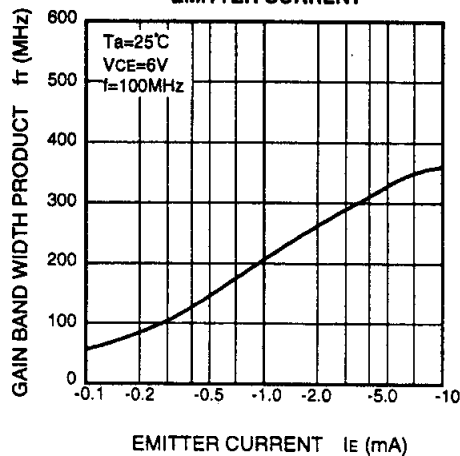
COMMON EMITTER OUTPUT (2)



DC FORWARD CURRENT GAIN  
VS. COLLECTOR CURRENT



GAIN BAND WIDTH PRODUCT VS.  
EMITTER CURRENT

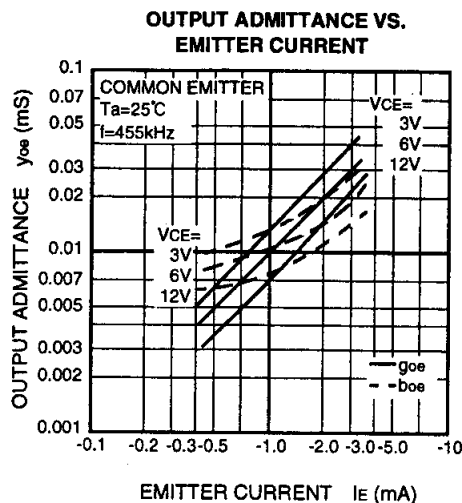
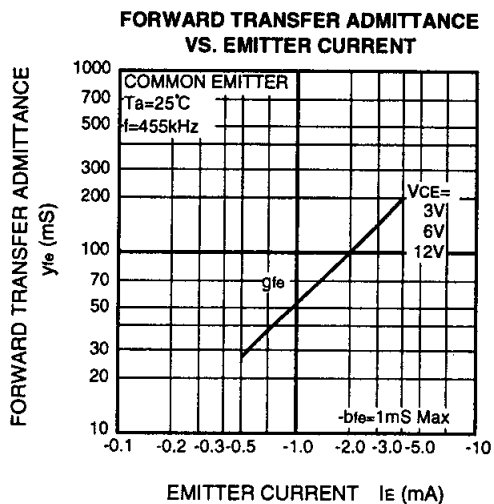
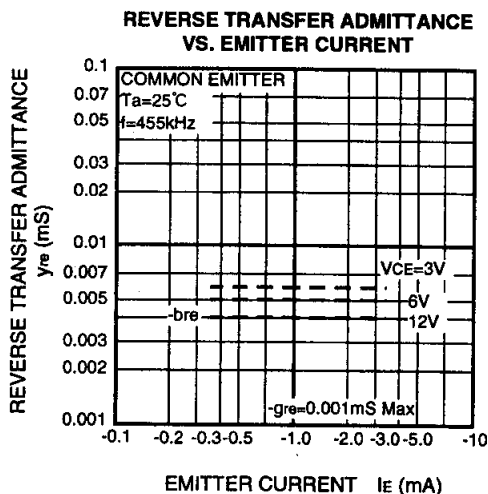
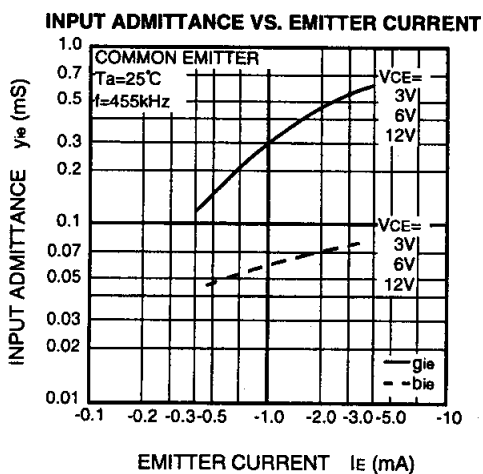


**FOR HIGH FREQUENCY, MEDIUM FREQUENCY AMPLIFY APPLICATION  
SILICON NPN EPITAXIAL TYPE**

**COMMON EMITTER, y PARAMETER (TYPICAL VALUE) (Ta=25°C)**

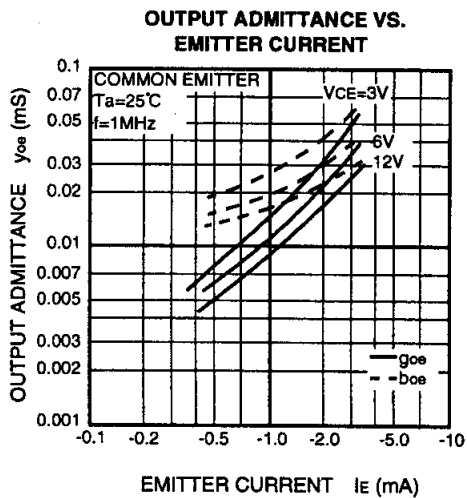
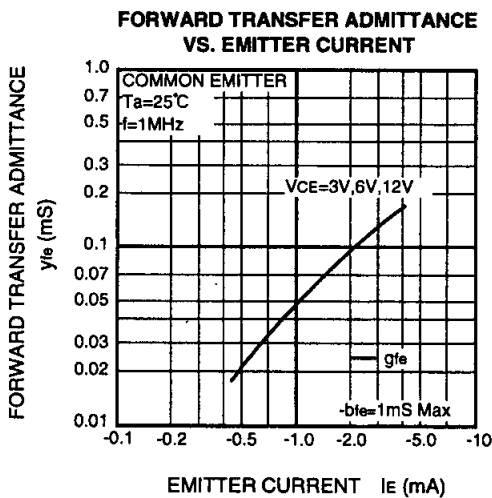
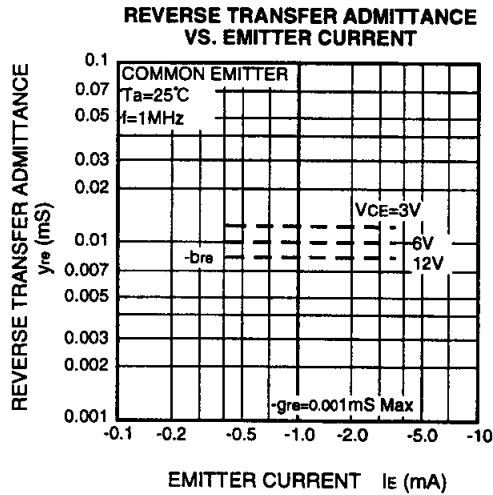
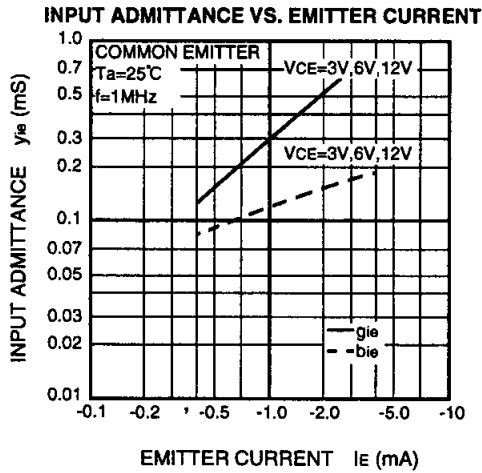
Test conditions		f=455kHz VCE=6V IE=-1mA	f=1MHz VCE=6V IE=-1mA	f=10.7MHz VCE=6V IE=-1mA	f=100MHz VCE=6V IE=-1mA
yie (mS)	gie	0.30	0.30	0.38	4.4
	bie	0.06	0.12	1.40	11.0
yre (mS)	-gre	0.001Max	0.001Max	0.005Max	0.05Max
	-bre	0.005	0.010	0.11	1.0
yfe (mS)	gfe	50	46	37	25
	-dfe	1.0Max	1.0Max	2.8	16
yoe (mS)	goe	0.010	0.012	0.03	0.32
	boe	0.011	0.022	0.18	1.3

**COMMON EMITTER, 455kHz y PARAMETER**

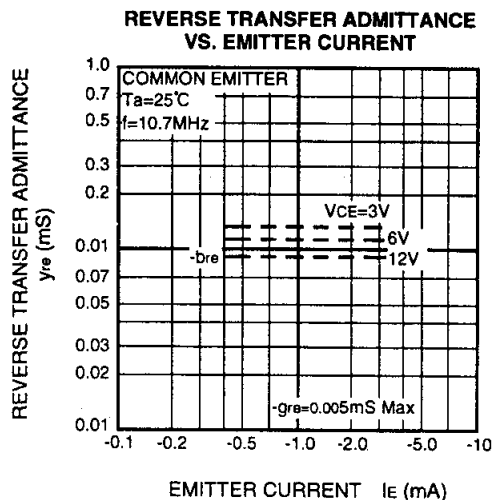
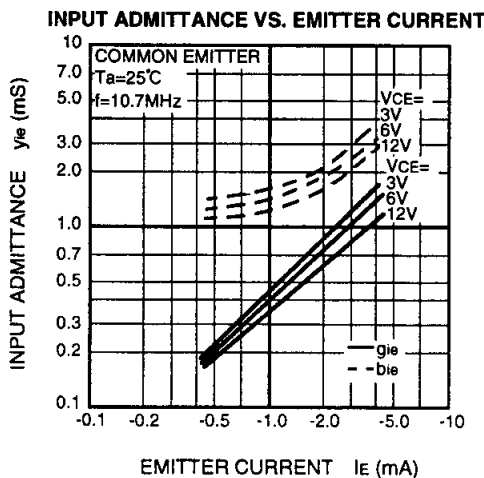


FOR HIGH FREQUENCY, MEDIUM FREQUENCY AMPLIFY APPLICATION  
SILICON NPN EPITAXIAL TYPE

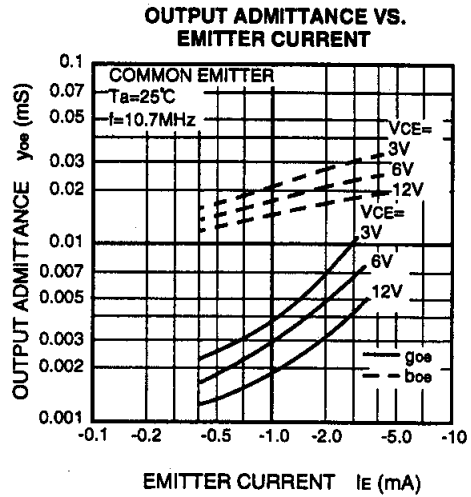
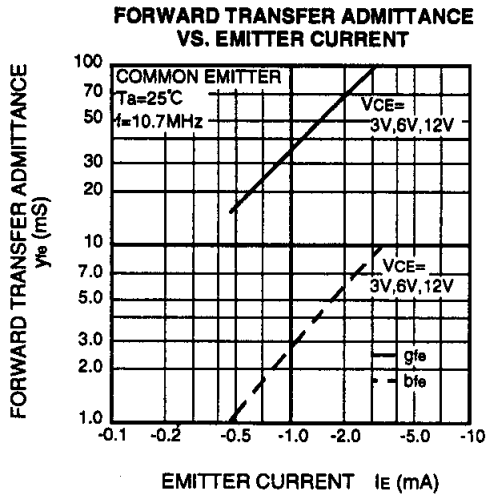
**COMMON EMITTER, 1MHz y PARAMETER**



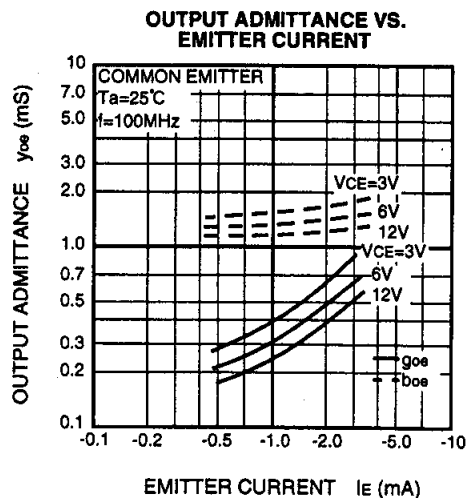
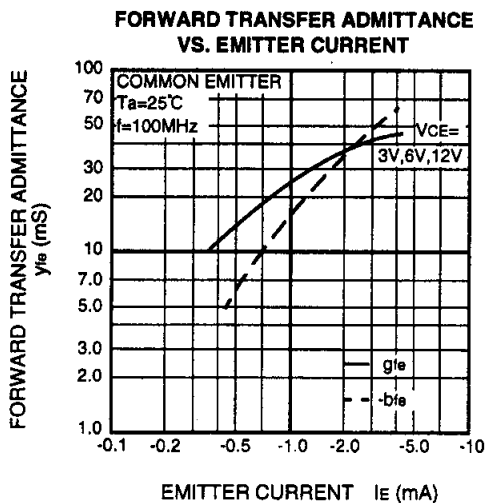
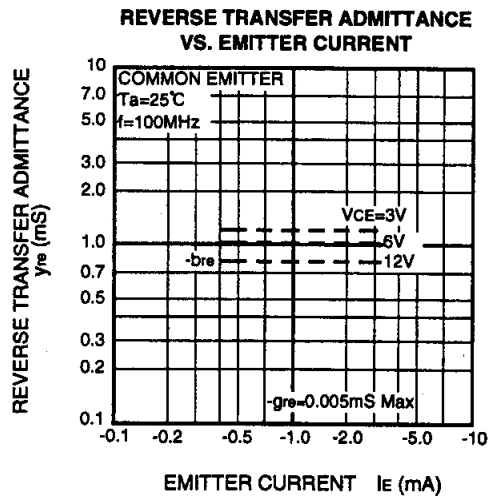
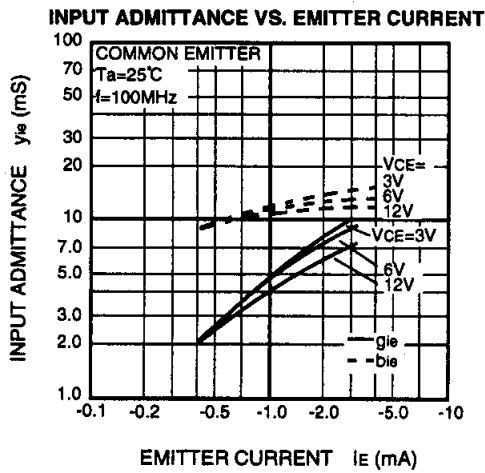
**COMMON EMITTER, 10.7MHz y PARAMETER**



FOR HIGH FREQUENCY, MEDIUM FREQUENCY AMPLIFY APPLICATION  
SILICON NPN EPITAXIAL TYPE



**COMMON EMITTER, 100MHz y PARAMETER**



---

The logo for IDC ISAHAYA ELECTRONICS CORPORATION features the letters 'IDC' in a stylized blue font with a red triangle above the 'I', followed by the company name 'ISAHAYA ELECTRONICS CORPORATION' in a black serif font.

<http://www.idc-com.co.jp>

6-41, TSUKUBA, ISAHAYA, NAGASAKI, 854-0065, JAPAN

#### **Keep safety 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 consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

#### **Notes regarding these materials**

- These materials are intended as reference to assist out customers in the selection of the Isahaya semiconductor product best suited to the customer's application, they do not convey any license under any intellectual property rights, or any other rights, belonging to Isahaya Electronics Corporation or a third party.
  - Isahaya Electronics Corporation assumes no responsibility for any damage, or infringement of any third-party rights, originating in the use of any product data, diagrams, charts or circuit application examples contained in the 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 authorized Isahaya Semiconductor product distributor for the latest product information before purchasing a product listed herein.
  - 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 reexport contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.
  - Please contact Isahaya Electronics Corporation or an authorized Isahaya Semiconductor product distributor for further details on these materials or the products contained therein.
-