

# High-frequency Amplifier Transistor (25V, 50mA, 300MHz)

2SC5659 / 2SC4618 / 2SC4098 / 2SC2413K

## ●Features

- 1) Low collector capacitance. (Cob : Typ. 1.3pF)
- 2) Low rbb, high gain, and excellent noise characteristics.

## ●Absolute maximum ratings (Ta=25°C)

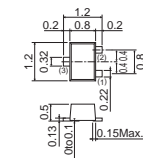
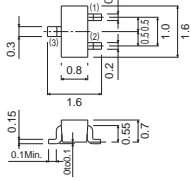
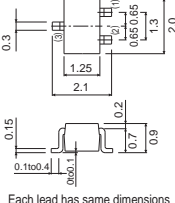
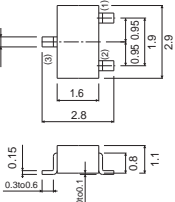
Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CBO</sub>	40	V
Collector-emitter voltage	V <sub>CEO</sub>	25	V
Emitter-base voltage	V <sub>EB0</sub>	5	V
Collector current	I <sub>C</sub>	50	mA
Collector power dissipation	2SC5659, 2SC4618 2SC4098, 2SC2413K	P <sub>C</sub>	W
		0.15 0.2	
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

## ●Packaging specifications and h<sub>FE</sub>

Type	2SC5659	2SC4618	2SC4098	2SC2413K
Package	VMT3	EMT3	UMT3	SMT3
h <sub>FE</sub>	P	P	P	P
Marking	A*	A*	A*	A*
Code	T2L	TL	T106	T146
Basic ordering unit (pieces)	8000	3000	3000	3000

\* Denotes h<sub>FE</sub>

## ●Dimensions (Unit : mm)

2SC5659		(1) Base (2) Emitter (3) Collector
2SC4618		(1) Emitter (2) Base (3) Collector
2SC4098		(1) Emitter (2) Base (3) Collector
2SC2413K		(1) Emitter (2) Base (3) Collector

## ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CBO</sub>	40	—	—	V	I <sub>C</sub> =50μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	25	—	—	V	I <sub>C</sub> =1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	5	—	—	V	I <sub>E</sub> =50μA
Collector cutoff current	I <sub>CBO</sub>	—	—	0.5	μA	V <sub>CB</sub> =24V
Emitter cutoff current	I <sub>EB0</sub>	—	—	0.5	μA	V <sub>EB</sub> =3V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	—	0.1	0.3	V	I <sub>C</sub> /I <sub>B</sub> =10mA/1mA
DC current transfer ratio	h <sub>FE</sub>	82	—	180	—	V <sub>CE</sub> =6V, I <sub>C</sub> =1mA
Transition frequency	f <sub>T</sub>	150	300	—	MHz	V <sub>CE</sub> =6V, I <sub>E</sub> =-1mA, f=100MHz
Output capacitance	Cob	—	1.3	2.2	pF	V <sub>CB</sub> =6V, I <sub>E</sub> =0A, f=1MHz

## ●Electrical characteristics curves

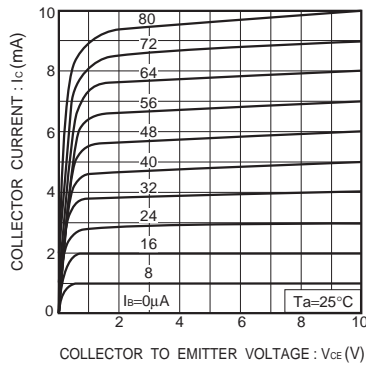


Fig.1 Ground emitter output characteristics

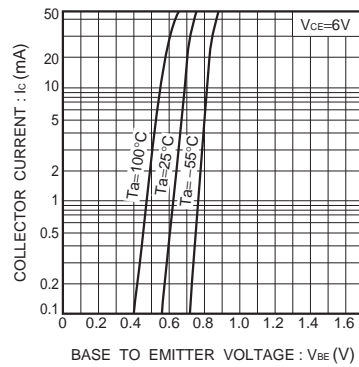


Fig.2 Ground emitter propagation characteristics

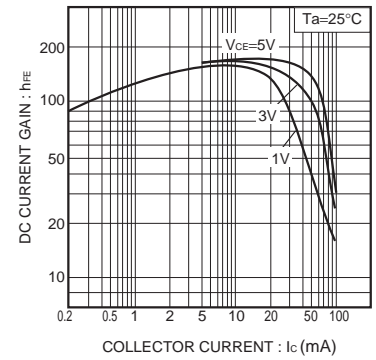


Fig.3 DC current gain vs. collector current ( I )

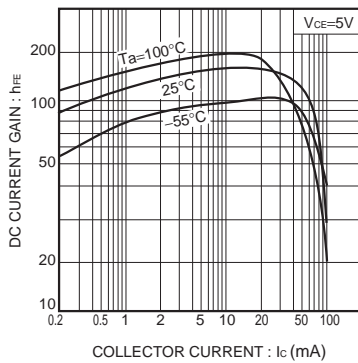


Fig.4 DC current gain vs. collector current ( II )

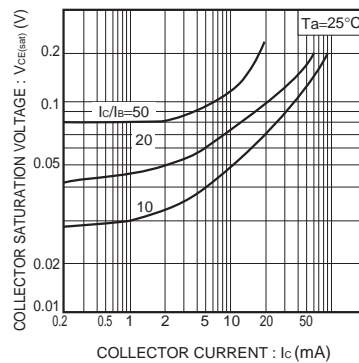


Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

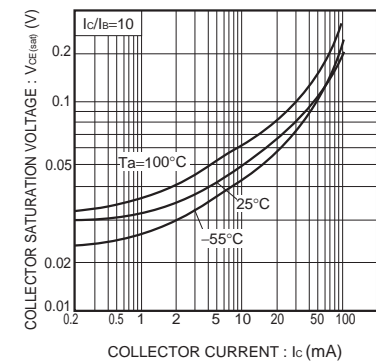


Fig.6 Collector-emitter saturation voltage vs. collector current ( II )

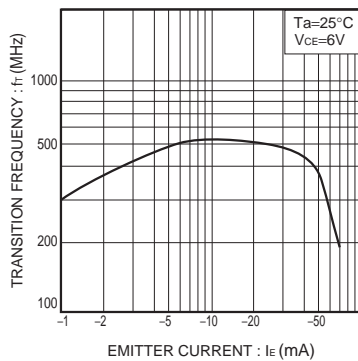


Fig.7 Gain bandwidth product vs. emitter current

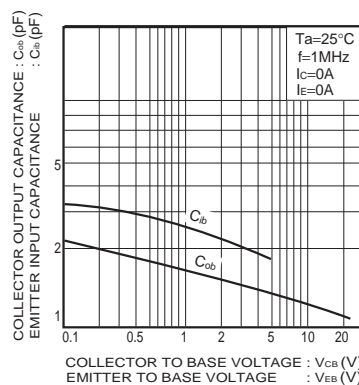


Fig.8 Capacitance vs. voltage

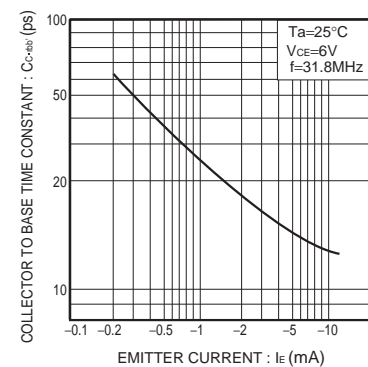


Fig.9 Collector to base time constant vs. emitter current

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