

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

2SC5659 / 2SC4618 / 2SC4098 / 2SC2413K / 2SC2058S

●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 _{CB0}	40	V
Collector-emitter voltage	V _{CE0}	25	V
Emitter-base voltage	V _{EB0}	5	V
Collector current	I _c	50	mA
Collector power dissipation	P _c	0.15	W
		0.2	
		0.25	
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

●Packaging specifications and hFE

Type	2SC5659	2SC4618	2SC4098	2SC2413K	2SC2058S
Package	VMT3	EMT3	UMT3	SMT3	SPT
hFE	P	P	P	P	P
Marking	A*	A*	A*	A*	-
Code	T2L	TL	T106	T146	TP
Basic ordering unit (pieces)	8000	3000	3000	3000	5000

* Denotes hFE

●External dimensions (Unit : mm)

2SC5659 ROHM : VMT3 (1) Base (2) Emitter (3) Collector	2SC4618 ROHM : EMT3 EIAJ : SC-75A (1) Emitter (2) Base (3) Collector
2SC4098 ROHM : UMT3 EIAJ : SC-70 Each lead has same dimensions (1) Emitter (2) Base (3) Collector	2SC2413K ROHM : SMT3 EIAJ : SC-59 Each lead has same dimensions (1) Emitter (2) Base (3) Collector
2SC5058S ROHM : SPT EIAJ : SC-72 Taping specifications (1) Emitter (2) Collector (3) Base	

Transistors

●Electrical characteristics (Ta=25°C)

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

●Electrical characteristics curves

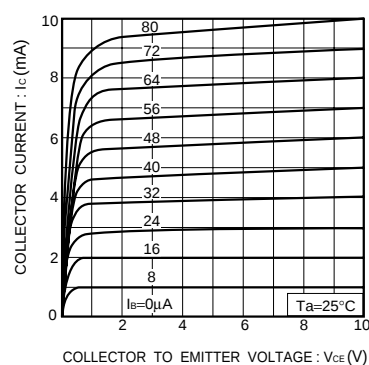


Fig.1 Ground emitter output characteristics

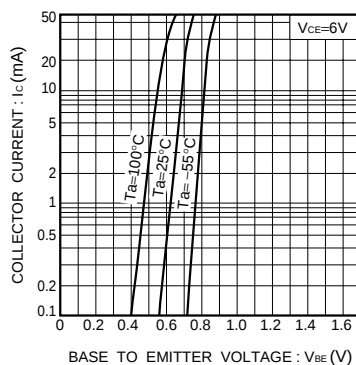


Fig.2 Ground emitter propagation characteristics

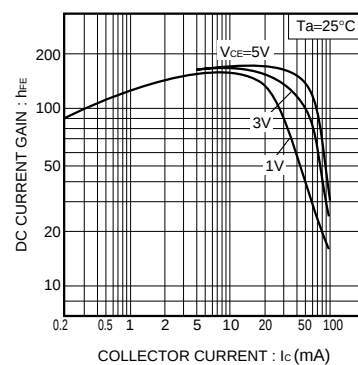


Fig.3 DC current gain vs. collector current (I)

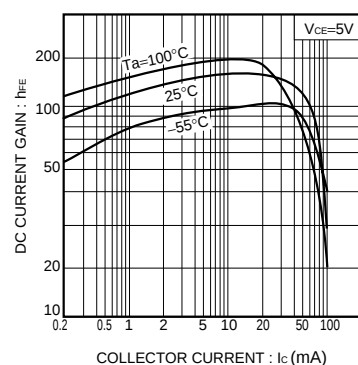


Fig.4 DC current gain vs. collector current (II)

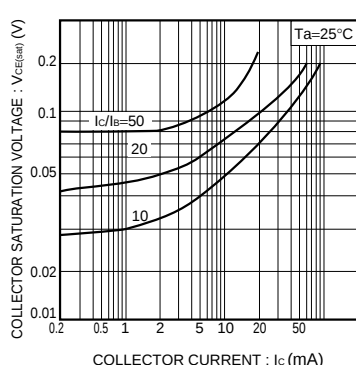


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

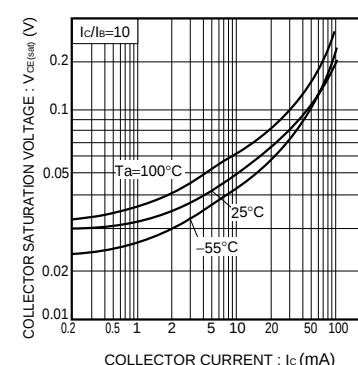


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

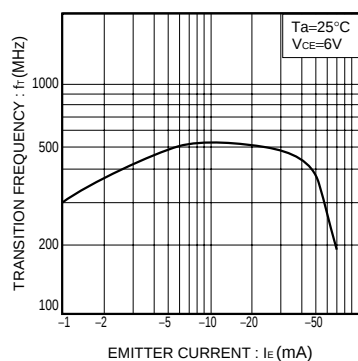


Fig.7 Gain bandwidth product vs. emitter current

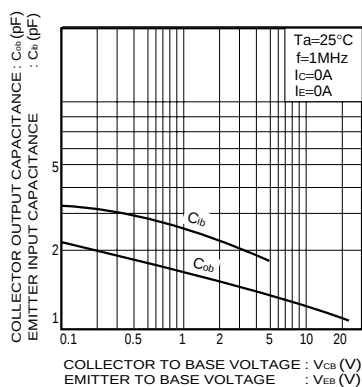


Fig.8 Capacitance vs. voltage

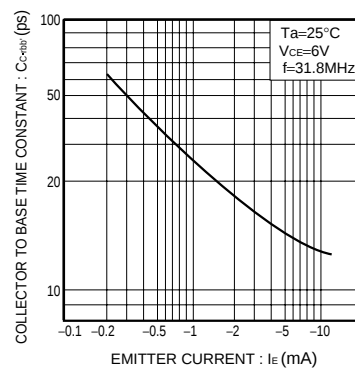


Fig.9 Collector to base time constant vs. emitter current

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