

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 _{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	2SC5659, 2SC4618	0.15	W
	2SC4098, 2SC2413K	0.2	
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

●Packaging specifications and h_{FE}

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

* Denotes h_{FE}

●Dimensions (Unit : mm)

2SC5659

ROHM : VMT3
SOT-723

(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

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	40	-	-	V	I _c =50μA
Collector-emitter breakdown voltage	BV _{CE0}	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 _{EBO}	-	-	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 _r	150	300	-	MHz	V _{CE} =6V, I _E =-1mA, f=100MHz
Output capacitance	Cob	-	1.3	2.2	pF	V _{CB} =6V, I _E =0A, f=1MHz

●Electrical characteristics curves

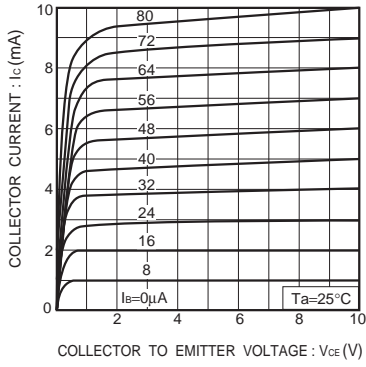


Fig.1 Ground emitter output characteristics

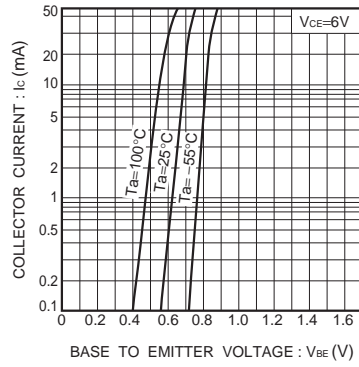


Fig.2 Ground emitter propagation characteristics

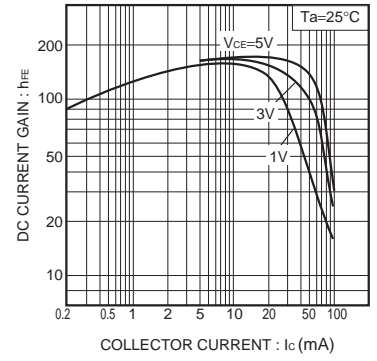


Fig.3 DC current gain vs. collector current (I)

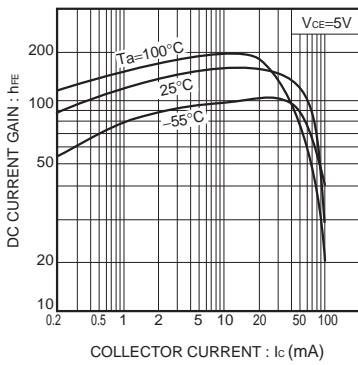


Fig.4 DC current gain vs. collector current (II)

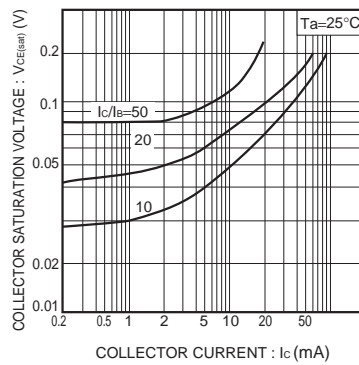


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

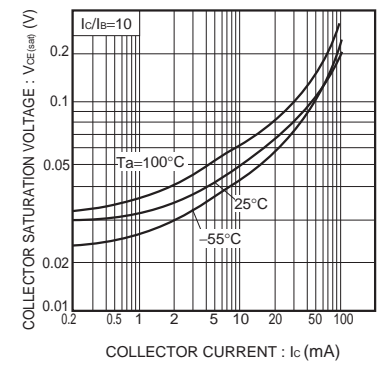


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

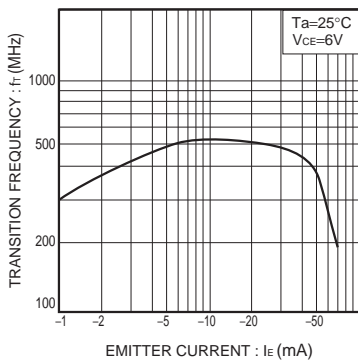


Fig.7 Gain bandwidth product vs. emitter current

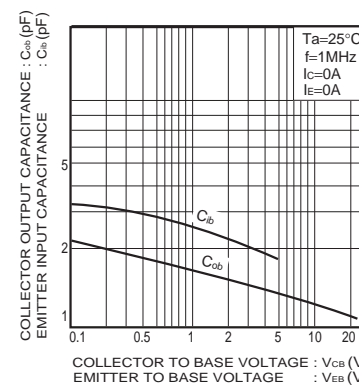


Fig.8 Capacitance vs. voltage

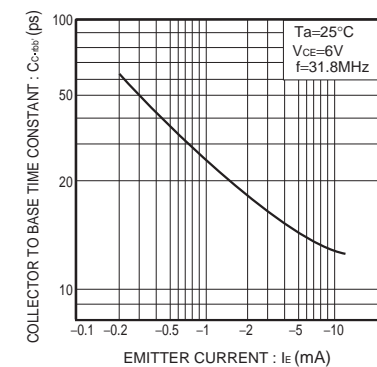


Fig.9 Collector to base time constant vs. emitter current

Notes

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