

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)

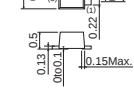
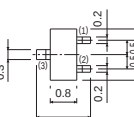
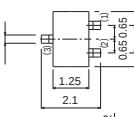
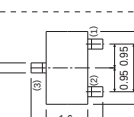
Parameter		Symbol	Limits	Unit
Collector-base voltage		V _{CBO}	40	V
Collector-emitter voltage		V _{CEO}	25	V
Emitter-base voltage		V _{EB0}	5	V
Collector current		I _C	50	mA
Collector power dissipation	2SC5659, 2SC4618	P _C	0.15	W
	2SC4098, 2SC2413K		0.2	
Junction temperature		T _j	150	°C
Storage temperature		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		(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_{CBO}	40	—	—	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	25	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	BV_{EBO}	5	—	—	V	$I_E=50\mu A$
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	$I_C/I_E=10mA/1mA$
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

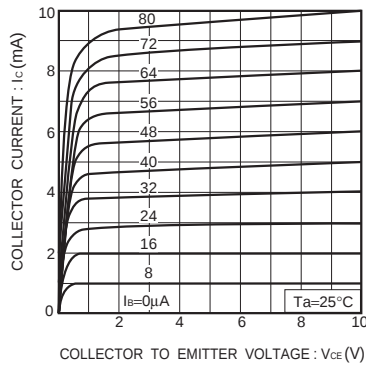


Fig.1 Ground emitter output characteristics

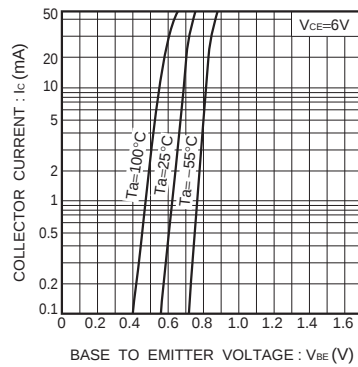


Fig.2 Ground emitter propagation characteristics

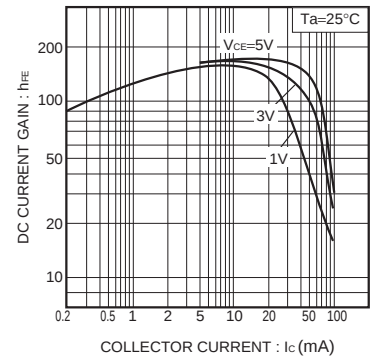


Fig.3 DC current gain vs. collector current (I)

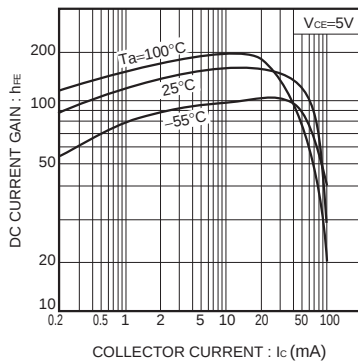


Fig.4 DC current gain vs. collector current (II)

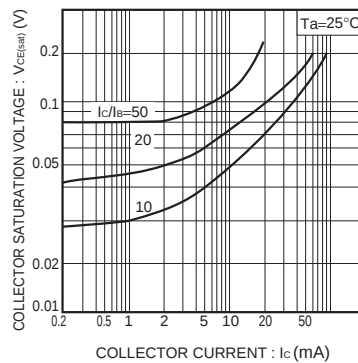


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

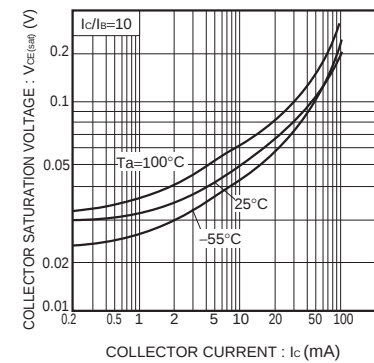


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

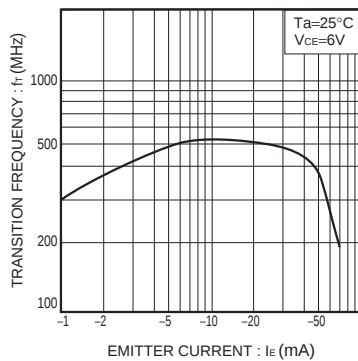


Fig.7 Gain bandwidth product vs. emitter current

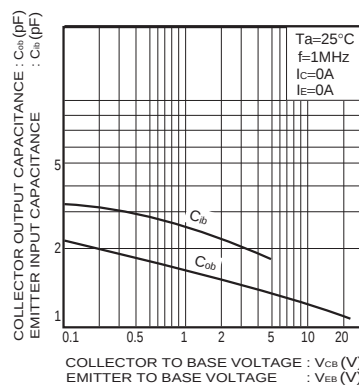


Fig.8 Capacitance vs. voltage

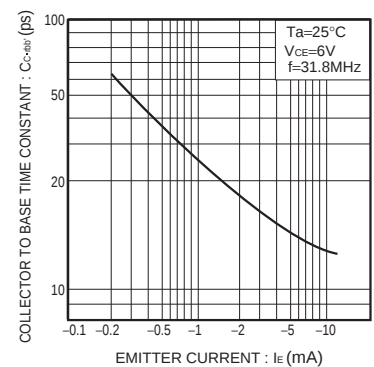


Fig.9 Collector to base time constant vs. emitter current

Notes

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