

# 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)

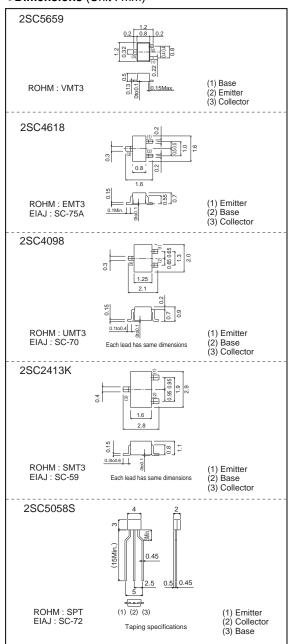
Parameter		Symbol	Limits	Unit	
Collector-base voltage		Vсво	40	V	
Collector-emitter voltage		Vceo	25	V	
Emitter-base voltage		Vebo	5	V	
Collector current		Ic	50	mA	
Collector	2SC5659, 2SC4618		0.15		
	2SC4098, 2SC2413K	Pc	0.2	W	
	2SC2058S		0.25		
Junction temperature		Tj	150	°C	
Storage temperature		Tstg	-55 to +150	°C	

#### ●Packaging specifications and hFE

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

<sup>\*</sup> Denotes hre

# ●Dimensions (Unit: mm)



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

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Collector-base breakdown voltage	ВУсво	40	-	-	V	Ic=50μA
Collector-emitter breakdown voltage	BVceo	25	-	-	V	Ic=1mA
Emitter-base breakdown voltage	BVEBO	5	-	-	V	I <sub>E</sub> =50μA
Collector cutoff current	Ісво	-	-	0.5	μΑ	Vcb=24V
Emitter cutoff current	Ієво	_	-	0.5	μΑ	V <sub>EB</sub> =3V
Collector-emitter saturation voltage	VcE(sat)	-	0.1	0.3	V	Ic/Iв=10mA/1mA
DC current transfer ratio	hfe	82	-	180	-	VcE=6V, Ic=1mA
Transition frequency	fτ	150	300	-	MHz	Vce=6V, Ie= -1mA, f=100MHz
Output capacitance	Cob	-	1.3	2.2	pF	Vcb=6V, Ie=0A, f=1MHz

#### •Electrical characteristics curves

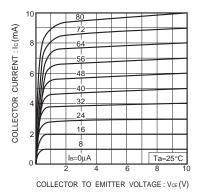


Fig.1 Ground emitter output characteristics

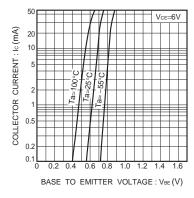


Fig.2 Ground emitter propagation characteristics

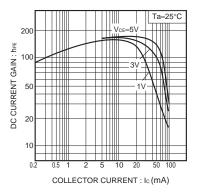


Fig.3 DC current gain vs. collector current ( I )

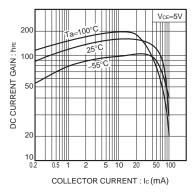


Fig.4 DC current gain vs. collector current (  $\rm II$  )

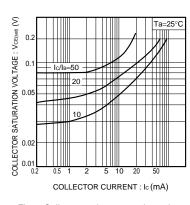


Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

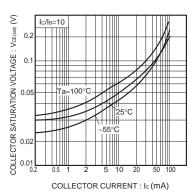


Fig.6 Collector-emitter saturation voltage vs. collector current ( II )

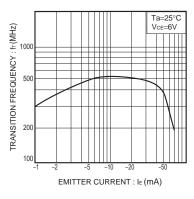


Fig.7 Gain bandwidth product vs.emitter current

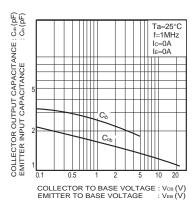


Fig.8 Capacitance vs. voltage

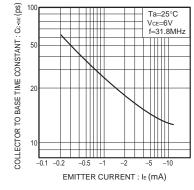


Fig.9 Collector to base time constance vs. emitter current

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