

# High-frequency Amplifier Transistor, RF switching (10V, 0.1A)

## 2SC4997 / 2SC4998

### ●Features

- 1) High transition frequency, typically  $f_T=240\text{MHz}$
- 2) High  $h_{FE}$ .

### ●Packaging specifications and $h_{FE}$

Type	2SC4997	2SC4998
Package	EMT3	UMT3
$h_{FE}$	560~2700	560~2700
Marking	CB	CB
Code	TL	T106
Basic ordering unit (pieces)	3000	3000

### ●Absolute maximum ratings ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	15	V
Collector-emitter voltage	$V_{CEO}$	10	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	0.1	A
Collector power dissipation	2SC4997	0.15	W
	2SC4998	0.2	
Junction temperature	$T_J$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55~+150	$^\circ\text{C}$

### ●Electrical characteristics ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	10	—	—	V	$I_C=1\text{mA}$
Collector-emitter breakdown voltage	$BV_{CEO}$	15	—	—	V	$I_C=10\ \mu\text{A}$
Emitter-base breakdown voltage	$BV_{EBO}$	5	—	—	V	$I_E=10\ \mu\text{A}$
Collector cutoff current	$I_{CBO}$	—	—	0.1	$\mu\text{A}$	$V_{CB}=12\text{V}$
Emitter cutoff current	$I_{EBO}$	—	—	0.1	$\mu\text{A}$	$V_{EB}=4\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.15	V	$I_C/I_E=10\text{mA}/1\text{mA}$
DC current transfer ratio	$h_{FE}$	560	1600	2700	—	$V_{CE}=2\text{V}$ , $I_C=5\text{mA}$
Transition frequency	$f_T$	—	240	—	MHz	$V_{CE}=5\text{V}$ , $I_E=10\text{mA}$ , $f=200\text{MHz}$
Output capacitance	$C_{ob}$	—	1.4	3	pF	$V_{CB}=10\text{V}$ , $I_E=0\text{A}$ , $f=1\text{MHz}$

(SPEC-C131)

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

## 2SC4618 / 2SC4098 / 2SC2413K / 2SC2058S

### ●Features

- 1) Low collector capacitance, typically  $C_{ob}=1.3\text{pF}$ .
- 2) Low rbb, high gain, and excellent noise characteristics.

### ●Packaging specifications and $h_{FE}$

Type	2SC4618	2SC4098	2SC2413K	2SC2058S
Package	EMT3	UMT3	SMT3	SPT
$h_{FE}$	NPQ	NPQ	NPQ	P
Marking	A*	A*	A*	—
Code	EL	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	3000	5000

\* Denotes  $h_{FE}$ 

### ●Absolute maximum ratings ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	40	V
Collector-emitter voltage	$V_{CEO}$	25	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	50	mA
Collector power dissipation	2SC4618	0.15	W
	2SC4098, 2SC2413K	0.2	
	2SC2058S	0.3	
Junction temperature	$T_J$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55~+150	$^\circ\text{C}$

### ●Electrical characteristics ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	40	—	—	V	$I_C=50\ \mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CEO}$	25	—	—	V	$I_C=1\text{mA}$
Emitter-base breakdown voltage	$BV_{EBO}$	5	—	—	V	$I_E=50\ \mu\text{A}$
Collector cutoff current	$I_{CBO}$	—	—	0.5	$\mu\text{A}$	$V_{CB}=24\text{V}$
Emitter cutoff current	$I_{EBO}$	—	—	0.5	$\mu\text{A}$	$V_{EB}=3\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	0.1	0.3	V	$I_C/I_E=10\text{mA}/1\text{mA}$
DC current transfer ratio	2SC4618, 2SC4098, 2SC2413K, 2SC2058S	$h_{FE}$	56	—	270	$V_{CE}=6\text{V}$ , $I_C=1\text{mA}$
			82	—	180	
Transition frequency	$f_T$	150	300	—	MHz	$V_{CE}=6\text{V}$ , $I_E=-1\text{mA}$ , $f=100\text{MHz}$
Output capacitance	$C_{ob}$	—	1.3	2.2	pF	$V_{CB}=6\text{V}$ , $I_E=0\text{A}$ , $f=1\text{MHz}$

(96-161-C26)