

# High-Frequency Amplifier Transistor (18V, 50mA, 1.5GHz)

## 2SC5661 / 2SC4725 / 2SC4082 / 2SC3837K

### ●Features

- 1) High transition frequency. (Typ.  $f_r = 1.5\text{GHz}$ )
- 2) Small  $r_{bb'}$ ·Cc and high gain. (Typ. 6ps)
- 3) Small NF.

### ● Absolute maximum ratings (Ta=25°C)

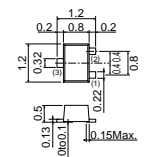
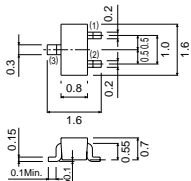
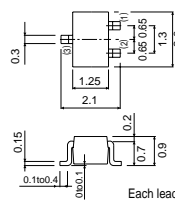
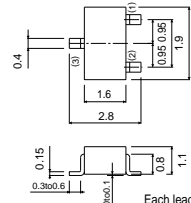
Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CB0}$	30	V
Collector-emitter voltage	$V_{CE0}$	18	V
Emitter-base voltage	$V_{EB0}$	3	V
Collector current	$I_c$	50	mA
Collector power dissipation	$P_c$	0.15	W
		0.2	
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55~+150	°C

### ●Packaging specifications and hFE

Type	2SC5661	2SC4725	2SC4082	2SC3837K
Package	VMT3	EMT3	UMT3	SMT3
hFE	NP	NP	NP	NP
Marking	AC*	AC*	1C*	AC*
Code	T2L	TL	T106	T146
Basic ordering unit (pieces)	8000	3000	3000	3000

\* Denotes hFE

### ●External dimensions (Units : mm)

2SC5661		(1) Base (2) Emitter (3) Collector
2SC4725		(1) Emitter (2) Base (3) Collector
2SC4082		(1) Emitter (2) Base (3) Collector
2SC3837K		(1) Emitter (2) Base (3) Collector

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CB0}$	30	—	—	V	$I_c = 10\mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CE0}$	18	—	—	V	$I_c = 1\text{mA}$
Emitter-base breakdown voltage	$BV_{EB0}$	3	—	—	V	$I_E = 10\mu\text{A}$
Collector cutoff current	$I_{CB0}$	—	—	0.5	$\mu\text{A}$	$V_{CB} = 10\text{V}$
Emitter cutoff current	$I_{EB0}$	—	—	0.5	$\mu\text{A}$	$V_{EB} = 2\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.5	V	$I_c/I_B = 20\text{mA}/4\text{mA}$
DC current transfer ratio	$h_{FE}$	56	—	180	—	$V_{CE}/I_c = 10\text{V}/10\text{mA}$
Transition frequency	$f_r$	600	1500	—	MHz	$V_{CB} = 10\text{V}$ , $I_c = 10\text{mA}$ , $f = 200\text{MHz}$
Output capacitance	$C_{ob}$	—	0.9	1.5	pF	$V_{CB} = 10\text{V}$ , $I_E = 0\text{A}$ , $f = 1\text{MHz}$
Collector-base time constant	$r_{bb'}$ ·Cc	—	6	13	ps	$V_{CB} = 10\text{V}$ , $I_c = 10\text{mA}$ , $f = 31.8\text{MHz}$
Noise factor	NF	—	4.5	—	dB	$V_{CE} = 12\text{V}$ , $I_c = 2\text{mA}$ , $f = 200\text{MHz}$ , $R_g = 50\Omega$

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