

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

2SC4725H / 2SC4725 / 2SC4082 / 2SC3837K

●Features

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

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

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	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

●Packaging specifications and h_{FE}

Type	2SC4725H	2SC4725	2SC4082	2SC3837K
Package	EMT3H	EMT3	UMT3	SMT3
h_{FE}	NP	NP	NP	NP
Marking	AC*	AC*	1C*	AC*
Code	T2L	TL	T106	T146
Basic ordering unit (pieces)	8000	3000	3000	3000

* Denotes h_{FE}

●External dimensions (Units : mm)

2SC4725H ROHM : EMT3H EIAJ : SC-89		(1) Emitter (2) Base (3) Collector
2SC4725 ROHM : EMT3 EIAJ : SC-75A		(1) Emitter (2) Base (3) Collector
2SC4082 ROHM : UMT3 EIAJ : SC-70		(1) Emitter (2) Base (3) Collector
2SC3837K ROHM : SMT3 EIAJ : SC-59		(1) Emitter (2) Base (3) Collector

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

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_{CBO}	—	—	0.5	μA	$V_{CB} = 10\text{V}$
Emitter cutoff current	I_{EBO}	—	—	0.5	μA	$V_{EB} = 2\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.5	V	$I_C/I_E = 20\text{mA}/4\text{mA}$
DC current transfer ratio	h_{FE}	56	—	180	—	$V_{CE}/I_C = 10\text{V}/10\text{mA}$
Transition frequency	f_T	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	$r_{bb'}$, C_c	—	6	13	ps	$V_{CB} = 10\text{V}$, $I_C = 10\text{mA}$, $f = 31.8\text{MHz}$
Noise factor	NF	—	4.5	—	dB	$V_{CE} = 12\text{V}$, $I_C = 2\text{mA}$, $f = 200\text{MHz}$, $R_g = 50\Omega$