

High-Frequency Amplifier Transistor (20V, 50mA, 1.5GHz)

2SC5661 / 2SC4725 / 2SC4082 / 2SC3837K

Features

- 1) High transition frequency. (Typ. $f_T = 1.5GHz$)
- 2) Small rbb'·Cc and high gain. (Typ. 6ps)
- 3) Small NF.

●Packaging specifications and her

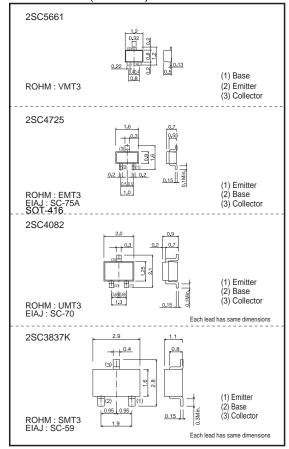
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Туре	2SC5661	2SC4725	2SC4082	2SC3837K				
Package	VMT3	EMT3	UMT3	SMT3				
hfe	NP	NP	NP	NP				
Marking	AC*	AC*	1C*	AC*				
Code	T2L	TL	T106	T146				
Basic ordering unit (pieces)	8000	3000	3000	3000				

^{*} Denotes hre

● Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		Vсво	30	V
Collector-emitter voltage		Vceo	20	V
Emitter-base voltage		VEBO	3	V
Collector current		Ic	50	mA
Collector power dissipation	2SC5661, 2SC4725	Pc	0.15	w
	2SC4082, 2SC3837K	T FC	0.2] vv
Junction temperature		Tj	150	°C
Storage temperature		Tstg	-55 to +150	°C

●Dimensions (Unit: mm)



●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Collector-base breakdown voltage	ВУсво	30	-	-	V	Ic = 10μA
Collector-emitter breakdown voltage	BVceo	20	-	-	V	Ic = 1mA
Emitter-base breakdown voltage	ВУЕВО	3	-	-	V	I _E = 10μA
Collector cutoff current	Ісво	-	-	0.5	μА	VcB = 15V
Emitter cutoff current	Ієво	-	-	0.5	μА	VEB = 2V
Collector-emitter saturation voltage	VcE(sat)	-	-	0.5	V	Ic/I _B = 20mA/4mA
DC current transfer ratio	hfe	82	-	180	-	VcE/Ic = 10V/10mA
Transition frequency	f⊤	600	1500	-	MHz	VcE = 10V , IE = -10mA , f = 200MHz
Output capacitance	Cob	-	0.9	1.5	pF	Vcb = 10V , IE = 0A , f = 1MHz
Collector-base time constant	rbb'-Cc	-	6	13	ps	VcB = 10V , Ic = 10mA , f = 31.8MHz
Noise factor	NF	-	4.5	-	dB	$V_{CE}=12V$, $I_{C}=2mA$, $f=200MHz$, $Rg=50\Omega$

This product might cause chip aging and breakdown under the large electrified environment. Please consider to design ESD protection circuit.

•Electrical characteristic curves

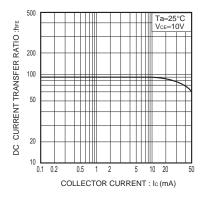


Fig.1 DC current gain vs. collector current

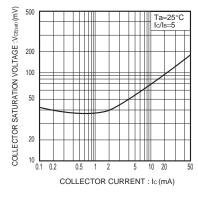


Fig.2 Collector-emitter saturation voltage vs. collector current

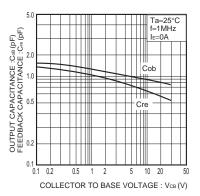


Fig.3 Capacitance vs. reverse bias voltage

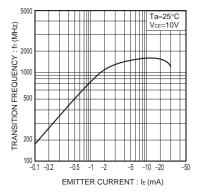


Fig.4 Gain bandwidth product vs. emitter current

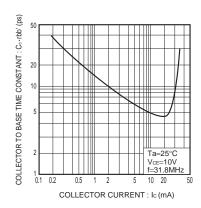


Fig.5 Collector to base time constance vs. collector current

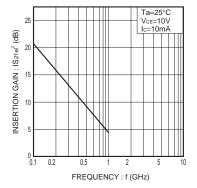


Fig.6 Insertion gain vs. frequency

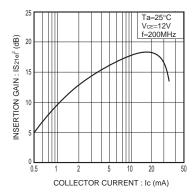


Fig.7 Insertion gain vs. collector current

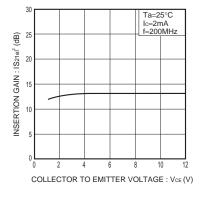


Fig.8 Insertion gain vs. collector voltage

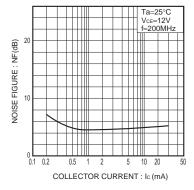


Fig.9 Noise factor vs. collector current

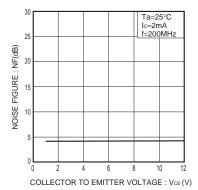


Fig.10 Noise factor vs. collector voltage

Notes

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