

High-Frequency Amplifier Transistor (11V, 50mA, 3.2GHz)

2SC5662 / 2SC4726 / 2SC4083 / 2SC3838K

●Features

- 1) High transition frequency. (Typ. $f_t = 3.2\text{GHz}$)
- 2) Small $r_{bb'} \cdot C_c$ and high gain. (Typ. 4ps)
- 3) Small NF.

●Packaging specifications and h_{FE}

Type	2SC5662	2SC4726	2SC4083	2SC3838K
Package	VMT3	EMT3	UMT3	SMT3
h_{FE}	NP	NP	NP	NP
Marking	AD	AD	1D	AD
Code	T2L	TL	T106	T146
Basic ordering unit (pieces)	8000	3000	3000	3000

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	20	V
Collector-emitter voltage	V_{CEO}	11	V
Emitter-base voltage	V_{EBO}	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 to +150	$^\circ\text{C}$

●External dimensions (Unit : mm)

<p>2SC5662</p> <p>ROHM : VMT3</p> <p>(1) Base (2) Emitter (3) Collector</p>
<p>2SC4726</p> <p>ROHM : EMT3 EIAJ : SC-75A</p> <p>(1) Emitter (2) Base (3) Collector</p>
<p>2SC4083</p> <p>ROHM : UMT3 EIAJ : SC-70</p> <p>(1) Emitter (2) Base (3) Collector</p> <p>Each lead has same dimensions</p>
<p>2SC3838K</p> <p>ROHM : SMT3 EIAJ : SC-59</p> <p>(1) Emitter (2) Base (3) Collector</p> <p>Each lead has same dimensions</p>

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	20	—	—	V	$I_c = 10\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CEO}	11	—	—	V	$I_c = 1\text{mA}$
Emitter-base breakdown voltage	BV_{EBO}	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	$I_c/I_E = 10\text{mA}/5\text{mA}$
DC current transfer ratio	h_{FE}	56	—	180	—	$V_{CE}/I_c = 10\text{V}/5\text{mA}$
Transition frequency	f_t	1.4	3.2	—	GHz	$V_{CE} = 10\text{V}$, $I_E = -10\text{mA}$, $f = 500\text{MHz}$
Output capacitance	C_{ob}	—	0.8	1.5	pF	$V_{CB} = 10\text{V}$, $I_E = 0\text{A}$, $f = 1\text{MHz}$
Collector-base time constant	$r_{bb'} \cdot C_c$	—	4	12	ps	$V_{CB} = 10\text{V}$, $I_c = 10\text{mA}$, $f = 31.8\text{MHz}$
Noise factor	NF	—	3.5	—	dB	$V_{CE} = 6\text{V}$, $I_c = 2\text{mA}$, $f = 500\text{MHz}$, $R_g = 50\Omega$

● Electric characteristics curves

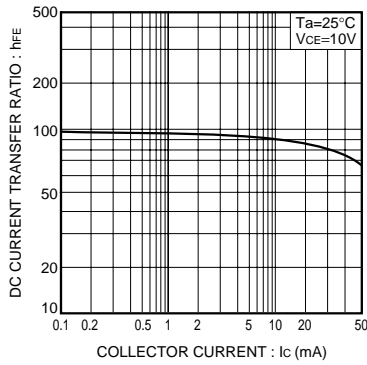


Fig.1 DC current gain vs. collector current

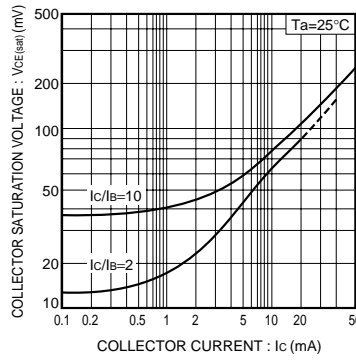


Fig.2 Collector-emitter saturation voltage vs. collector current

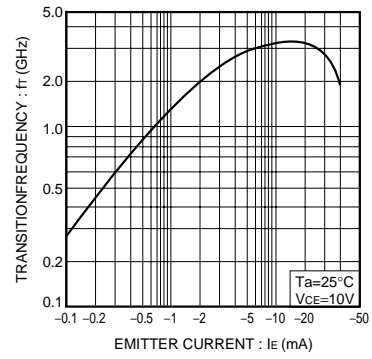


Fig.3 Gain bandwidth product vs. emitter current

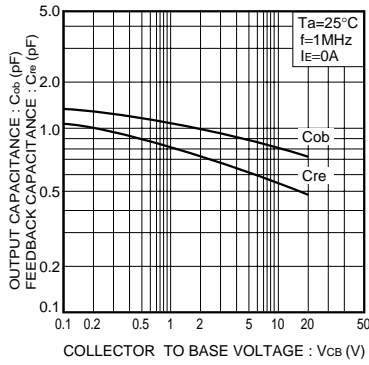


Fig.4 Capacitance vs. reverse bias voltage

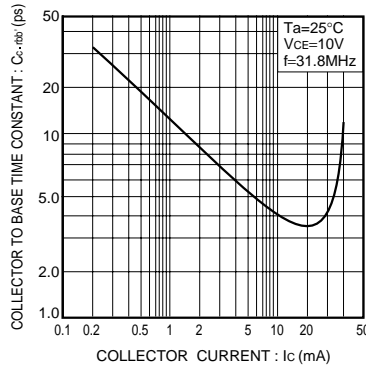


Fig.5 Collector to base time constant vs. collector current

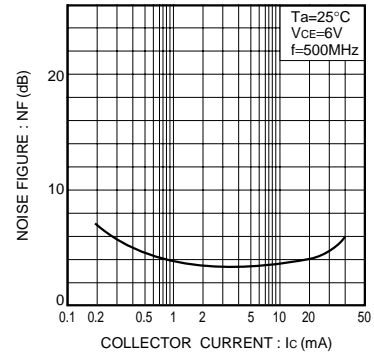


Fig.6 Noise factor vs. collector current characteristics

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