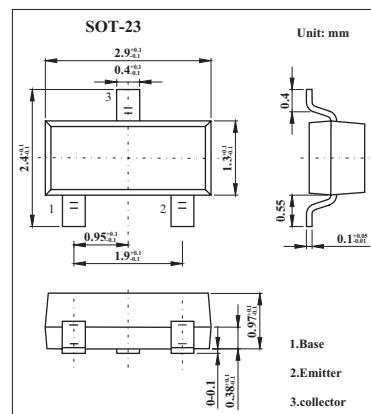


High-Frequency Amplifier Transistor

2SC3838K

■ Features

- High transition frequency. (Typ. $f_T = 1.5\text{GHz}$)
- Small $r_{bb'}$, C_c and high gain. (Typ. 4ps)



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	20	V
Collector-emitter voltage	V_{CE0}	11	V
Emitter-base voltage	V_{EB0}	3	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	0.2	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-base voltage	V_{CB0}	$I_C = 10\ \mu\text{A}$	20			V
Collector-emitter voltage	V_{CE0}	$I_C = 1\text{mA}$	11			V
Emitter-base voltage	V_{EB0}	$I_E = 10\ \mu\text{A}$	3			V
Collector cutoff current	I_{CBO}	$V_{CB} = 10\text{V}$			0.5	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 2\text{V}$			0.5	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 5\text{mA}$			0.5	V
DC current gain	h_{FE}	$V_{CE} = 10\text{V}, I_C = 5\text{mA}$	56		180	
Collector-base time constant	$r_{bb'}.C_c$	$V_{CB} = 10\text{V}, I_C = 10\text{mA}, f = 31.8\text{MHz}$		4	12	ps
Noise factor	NF	$V_{CE} = 6\text{V}, I_C = 2\text{mA}, f = 500\text{MHz}, R_g = 50\Omega$		3.5		dB
Output capacitance	C_{ob}	$V_{CE} = 10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$		0.8	1.5	pF
Transition frequency	f_T	$V_{CE} = 10\text{V}, I_E = 10\text{mA}, f = 500\text{MHz}$	1.4	3.2		GHz

■ h_{FE} Classification

Marking	ADN	ADP
Rank	N	P
h_{FE}	56 to 120	82 to 180