

isc Silicon NPN RF Transistor

2SC3838

DESCRIPTION

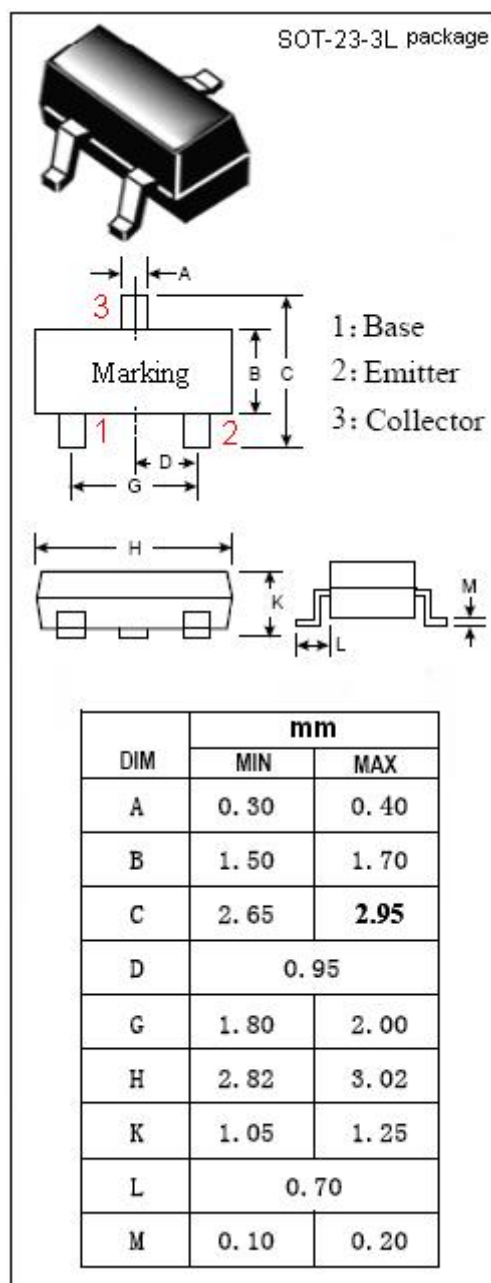
- Low Noise
NF = 3.5 dB TYP. @ $V_{CE} = 6\text{ V}$, $I_C = 2\text{ mA}$, $f = 500\text{ MHz}$
- High Current-Gain Bandwidth Product
 $f_T = 3.2\text{ GHz}$ TYP. @ $V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$, $f = 500\text{ MHz}$
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

- Designed for use in low-noise and small signal amplifiers from VHF ~ UHF band.

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	20	V
V_{CEO}	Collector-Emitter Voltage	11	V
V_{EBO}	Emitter-Base Voltage	3	V
I_C	Collector Current-Continuous	50	mA
P_C	Collector Power Dissipation @ $T_c=25^\circ\text{C}$	0.2	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$



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ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CBO}	Collector-Base Breakdown Voltage	I _C = 10 μA ; I _E = 0	20			V
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	I _C = 1mA ; R _{BE} = ∞	11			V
V _{(BR)EBO}	Emitter-Base Breakdown Voltage	I _E = 10 μA ; I _C = 0	3			V
I _{CBO}	Collector Cutoff Current	V _{CB} = 10V; I _E = 0			0.5	μA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 2V; I _C = 0			0.5	μA
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 10mA ; I _B = 5mA			0.5	V
h _{FE}	DC Current Gain	I _C = 5mA ; V _{CE} = 10V	56		180	
f _T	Current-Gain—Bandwidth Product	I _C = 10mA; V _{CE} = 10V;f= 500MHz	1.4	3.2		GHz
C _{OB}	Output Capacitance	I _E = 0 ; V _{CB} = 10V;f= 1.0MHz		0.8	1.5	pF
r _{bb'} · C _C	Base Time Constant	I _C = 10mA; V _{CB} = 10V;f= 31.8MHz		4	12	ps
NF	Noise Figure	I _C = 2mA ; V _{CE} = 6V;f= 500MHz; R _g = 50 Ω		3.5		dB

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