

High-Frequency Amplifier NPN Transistor

● Features

- 1.High transition frequency.(Typ. $f_T=3.2\text{GHz}$)
- 2.Small $r_{bb'}$ Cc and high gain.(Typ.4ps)
- 3.Small NF.
- 4.We declare that the material of product compliance with RoHS requirements.

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	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	0.2	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{sig}	-55~+150	$^\circ\text{C}$

DEVICE MARKING

2SC3838N=APN

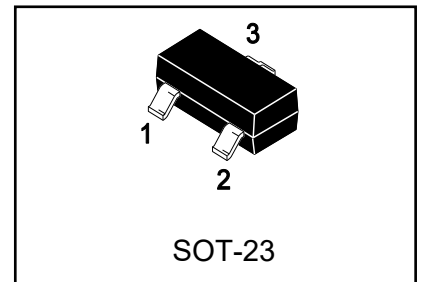
● ORDERING INFORMATION

Device	Package	Shipping
2SC3838N	SOT-23	3000/Tape & Reel

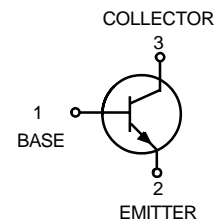
ELECTRICAL CHARACTERISTICS($T_A = 25^\circ\text{C}$)

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	$I_C/I_B=10\text{mA}/5\text{mA}$
DC current transfer ratio	h_{FE}	56	-	120	-	$V_{CE}/I_C=10\text{V}/5\text{mA}$
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	$r_{bb'}$ Cc	-	4	12	ps	$V_{CB}=10\text{V}$, $I_C=10\text{mA}$, $f=31.8\text{MHz}$
Noise factor	NF	-	3.5	-	dB	$V_{CE}=6\text{V}$, $I_C=2\text{mA}$, $f=500\text{MHz}$, $R_g=50\Omega$

2SC3838N



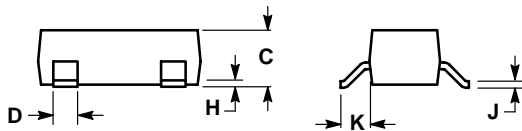
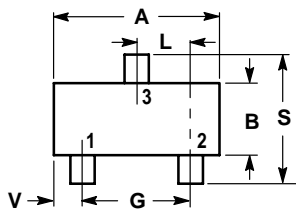
SOT-23



SOT-23

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

