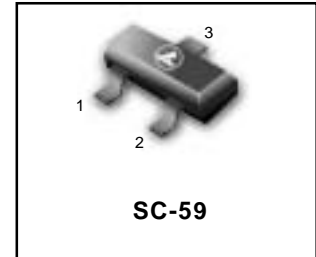


# High-Frequency Amplifier NPN Transistor

## L2SC3838QT1

L2SC3838QT1



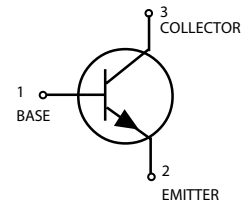
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### Features

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

### 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	$P_C$	0.2	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	- 55~+150	$^\circ\text{C}$



### Device Marking

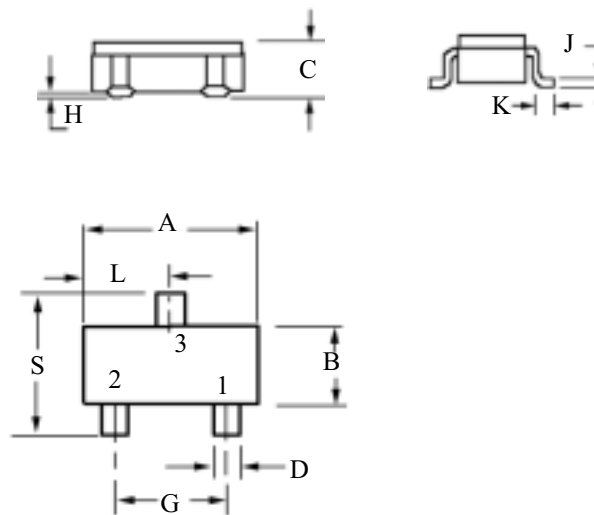
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### Electrical characteristics ( $T_a = 25^\circ\text{C}$ )

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	$\mu\text{A}$	$V_{CB} = 10\text{V}, I_E = 0$
Emitter cutoff current	$I_{EBO}$	-	-	0.5	$\mu\text{A}$	$V_{EB} = 2\text{V}, I_C = 0$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	0.5	V	$I_C/I_B = 10\text{mA}/5\text{mA}$
DC current transfer ratio	$h_{FE}$	120	-	270	-	$V_{CE}/I_C = 10\text{V}/5\text{mA}$
Transition frequency	$f_r$	1.4	3.2	-	GHz	$V_{CB} = 10\text{V}, I_C = 10\text{mA}, f = 500\text{MHz}$
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	$r_{bb}'C_c$	-	4	12	ps	$V_{CB} = 10\text{V}, I_C = 10\text{mA}, f = 31.8\text{MHz}$
Noise factor	NF	-	3.5	-	dB	$V_{CE} = 6\text{V}, I_C = 2\text{mA}, f = 500\text{MHz}, R_g = 50\Omega$

**L2SC3838QT1**
**SC-59**

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DIN	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.70	3.10	0.1063	0.1220
B	1.3	1.70	0.0512	0.0669
C	1.00	1.30	0.0394	0.0511
D	0.35	0.50	0.0138	0.0196
G	1.70	2.10	0.0670	0.0826
H	0.0130	0.100	0.0005	0.00040
J	0.1	0.26	0.0040	0.0102
K	0.20	0.60	0.0079	0.0236
L	1.25	1.65	0.0493	0.0649
S	2.50	3.00	0.0985	0.1181