



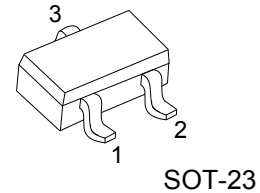
2SC3838

NPN SILICON TRANSISTOR

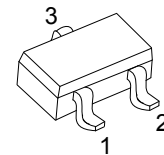
HIGH-FREQUENCY AMPLIFIER TRANSISTOR

FEATURES

- *High transition frequency.
- *Small $r_{bb'}$ ·Cc and high gain.
- *Small NF.



SOT-23



SOT-323

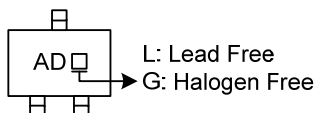
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SC3838L-x-AE3-R	2SC3838G-x-AE3-R	SOT-23	B	E	C	Tape Reel
2SC3838L-x-AL3-R	2SC3838G-x-AL3-R	SOT-323	B	E	C	Tape Reel

Note: Pin Assignment: B: Base E: Emitter C: Collector

2SC3838G-x-AE3-R	(1)Packing Type (2)Package Type (3)Rank (4)Green Package	(1) R: Tape Reel (2) AE3: SOT-23, AL3: SOT-323 (3) x: refer to Classification of h_{FE} (4) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



L: Lead Free
G: Halogen Free

■ **ABSOLUTE MAXIMUM RATINGS** ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	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_D	0.2	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ **ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	BV_{CBO}	$I_C = 10\mu\text{A}$	20			V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1\text{mA}$	11			V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 10\mu\text{A}$	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 transfer ratio	h_{FE}	$V_{CE} = 10\text{V}$, $I_C = 5\text{mA}$	56		400	
Transition frequency	f_T	$V_{CE} = 10\text{V}$, $I_E = 10\text{mA}$, $f = 500\text{MHz}$	1.4	3.2		GHz
Output capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0\text{A}$, $f = 1\text{MHz}$		0.8	1.5	pF
Collector-base time constant	$r_{bb'} \cdot C_c$	$V_{CB} = 10\text{V}$, $I_C = 10\text{mA}$, $f = 31.8\text{MHz}$		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

■ **CLASSIFICATION of h_{FE}**

RANK	A	B	C	D
RANGE	56 ~ 110	100 ~ 170	120 ~ 270	250 ~ 400

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