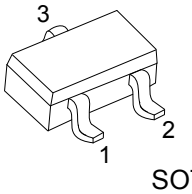
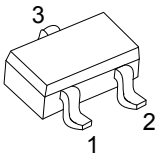
2SC3838

NPN SILICON TRANSISTOR

HIGH-FREQUENCY AMPLIFIER TRANSISTOR



SOT-23



SOT-323

■ FEATURES

*High transition frequency.
*Small rbb'·Cc and high gain.
*Small NF.

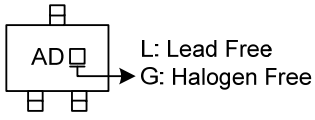
■ ORDERING INFORMATION

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

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A= 25°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	°C
Storage Temperature	T_{STG}	-55 ~ +150	°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°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	BV_{CBO}	I_C=10μA	20			V
Collector-emitter breakdown voltage	BV_{CEO}	I_C=1mA	11			V
Emitter-base breakdown voltage	BV_{EBO}	I_E=10μA	3			V
Collector cutoff current	I_{CBO}	V_{CB}=10V			0.5	μA
Emitter cutoff current	I_{EBO}	V_{EB}=2V			0.5	μA
Collector-emitter saturation voltage	$V_{CE(SAT)}$	I_C =10mA, I_B= 5mA			0.5	V
DC current transfer ratio	h_{FE}	V_{CE}=10V, I_C =5mA	56		400	
Transition frequency	f_T	V_{CE}=10V, I_E=10mA, f=500MHz	1.4	3.2		GHz
Output capacitance	Cob	V_{CB}=10V, I_E=0A, f=1MHz		0.8	1.5	pF
Collector-base time constant	rbb'·Cc	V_{CB}=10V, I_C=10mA, f=31.8MHz		4	12	ps
Noise factor	NF	V_{CE}=6V, I_C=2mA, f=500MHz, Rg=50Ω		3.5		dB

■ CLASSIFICATION of h_{FE}

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