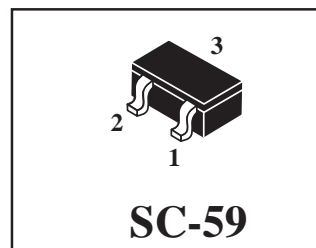
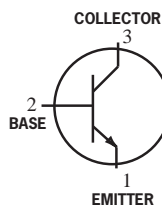


**High-Frequency Amplifier Transistor**  
**NPN Silicon**

**MAXIMUM RATINGS (Ta=25 °C)**

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	11	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	20	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	3.0	Vdc
Collector Current-Continuous	I <sub>C</sub>	50	mAdc

**THERMAL CHARACTERISTICS**

Characteristics	Symbol	Value	Unit
Total Device Dissipation FR-5 Board <sup>(1)</sup> T <sub>A</sub> =25 °C	P <sub>D</sub>	200	mW
Derate above 25 °C		1.6	mW/°C
Thermal Resistance, Junction Ambient	R <sub>θJA</sub>	625	°C/W
Junction and Storage, Temperature	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C

**Device Marking**

2SC3838Q=R25

**ELECTRICAL CHARACTERISTICS**

Characteristics	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage(I <sub>C</sub> =1 mAdc, I <sub>B</sub> =0)	V <sub>(BR)CEO</sub>	11	-	Vdc
Collector-Base Breakdown Voltage(I <sub>C</sub> =10 uAdc, I <sub>E</sub> =0)	V <sub>(BR)CBO</sub>	20	-	Vdc
Emitter-Base Breakdown Voltage(I <sub>E</sub> =10 uAdc, I <sub>C</sub> =0)	V <sub>(BR)EBO</sub>	3.0	-	Vdc
Collector Cutoff Current(V <sub>CB</sub> =10Vdc, I <sub>E</sub> =0)	I <sub>CBO</sub>	-	0.5	uAdc
Emitter Cutoff Current(V <sub>EB</sub> =2Vdc, I <sub>C</sub> =0)	I <sub>EBO</sub>	-	0.5	uAdc

1. FR-5=1.0×0.75×0.062 in

**2SC3838Q** **WEITRON****ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise noted) (Continued)

Characteristics	Symbol	Min	TYP	Max	Unit
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**ON CHARACTERISTICS**

DC Current Gain ( $I_C = 5\text{ mA}$ , $V_{CE} = 10\text{ Vdc}$ )	hFE	120	-	270	-
Transition Frequency ( $I_C = 10\text{ mA}$ , $V_{CB} = 10\text{ Vdc}$ , $f = 500\text{ MHz}$ )	$f_T$	1.4	3.2	-	GHz
Output Capacitance ( $I_E = 0\text{ A}$ , $V_{CB} = 10\text{ Vdc}$ , $f = 1\text{ MHz}$ )	Cob	-	0.8	1.5	pF
Collector-Emitter Saturation Voltage ( $I_C = 10\text{ mA}$ , $I_B = 5\text{ mA}$ )	$V_{CE(sat)}$	-	-	0.5	V
Collector-Base Time Constant ( $I_C = 10\text{ mA}$ , $V_{CB} = 10\text{ Vdc}$ , $f = 31.8\text{ MHz}$ )	rbb'Cc	-	4	12	pS
Noise Factor ( $I_C = 2\text{ mA}$ , $V_{CE} = 10\text{ Vdc}$ , $f = 500\text{ MHz}$ , $R_g = 50\Omega$ )	NF	-	3.5	-	dB

**WEITRON**<http://www.weitron.com.tw>

**SC-59 Outline Dimension**

