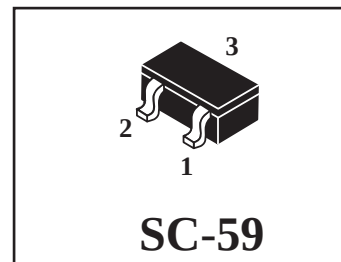
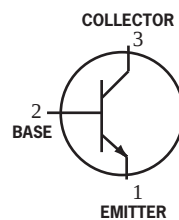


High-Frequency Amplifier Transistor NPN Silicon

 Lead(Pb)-Free



MAXIMUM RATINGS (Ta=25 °C)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	11	V _{dc}
Collector-Base Voltage	V _{CBO}	20	V _{dc}
Emitter-Base Voltage	V _{EBO}	3.0	V _{dc}
Collector Current-Continuous	I _C	50	mAdc

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Total Device Dissipation FR-5 Board ⁽¹⁾ T _A =25 °C	P _D	200	mW
Derate above 25 °C		1.6	mW/°C
Thermal Resistance, Junction Ambient	R _{θJA}	625	°C/W
Junction and Storage, Temperature	T _J , T _{stg}	-55 to +150	°C

Device Marking

2SC3838Q=R25

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage(I _C =1 mAdc, I _B =0)	V _(BR) CEO	11	-	V _{dc}
Collector-Base Breakdown Voltage(I _C =10 uAdc, I _E =0)	V _(BR) CBO	20	-	V _{dc}
Emitter-Base Breakdown Voltage(I _E =10 uAdc, I _C =0)	V _(BR) EBO	3.0	-	V _{dc}
Collector Cutoff Current(V _{CB} =10Vdc, I _E =0)	I _{CBO}	-	0.5	uAdc
Emitter Cutoff Current(V _{EB} =2Vdc, I _C =0)	I _{EBO}	-	0.5	uAdc

1. FR-5=1.0×0.75×0.062 in

2SC3838Q



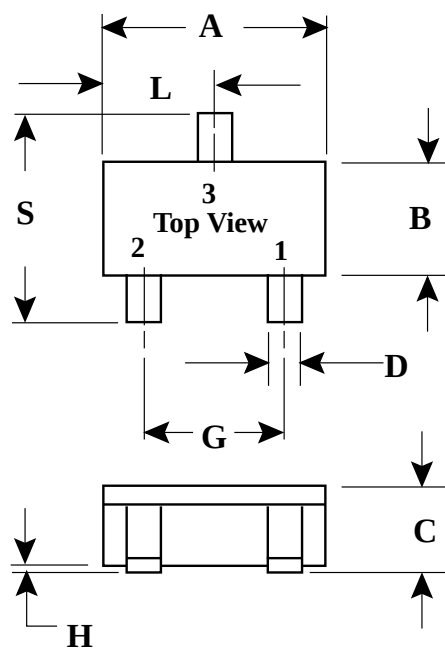
ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted) (Continued)

Characteristics	Symbol	Min	TYP	Max	Unit
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ON CHARACTERISTICS

DC Current Gain ($I_C = 5 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$)	h_{FE}	120	-	270	-
Transition Frequency ($I_C = 10 \text{ mAdc}, V_{CB} = 10 \text{ Vdc}, f = 500 \text{ MHz}$)	f_T	1.4	3.2	-	GHz
Output Capacitance ($I_E = 0 \text{ Adc}, V_{CB} = 10 \text{ Vdc}, f = 1 \text{ MHz}$)	C_{ob}	-	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 ($I_C = 10 \text{ mAdc}, V_{CB} = 10 \text{ Vdc}, f = 31.8 \text{ MHz}$)	$r_{bb'}C_c$	-	4	12	pS
Noise Factor ($I_C = 2 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 500 \text{ MHz}, R_g = 50\Omega$)	NF	-	3.5	-	dB

SC-59 Outline Dimension



SC-59		
Dim	Min	Max
A	2.70	3.10
B	1.30	1.70
C	1.00	1.30
D	0.35	0.50
G	1.70	2.30
H	0.00	0.10
J	0.10	0.26
K	0.20	0.60
L	1.25	1.65
S	2.25	3.00
All Dimension in mm		