

# 2SC5838

## Silicon NPN epitaxial planar type

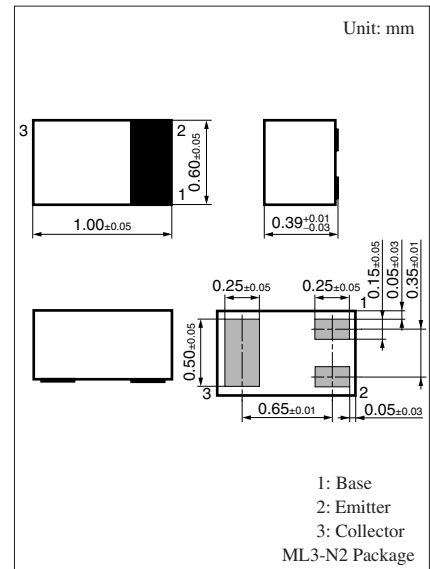
For UHF band low-noise amplification

### ■ Features

- Suitable for high-density mounting and downsizing of the equipment for Ultraminiature leadless package  
0.6 mm × 1.0 mm (height 0.39 mm)

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{\text{CBO}}$	15	V
Collector-emitter voltage (Base open)	$V_{\text{CEO}}$	10	V
Emitter-base voltage (Collector open)	$V_{\text{EBO}}$	2	V
Collector current	$I_{\text{C}}$	80	mA
Collector power dissipation	$P_{\text{C}}$	100	mW
Junction temperature	$T_{\text{j}}$	125	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +125	$^\circ\text{C}$

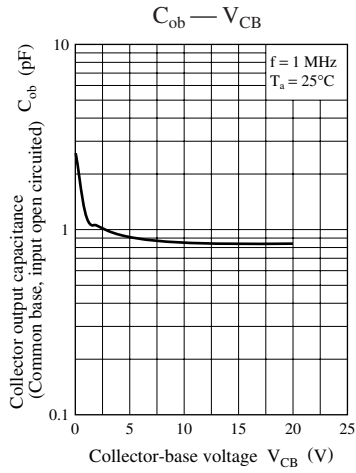
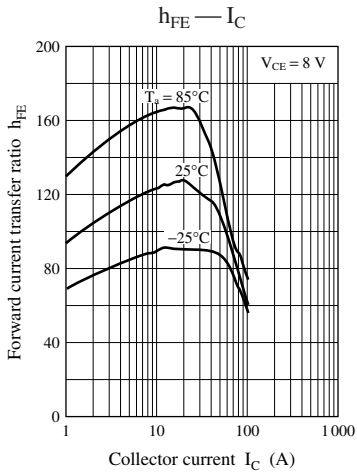
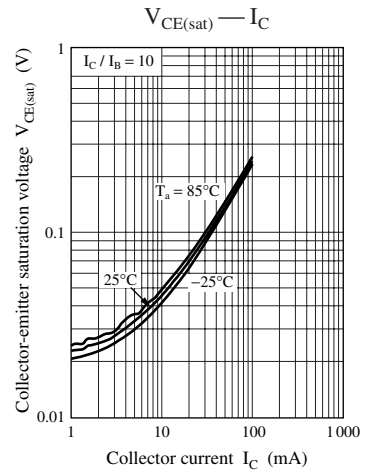
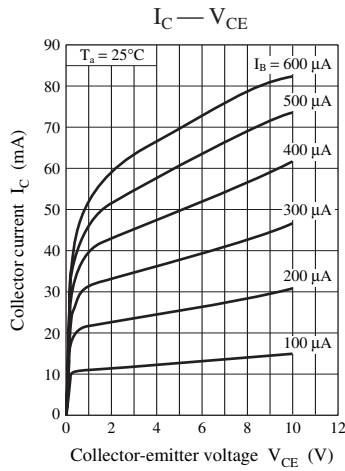
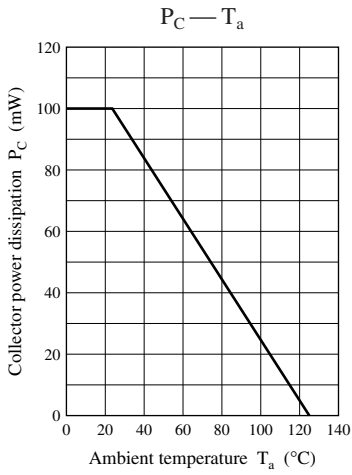


Marking symbol: 1F

### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{\text{CBO}}$	$I_{\text{C}} = 10 \mu\text{A}$ , $I_{\text{E}} = 0$	15			V
Collector-emitter voltage (Base open)	$V_{\text{CEO}}$	$I_{\text{C}} = 100 \mu\text{A}$ , $I_{\text{B}} = 0$	10			V
Collector-base cutoff current (Emitter open)	$I_{\text{CBO}}$	$V_{\text{CB}} = 10 \text{V}$ , $I_{\text{E}} = 0$			1	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{\text{EBO}}$	$V_{\text{EB}} = 2 \text{V}$ , $I_{\text{C}} = 0$			1	$\mu\text{A}$
Forward current transfer ratio	$h_{\text{FE}}$	$V_{\text{CE}} = 8 \text{V}$ , $I_{\text{C}} = 20 \text{mA}$	110		250	—
Forward transfer gain	$ S_{21e} ^2$	$V_{\text{CE}} = 8 \text{V}$ , $I_{\text{C}} = 20 \text{mA}$ , $f = 800 \text{MHz}$	7.5	10.0		dB
Noise figure	NF	$V_{\text{CE}} = 8 \text{V}$ , $I_{\text{C}} = 20 \text{mA}$ , $f = 800 \text{MHz}$		1.7		dB
Maximum unilateral power gain	$G_{\text{UM}}$	$V_{\text{CE}} = 8 \text{V}$ , $I_{\text{C}} = 20 \text{mA}$ , $f = 800 \text{MHz}$		11.5		dB
Collector output capacitance (Common base, input open circuited)	$C_{\text{ob}}$	$V_{\text{CB}} = 10 \text{V}$ , $I_{\text{E}} = 0$ , $f = 1 \text{MHz}$		0.9	1.2	pF
Transition frequency	$f_{\text{T}}$	$V_{\text{CE}} = 8 \text{V}$ , $I_{\text{C}} = 20 \text{mA}$ , $f = 800 \text{MHz}$	5.0	6.0		GHz

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.



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