

# 2SA0838 (2SA838)

## Silicon PNP epitaxial planar type

For low-frequency amplification

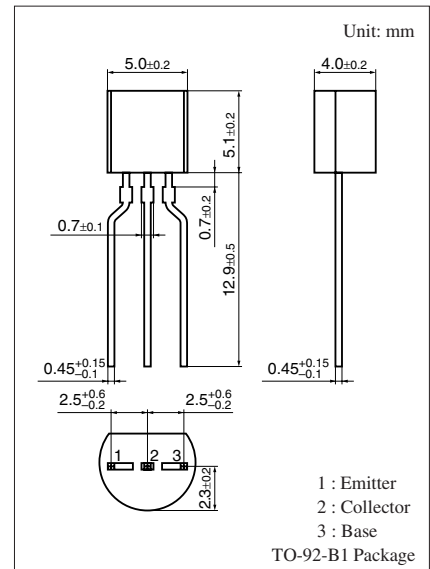
Complementary to 2SC1359

### ■ Features

- High transfer ratio  $f_T$

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{\text{CBO}}$	-30	V
Collector-emitter voltage (Base open)	$V_{\text{CEO}}$	-20	V
Emitter-base voltage (Collector open)	$V_{\text{EBO}}$	-5	V
Collector current	$I_{\text{C}}$	-30	mA
Collector power dissipation	$P_{\text{C}}$	250	mW
Junction temperature	$T_{\text{j}}$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$



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

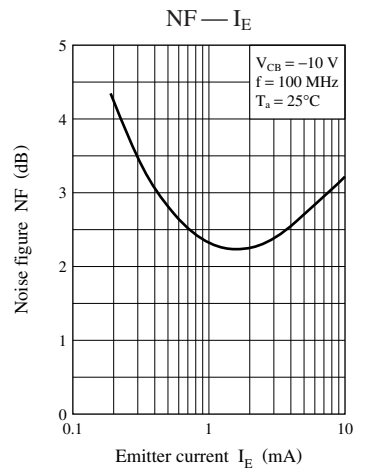
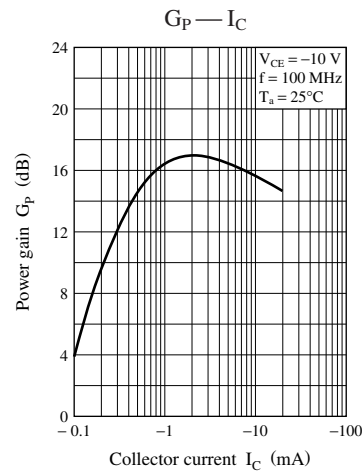
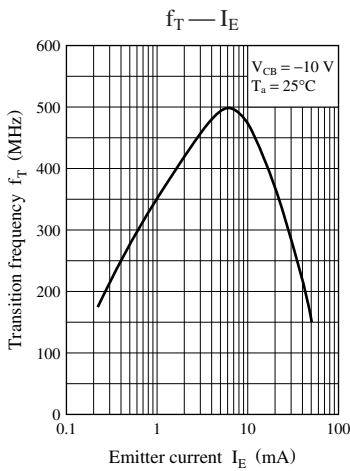
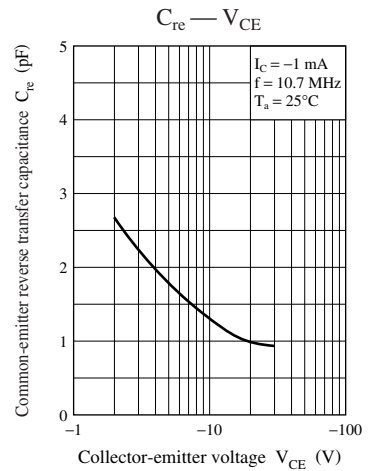
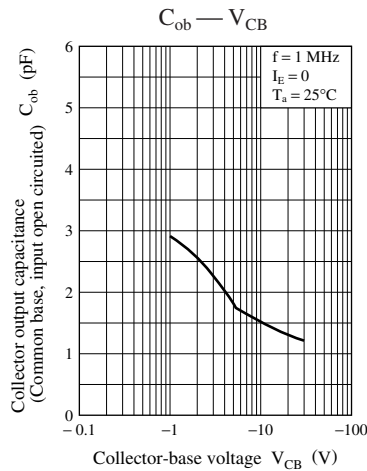
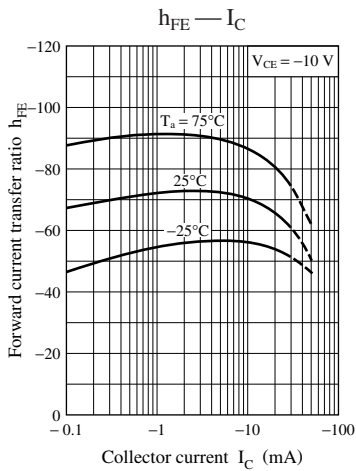
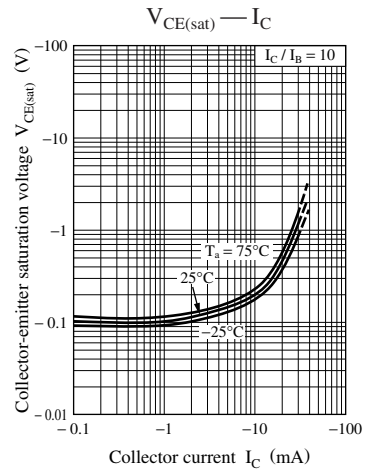
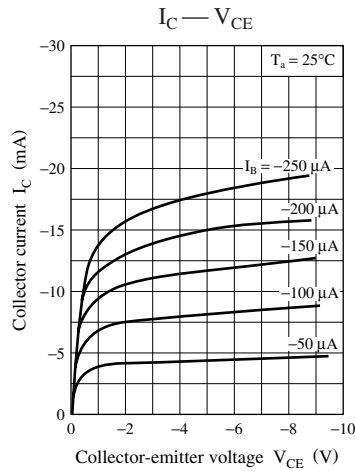
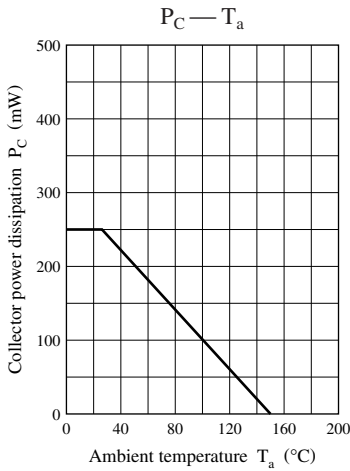
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Base-emitter saturation voltage	$V_{\text{BE}}$	$V_{\text{CE}} = -10\text{ V}, I_{\text{C}} = -1\text{ mA}$		-0.7		V
Collector-base cutoff current (Emitter open)	$I_{\text{CBO}}$	$V_{\text{CB}} = -10\text{ V}, I_{\text{E}} = 0$			-0.1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{\text{CEO}}$	$V_{\text{CE}} = -20\text{ V}, I_{\text{B}} = 0$			-100	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{\text{EBO}}$	$V_{\text{EB}} = -5\text{ V}, I_{\text{C}} = 0$			-10	$\mu\text{A}$
Forward current transfer ratio *	$h_{\text{FE}}$	$V_{\text{CE}} = -10\text{ V}, I_{\text{C}} = -1\text{ mA}$	70		220	—
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = -10\text{ mA}, I_{\text{B}} = -1\text{ mA}$		-0.1		V
Transition frequency	$f_{\text{T}}$	$V_{\text{CB}} = -10\text{ V}, I_{\text{E}} = 1\text{ mA}, f = 200\text{ MHz}$	150	300		MHz
Noise figure	NF	$V_{\text{CB}} = -10\text{ V}, I_{\text{E}} = 1\text{ mA}, f = 5\text{ MHz}$		2.8	4.0	dB
Reverse transfer impedance	$Z_{\text{rb}}$	$V_{\text{CE}} = -10\text{ V}, I_{\text{C}} = -1\text{ mA}, f = 2\text{ MHz}$		22	50	$\Omega$
Reverse transfer capacitance (Common-emitter)	$C_{\text{re}}$	$V_{\text{CE}} = -10\text{ V}, I_{\text{C}} = -1\text{ mA}, f = 10.7\text{ MHz}$		1.2	2.0	pF

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Rank classification

Rank	B	C
$h_{\text{FE}}$	70 to 140	110 to 220

Note) The part number in the parenthesis shows conventional part number.



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