

**2SA1857**

## FM, RF, MIX, IF Amplifier High-Frequency General-Purpose Amplifier Applications

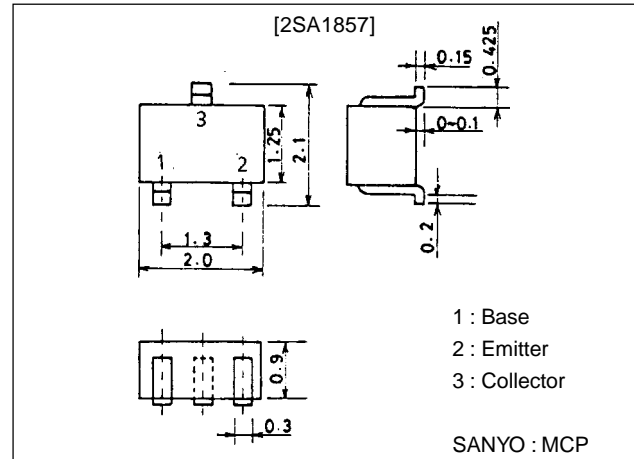
### Features

- High power gain : PG=25dB typ (f=100MHz).
- High cutoff frequency :  $f_T=750\text{MHz}$  typ.
- Low collector-to-emitter saturation voltage.
- Complementary pair with the 2SC4400.

### Package Dimensions

unit:mm

2059A



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		-15	V
Collector-to-Emitter Voltage	$V_{CE0}$		-12	V
Emitter-to-Base Voltage	$V_{EBO}$		-3	V
Collector Current	$I_C$		-50	mA
Collector Dissipation	$P_C$		150	mW
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

#### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-12\text{V}, I_E=0$			-0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-2\text{V}, I_C=0$			-0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE}=-10\text{V}, I_C=-5\text{mA}$	60*		270*	
Gain-Bandwidth Product	$f_T$	$V_{CE}=-10\text{V}, I_C=-5\text{mA}$		750		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10\text{V}, f=1\text{MHz}$		1.2	1.6	pF
Reverse Transfer Capacitance	$C_{re}$	$V_{CB}=-10\text{V}, f=1\text{MHz}$		0.9		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$		-0.1	-0.3	V
Power Gain	PG	$V_{CE}=-10\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$		25		dB

\* : The 2SA1857 is classified by 5mA  $h_{FE}$  as follows :

60	3	120	90	4	180	135	5	270
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Marking : JS

 $h_{FE}$  rank : 3, 4, 5

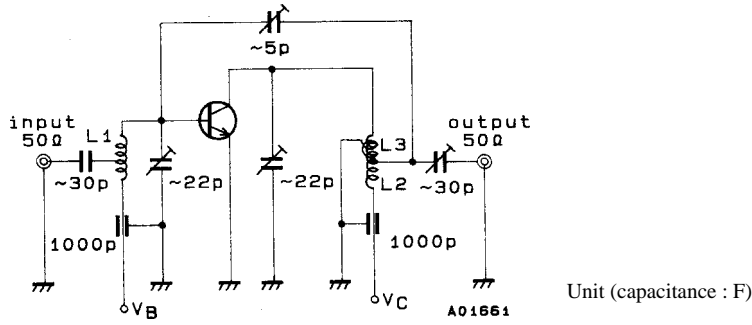
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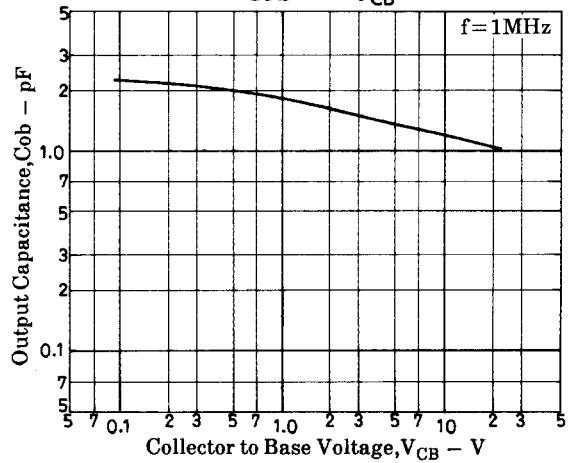
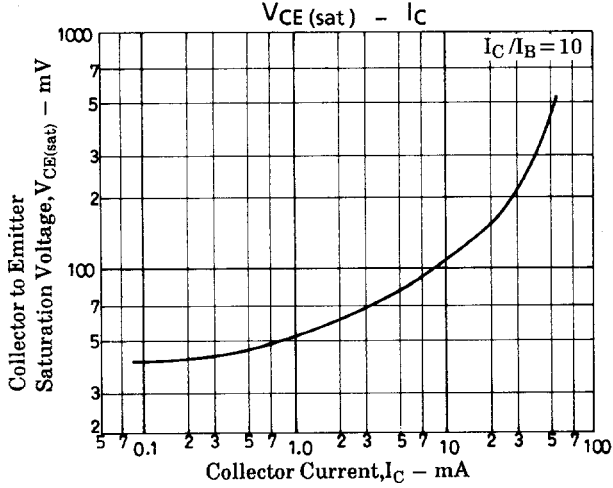
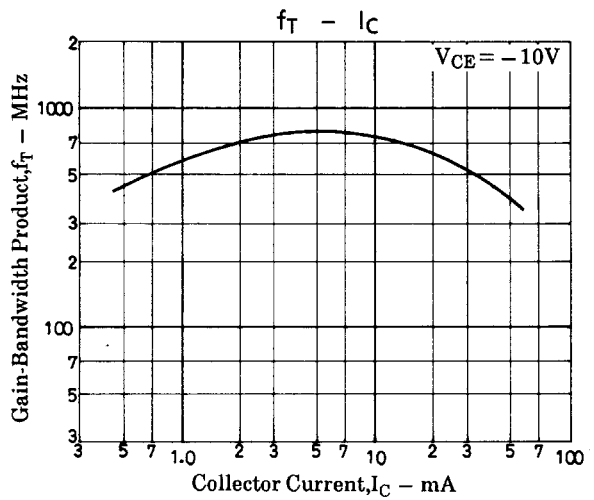
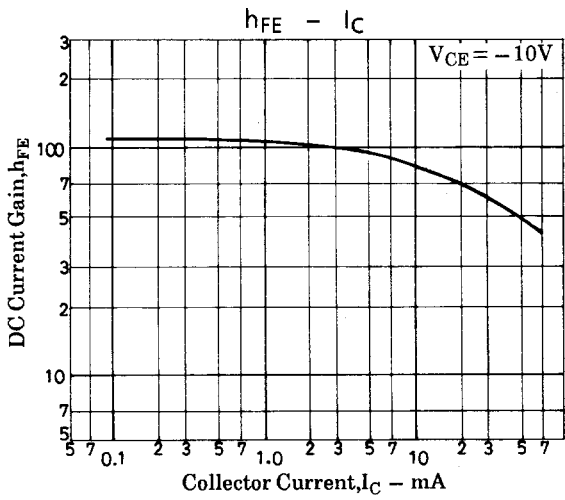
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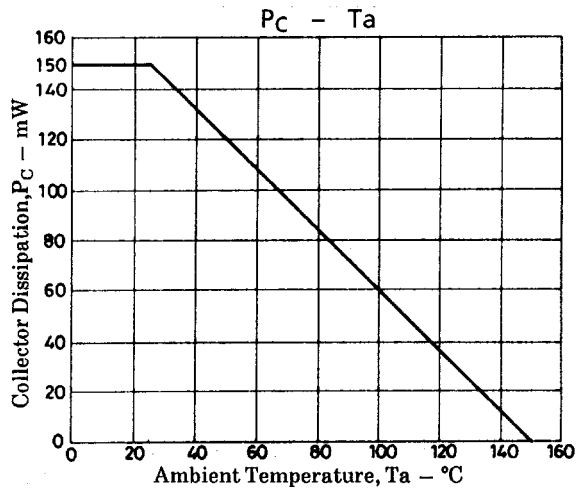
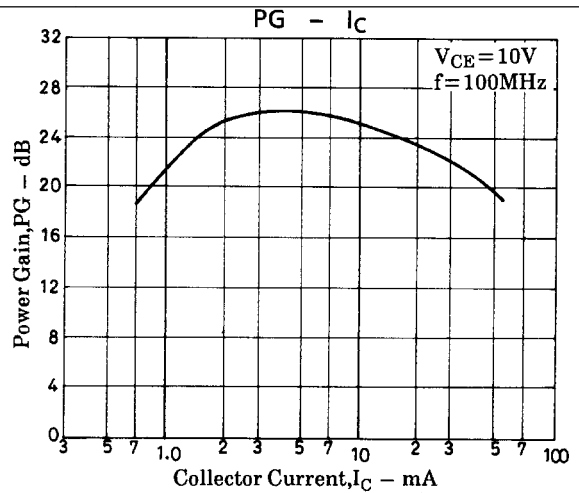
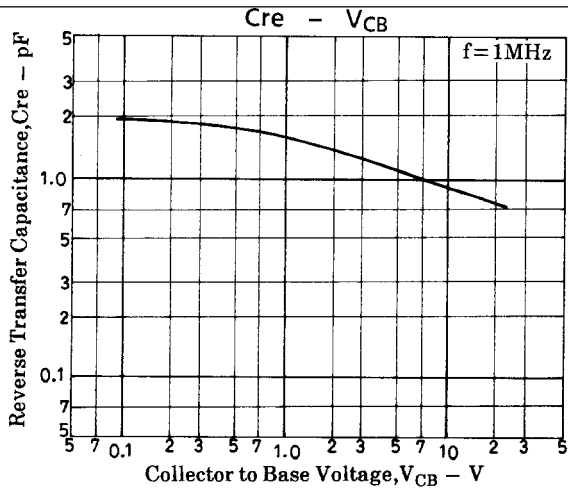
PG Test Circuit



- L1 : 1mmϕ plated wire 10mmϕ 5T, pitch 15mm, tap : 2T from base side
- L2 : 1mmϕ plated wire 10mmϕ 7T, pitch 10mm, tap : 2T from V<sub>C</sub> side
- L3 : 1mmϕ plated wire 10mmϕ 3T, pitch 10mm



## 2SA1857



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