

NP0A547

Silicon NPN epitaxial planar transistor

For high-speed switching

■ Features

- SSS-Mini type package, reduction of the mounting area and assembly cost by one half
- Maximum package height (0.4 mm) contributes to develop thinner equipments

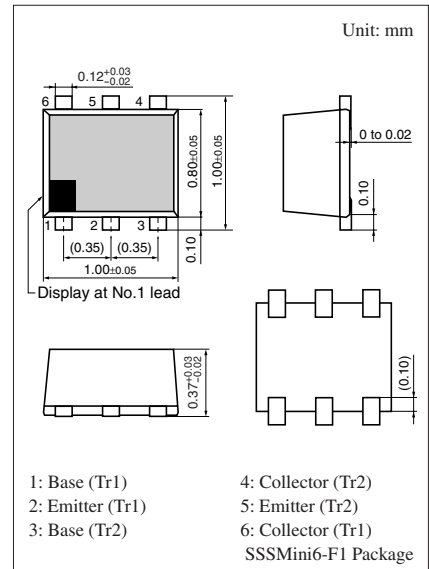
■ Basic Part Number of Element

- 2SC3707 × 2 elements

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

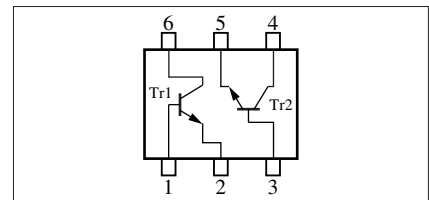
	Parameter	Symbol	Rating	Unit
Tr1	Collector to base voltage	V_{CBO}	10	V
	Collector to emitter voltage	V_{CEO}	7	V
	Emitter to base voltage	V_{EBO}	2	V
	Collector current	I_C	10	mA
Tr2	Collector to base voltage	V_{CBO}	10	V
	Collector to emitter voltage	V_{CEO}	7	V
	Emitter to base voltage	V_{EBO}	2	V
	Collector current	I_C	10	mA
Overall	Total power dissipation	P_T	50	mW
	Junction temperature	T_j	125	$^\circ\text{C}$
	Storage temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

Note) *: Measuring on substrate at 17 mm × 10 mm × 1 mm



Marking Symbol: 1R

Internal Connection



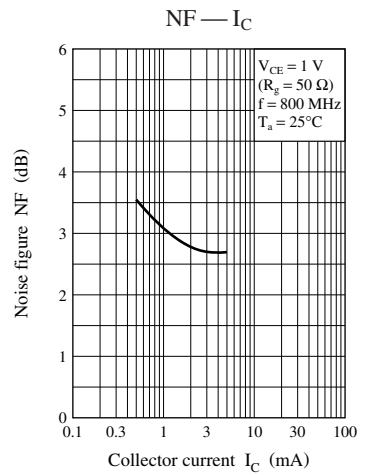
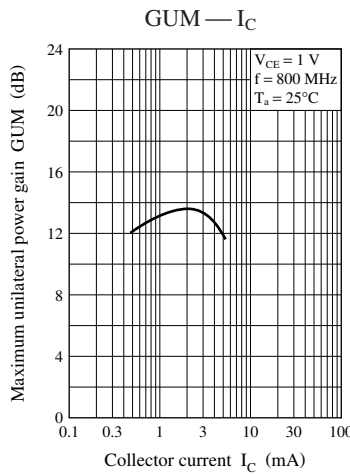
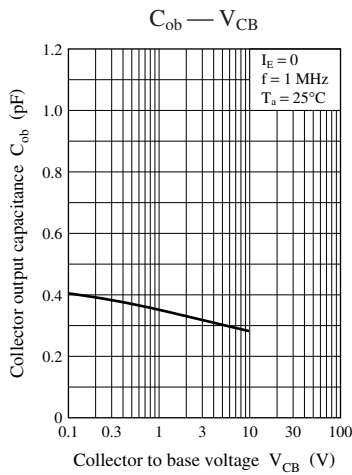
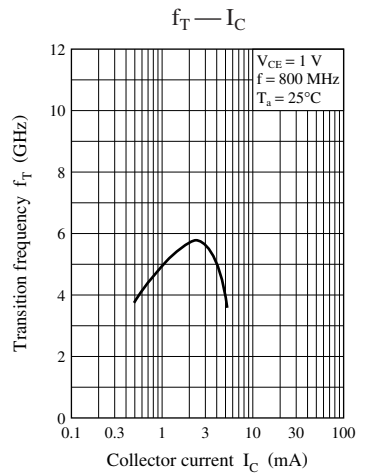
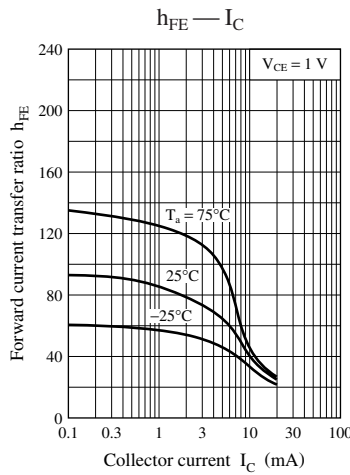
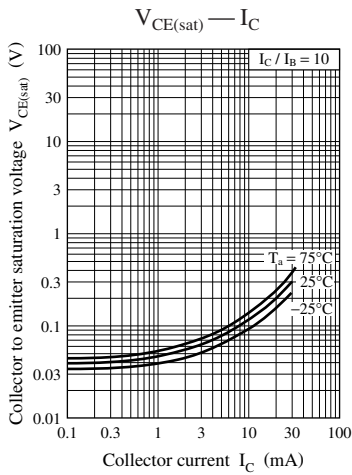
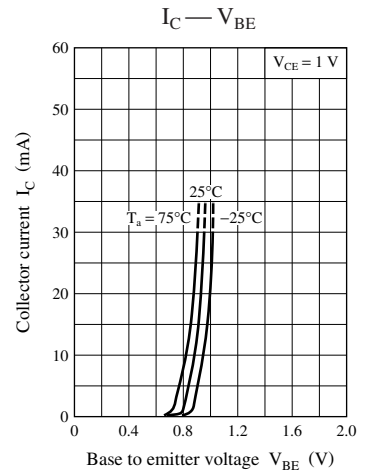
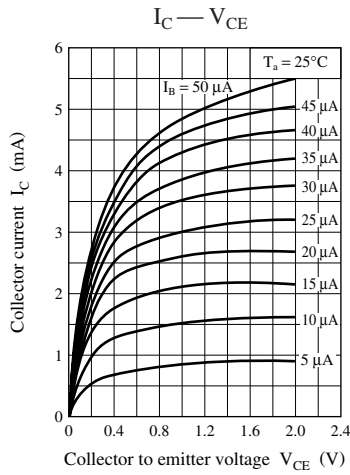
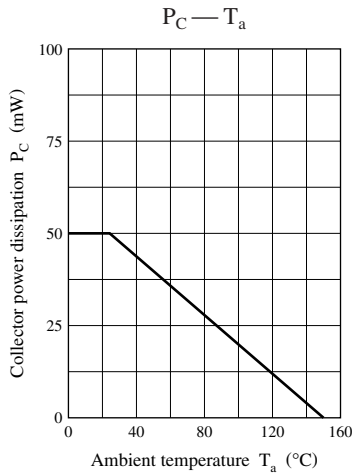
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

• Tr1

Parameter	Symbol	Rating	Unit			
Collector cutoff current	I_{CBO}	$V_{CB} = 10\text{ V}, I_E = 0$			1	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 1.5\text{ V}, I_C = 0$			1	μA
Forward current transfer ratio	h_{FE}	$V_{CE} = 1\text{ V}, I_C = 1\text{ mA}$	100		200	
Gain bandwidth product	f_T	$V_{CE} = 1\text{ V}, I_C = 1\text{ mA}, f = 0.8\text{ GHz}$		4		GHz
Collector output capacitance	C_{ob}	$V_{CB} = 1\text{ V}, I_E = 0, f = 1\text{ MHz}$		0.4		pF
Forward transfer gain	$ S_{21c} ^2$	$V_{CE} = 1\text{ V}, I_C = 1\text{ mA}, f = 0.8\text{ GHz}$		6.0		dB
Power gain	GUM	$V_{CE} = 1\text{ V}, I_C = 1\text{ mA}, f = 0.8\text{ GHz}$		15		dB
Noise figure	NF	$V_{CE} = 1\text{ V}, I_C = 1\text{ mA}, f = 0.8\text{ GHz}$		3.5		dB

• Tr2

Parameter	Symbol	Rating	Unit			
Collector cutoff current	I_{CBO}	$V_{CB} = 10\text{ V}, I_E = 0$			1	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 1.5\text{ V}, I_C = 0$			1	μA
Forward current transfer ratio	h_{FE}	$V_{CE} = 1\text{ V}, I_C = 1\text{ mA}$	80		200	
Gain bandwidth product	f_T	$V_{CE} = 1\text{ V}, I_C = 1\text{ mA}, f = 0.8\text{ GHz}$		4		GHz
Collector output capacitance	C_{ob}	$V_{CB} = 1\text{ V}, I_E = 0, f = 1\text{ MHz}$		0.4		pF
Forward transfer gain	$ S_{21c} ^2$	$V_{CE} = 1\text{ V}, I_C = 1\text{ mA}, f = 0.8\text{ GHz}$		6.0		dB
Power gain	GUM	$V_{CE} = 1\text{ V}, I_C = 1\text{ mA}, f = 0.8\text{ GHz}$		15		dB
Noise figure	NF	$V_{CE} = 1\text{ V}, I_C = 1\text{ mA}, f = 0.8\text{ GHz}$		3.5		dB



Request for your special attention and precautions in using the technical information and semiconductors described in this book

- (1) An export permit needs to be obtained from the competent authorities of the Japanese Government if any of the products or technologies described in this book and controlled under the "Foreign Exchange and Foreign Trade Law" is to be exported or taken out of Japan.
- (2) The technical information described in this book is limited to showing representative characteristics and applied circuits examples of the products. It neither warrants non-infringement of intellectual property right or any other rights owned by our company or a third party, nor grants any license.
- (3) We are not liable for the infringement of rights owned by a third party arising out of the use of the product or technologies as described in this book.
- (4) The products described in this book are intended to be used for standard applications or general electronic equipment (such as office equipment, communications equipment, measuring instruments and household appliances).
Consult our sales staff in advance for information on the following applications:
 - Special applications (such as for airplanes, aerospace, automobiles, traffic control equipment, combustion equipment, life support systems and safety devices) in which exceptional quality and reliability are required, or if the failure or malfunction of the products may directly jeopardize life or harm the human body.
 - Any applications other than the standard applications intended.
- (5) The products and product specifications described in this book are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.
- (6) When designing your equipment, comply with the guaranteed values, in particular those of maximum rating, the range of operating power supply voltage, and heat radiation characteristics. Otherwise, we will not be liable for any defect which may arise later in your equipment.
Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.
- (7) When using products for which damp-proof packing is required, observe the conditions (including shelf life and amount of time let standing of unsealed items) agreed upon when specification sheets are individually exchanged.
- (8) This book may be not reprinted or reproduced whether wholly or partially, without the prior written permission of Matsushita Electric Industrial Co., Ltd.