

# 2SC458, 2SC2308

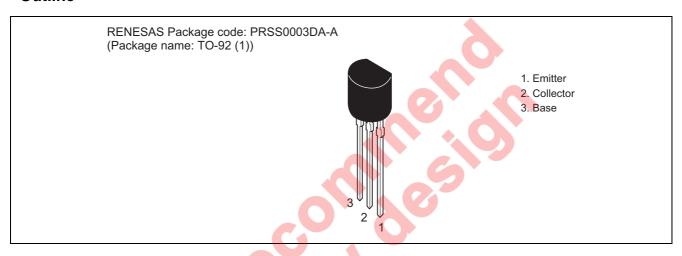
## Silicon NPN Epitaxial

REJ03G0681-0200 (Previous ADE-208-1043) Rev.2.00 Aug.10.2005

#### **Application**

- Low frequency amplifier
- Complementary pair with 2SA1029 and 2SA1030

#### **Outline**



### **Absolute Maximum Ratings**

 $(Ta = 25^{\circ}C)$ 

Item	Symbol	2SC458	2SC2308	Unit
Collector to base voltage	V <sub>CBO</sub>	30	55	V
Collector to emitter voltage	V <sub>CEO</sub>	30	50	V
Emitter to base voltage	V <sub>EBO</sub>	5	5	V
Collector current	I <sub>C</sub>	100	100	mA
Emitter current	I <sub>E</sub>	-100	-100	mA
Collector power dissipation	P <sub>C</sub>	200	200	mW
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	-55 to +150	-55 to +150	°C

#### **Electrical Characteristics**

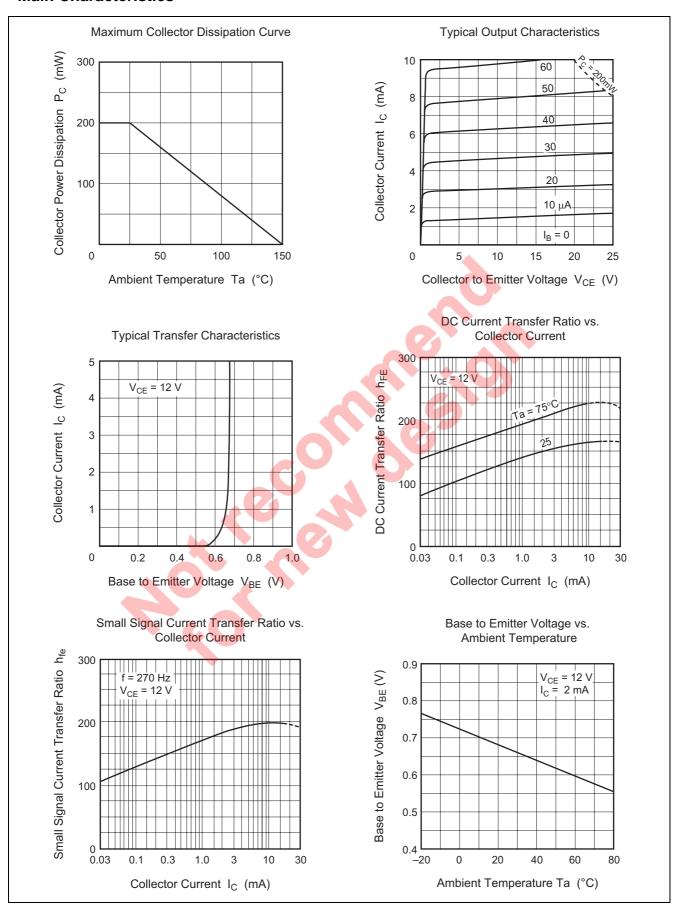
 $(Ta = 25^{\circ}C)$ 

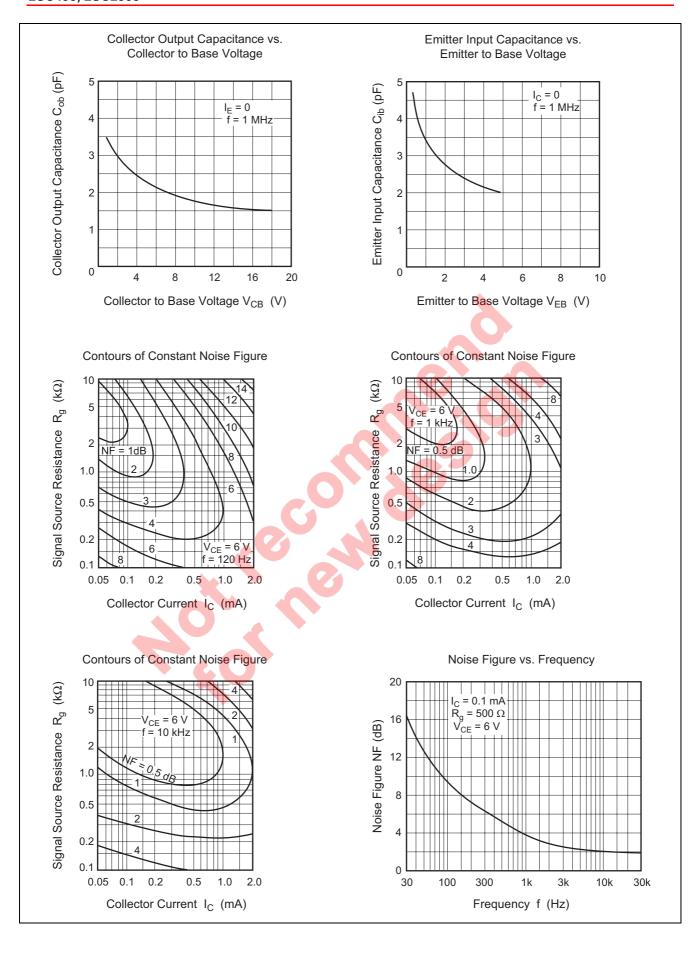
			2SC458			2SC2308	3		
Item	Symbol	Min	Тур	Max	Min	Тур	Max	Unit	Test conditions
Collector to base	V <sub>(BR)CBO</sub>	30	_	_	55	_	_	V	$I_C = 10  \mu A,  I_E = 0$
breakdown voltage									
Collector to emitter	$V_{(BR)CEO}$	30	_	_	50	_	_	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
breakdown voltage									
Emitter to base	$V_{(BR)EBO}$	5	_	_	5	_	_	V	$I_E = 10 \mu A, I_C = 0$
breakdown voltage									
Collector cutoff current	I <sub>CBO</sub>		_	0.5	_	_	0.5	μΑ	$V_{CB} = 18 \text{ V}, I_{E} = 0$
Emitter cutoff current	I <sub>EBO</sub>	_	_	0.5		_	0.5	μΑ	$V_{EB} = 2 \text{ V}, I_{C} = 0$
DC current transfer ratio	h <sub>FE</sub> *1	100	_	500	160		320		$V_{CE} = 12 \text{ V}, I_{C} = 2 \text{ mA}$
Collector to emitter	V <sub>CE(sat)</sub>	_	_	0.2		_	0.2	V	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$
saturation voltage									
Base to emitter voltage	$V_{BE}$	_	0.67	0.75	_	0.67	0.75	V	$V_{CE} = 12 \text{ V}, I_{C} = 2 \text{ mA}$
Gain bandwidth product	f⊤	_	230	_	_	230		MHz	$V_{CE} = 12 \text{ V}, I_{C} = 2 \text{ mA}$
Collector output	Cob	_	1.8	3.5	_	1.8	3.5	pF	$V_{CB} = 10 \text{ V}, I_{E} = 0,$
capacitance									f = 1 MHz
Noise figure	NF	_	4	10		4	10	dB	$V_{CE} = 6 \text{ V}, I_{C} = 0.1 \text{ mA},$
									$f = 1 \text{ kHz}, R_g = 500 \Omega$
Small signal input	h <sub>ie</sub>	_	16.5	_	-	16.5	<b>X</b> + <b>C</b>	kΩ	$V_{CE} = 5V, I_{C} = 0.1mA,$
impedance								~/	f = 270 Hz
Small signal voltage	h <sub>re</sub>	_	70	-		70		$\times 10^{-6}$	
feedback ratio									
Small signal current	h <sub>fe</sub>	_	130		_	130	_		
transfer ratio									
Small signal output	h <sub>oe</sub>	_	11.0			11.0	_	μS	
admittance									

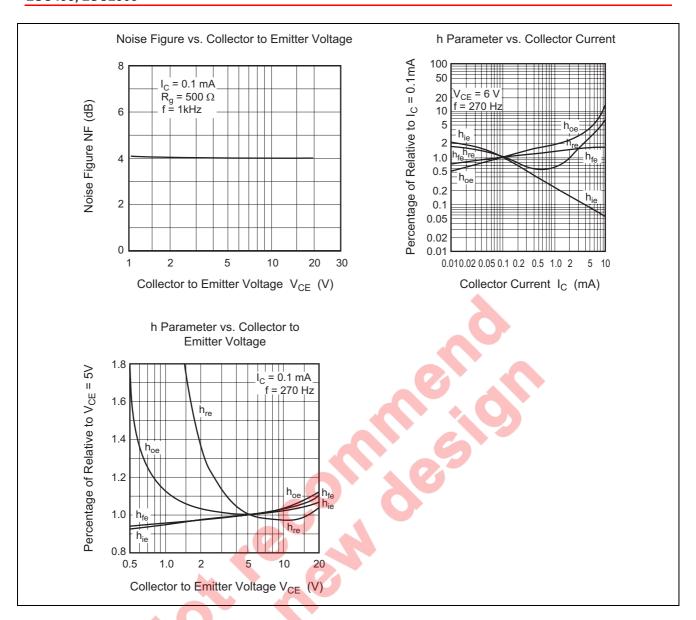
Note: 1. The 2SC458 is grouped by hFE as follows.

	В	С	D
2SC458	100 to 200	160 to 320	250 to 500
	4	40	

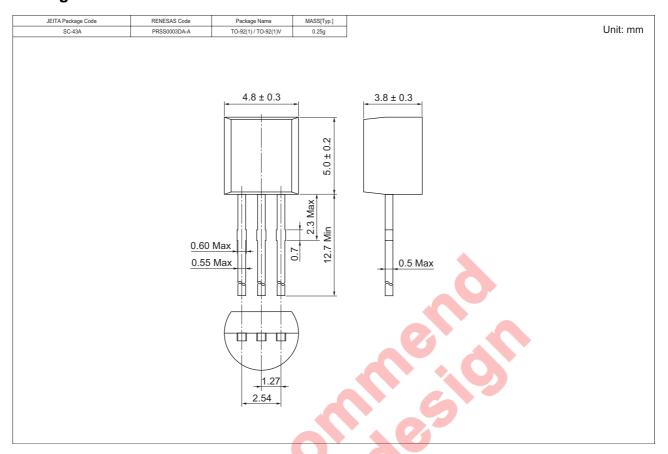
#### **Main Characteristics**







#### **Package Dimensions**



#### **Ordering Information**

Part Name	Quantit	ty	Shipping Container	
2SC458BTZ	2500		Hold Box, Radial Taping	
2SC458CTZ				
2SC458DTZ				
2SC2308CTZ				

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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