

To our customers,

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## Old Company Name in Catalogs and Other Documents

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On April 1<sup>st</sup>, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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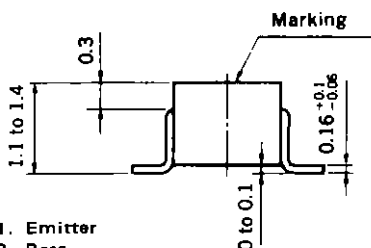
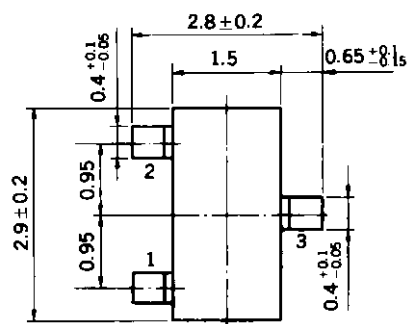
## AUDIO FREQUENCY AMPLIFIER

## SILICON EPITAXIAL TRANSISTOR

## MINI MOLD

### PACKAGE DIMENSIONS

in millimeters



1. Emitter
2. Base
3. Collector

### FEATURES

- Low Collector Saturation Voltage  
 $V_{CE(sat)} = -0.07 \text{ V MAX. (@ } I_C/I_B = 100 \text{ mA/10 mA)}$
- Complementary to 2SA1467

### ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents ( $T_a = 25^\circ\text{C}$ )

Collector to Base Voltage	$V_{CBO}$	30	V
Collector to Emitter Voltage	$V_{CEO}$	25	V
Emitter to Base Voltage	$V_{EBO}$	6	V
Collector Current (DC)	$I_C$	1	A
Collector Current (pulse)*	$I_C$	1.5	A

Maximum Power Dissipation

Total Power Dissipation at $25^\circ\text{C}$ Ambient Temperature	$P_T$	200	mW
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Maximum Temperature

Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\*  $PW \leq 10 \text{ ms}$ , Duty Cycle  $\leq 50\%$

### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	$I_{CBO}$			100	nA	$V_{CB} = 30 \text{ V}$ , $I_E = 0$
Emitter Cutoff Current	$I_{EBO}$			100	nA	$V_{EB} = 6.0 \text{ V}$ , $I_C = 0$
DC Current Gain	$h_{FE1}^{**}$	110	200	400	—	$V_{CE} = 1.0 \text{ V}$ , $I_C = 100 \text{ mA}$
DC Current Gain	$h_{FE2}^{**}$	50	160		—	$V_{CE} = 1.0 \text{ V}$ , $I_C = 1.0 \text{ A}$
Base to Emitter Voltage	$V_{BE}^{**}$	600	650	700	mV	$V_{CE} = 1.0 \text{ V}$ , $I_C = 10 \text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)}^{**}$			0.07	V	$I_C = 100 \text{ mA}$ , $I_B = 10 \text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)}^{**}$			0.28	V	$I_C = 500 \text{ mA}$ , $I_B = 20 \text{ mA}$
Base Saturation Voltage	$V_{BE(sat)}^{**}$			1.2	V	$I_C = 100 \text{ mA}$ , $I_B = 10 \text{ mA}$
Output Capacitance	$C_{ob}$		9	20	pF	$V_{CB} = 10 \text{ V}$ , $I_E = 0$ , $f = 1.0 \text{ MHz}$
Gain Bandwidth Product	$f_T$	100	150		MHz	$V_{CE} = 10 \text{ V}$ , $I_E = -100 \text{ mA}$

\*\* Pulsed:  $PW \leq 350 \mu\text{s}$ , Duty Cycle  $\leq 50\%$

$h_{FE}$  Classification

Marking	P11	P12	P13	P14	P15
$h_{FE1}$	110 to 180	135 to 220	170 to 270	200 to 320	250 to 400

# TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

