

To our customers,

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## Old Company Name in Catalogs and Other Documents

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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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NPN SILICON EPITAXIAL TRANSISTOR  
FOR LOW-FREQUENCY POWER AMPLIFIERS AND SWITCHING

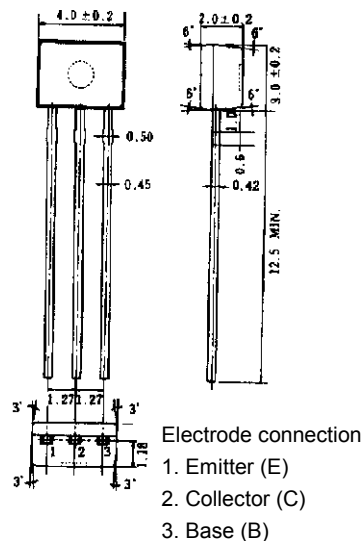
FEATURES

- High  $h_{FE}$ :  
 $h_{FE} = 1000$  to  $3200$  @  $V_{CE} = 5.0$  V,  $I_C = 1.0$  mA
- Low  $V_{CE(sat)}$ :  
 $V_{CE(sat)} = 0.07$  V TYP. @  $I_C/I_B = 50$  mA/5.0 mA
- High  $V_{EBO}$ :  
 $V_{EBO} = 12$  V (2SC3623)  
 $V_{EBO} = 15$  V (2SC3623A)

ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Ratings		Unit
		2SC3623	2SC3623A	
Collector to base voltage	$V_{CBO}$	60		V
Collector to emitter voltage	$V_{CEO}$	50		V
Emitter to base voltage	$V_{EBO}$	12	15	V
Collector current (DC)	$I_{C(DC)}$	150		mA
Total power dissipation	$P_T$	250		mW
Junction temperature	$T_j$	150		$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150		$^\circ\text{C}$

PACKAGE DRAWING (UNIT: mm)



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**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

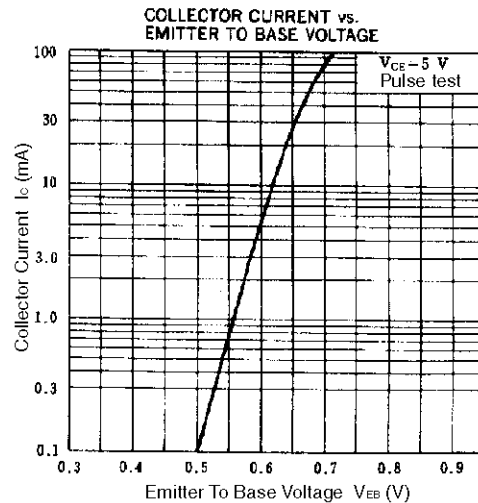
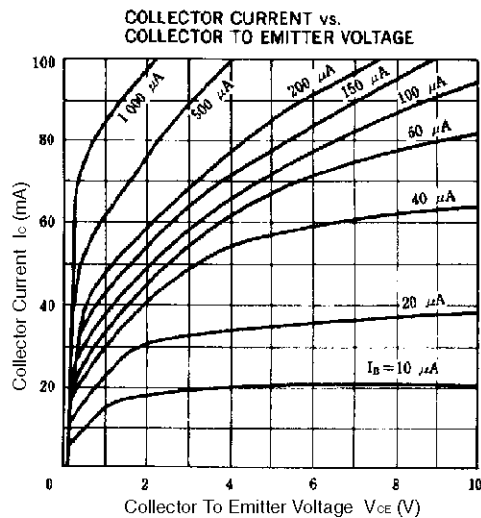
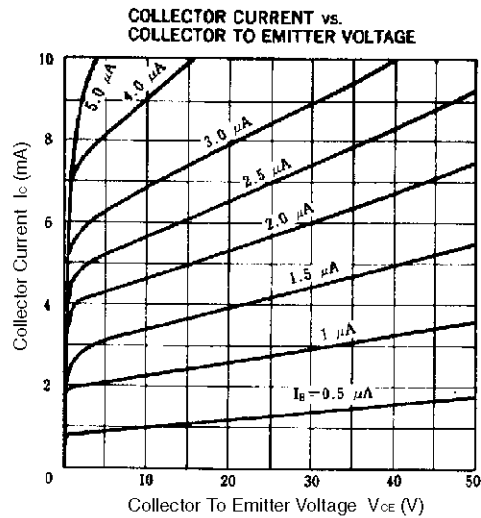
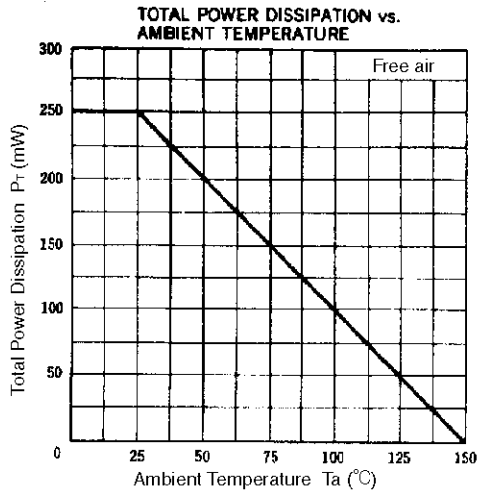
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 50\text{ V}, I_E = 0$			100	nA
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 10\text{ V}, I_C = 0$			100	nA
DC current gain	$h_{FE1}$	$V_{CE} = 5.0\text{ V}, I_C = 1.0\text{ mA}^*$	1000	1800	3200	—
DC current gain	$h_{FE2}$	$V_{CE} = 5.0\text{ V}, I_C = 100\text{ mA}^*$	200	350		
DC base voltage	$V_{BE}$	$V_{CE} = 5.0\text{ V}, I_C = 1.0\text{ mA}^*$		560		mV
Collector saturation voltage	$V_{CE(sat)}$	$I_C = 50\text{ mA}, I_B = 5.0\text{ mA}^*$		0.07	0.30	V
Base saturation voltage	$V_{BE(sat)}$	$I_C = 50\text{ mA}, I_B = 5.0\text{ mA}^*$		0.8	1.2	V
Gain bandwidth product	$f_T$	$V_{CE} = 5.0\text{ V}, I_E = -10\text{ mA}$		250		MHz
Output capacitance	$C_{ob}$	$V_{CB} = 5\text{ V}, I_E = 0, f = 1.0\text{ MHz}$		3.0		pF
Turn-on time	$t_{on}$	$V_{CC} = 10\text{ V}, V_{BE(off)} = -2.7\text{ V}$ $I_C = 50\text{ mA}$ $I_{B1} = -I_{B2} = 1\text{ mA}$		0.13		$\mu\text{s}$
Storage time	$t_{stg}$			0.72		$\mu\text{s}$
Turn-off time	$t_{off}$			1.22		$\mu\text{s}$

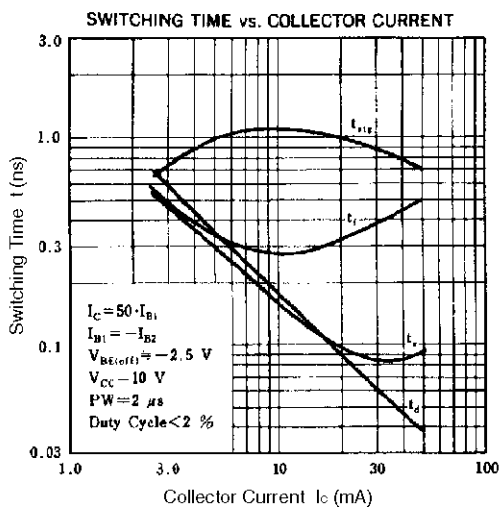
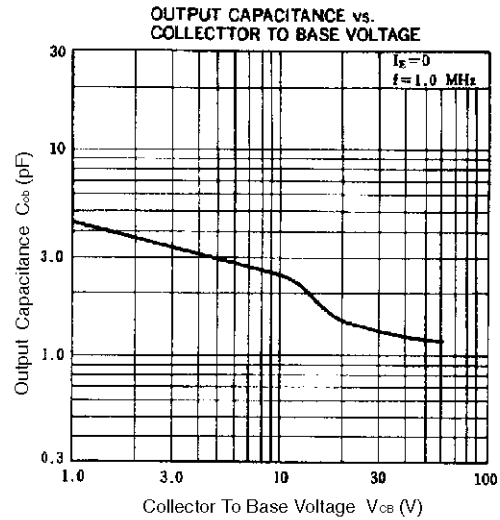
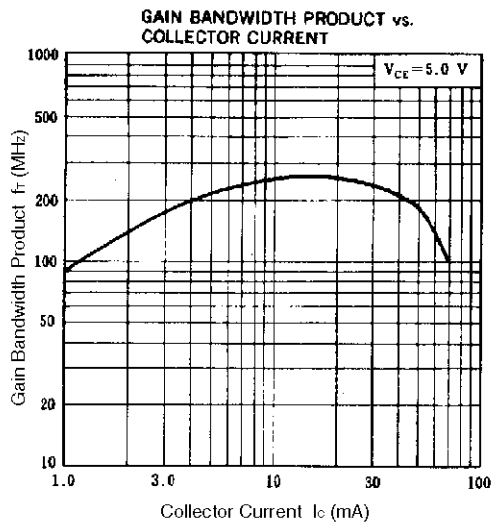
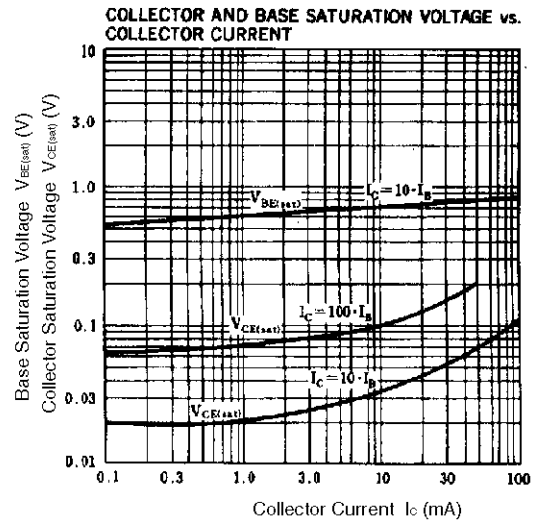
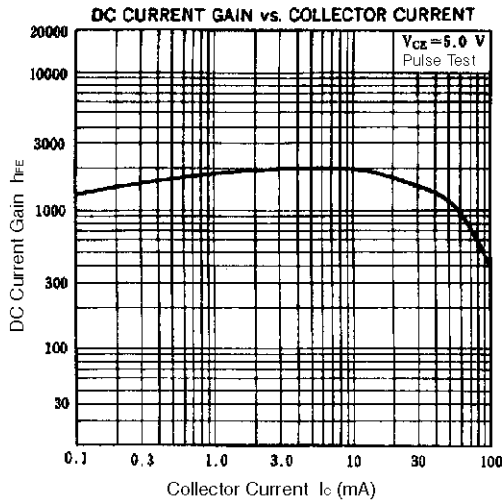
\* Pulse test  $PW \leq 350\ \mu\text{s}$ , duty cycle  $\leq 2\%$

**$h_{FE}$  CLASSIFICATION**

Marking	L	K
$h_{FE1}$	1000 to 2000	1600 to 3200

**TYPICAL CHARACTERISTICS (Ta = 25°C)**





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