

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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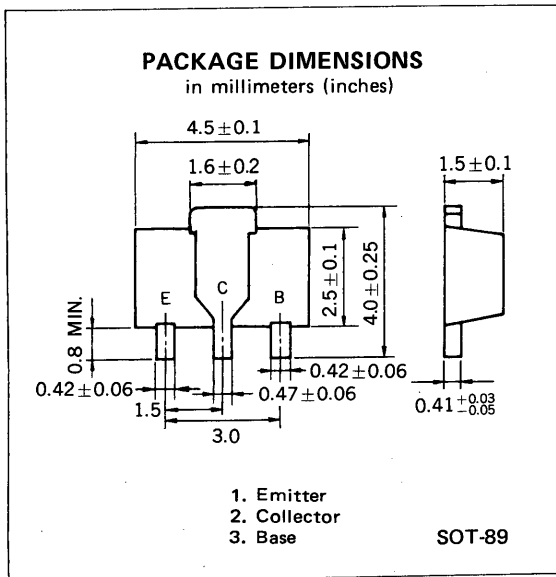
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SILICON TRANSISTORS  
2SB805, 2SB806

PNP SILICON EPITAXIAL TRANSISTOR  
POWER MINI MOLD

DESCRIPTION

The 2SB805 and 2SB806 are designed for audio frequency power amplifier application, especially in Hybrid Integrated Circuits.



FEATURES

- World Standard Miniature Package : SOT-89
- High Collector to Emitter Voltage :  $V_{CE0} > -120$  V (2SB806),  $V_{CE0} > -100$  V (2SB805)
- Complement to NPN type 2SD1006 and 2SD1007 respectively

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents ( $T_a = 25^\circ\text{C}$ )	2SB805	2SB806		
Collector to Base Voltage	$V_{CBO}$	-100	-120	V
Collector to Emitter Voltage	$V_{CEO}$	-100	-120	V
Emitter to Base Voltage	$V_{EBO}$	-5.0		V
Collector Current (DC)	$I_C$	-0.7		A
Collector Current (Pulse)*	$I_C$	-1.2		A
Maximum Power Dissipation				
Total Power Dissipation at $25^\circ\text{C}$ Ambient Temperature**	$P_T$	2.0		W
Maximum Temperatures				
Junction Temperature	$T_j$	150		$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150		$^\circ\text{C}$

\*PW  $\leq$  10 ms, duty cycle  $\leq$  50 %

\*\*When mounted on ceramic substrate of  $16\text{ cm}^2 \times 0.7\text{ mm}$

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

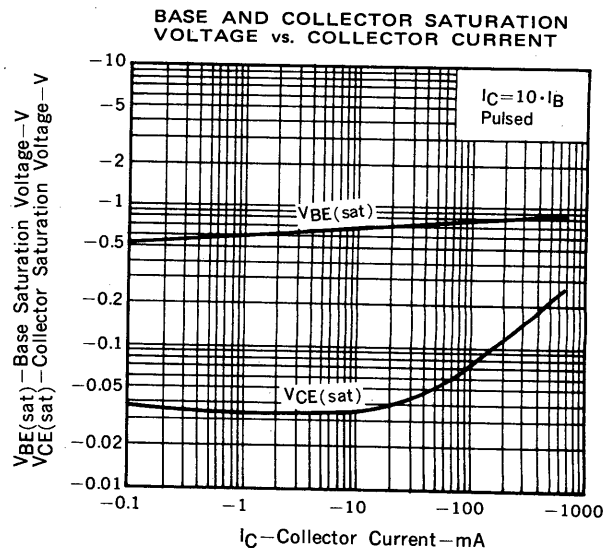
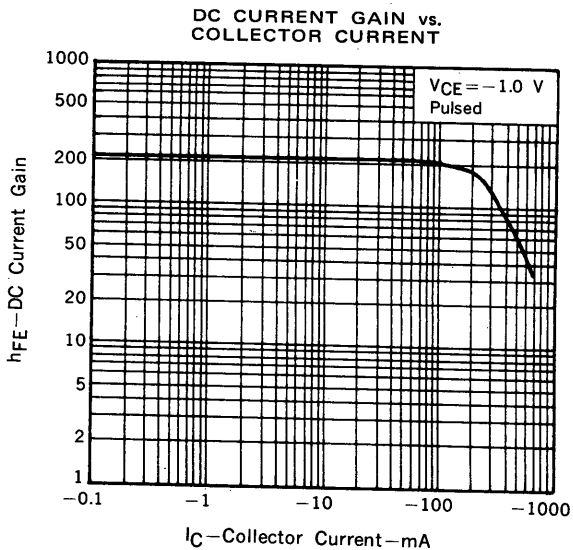
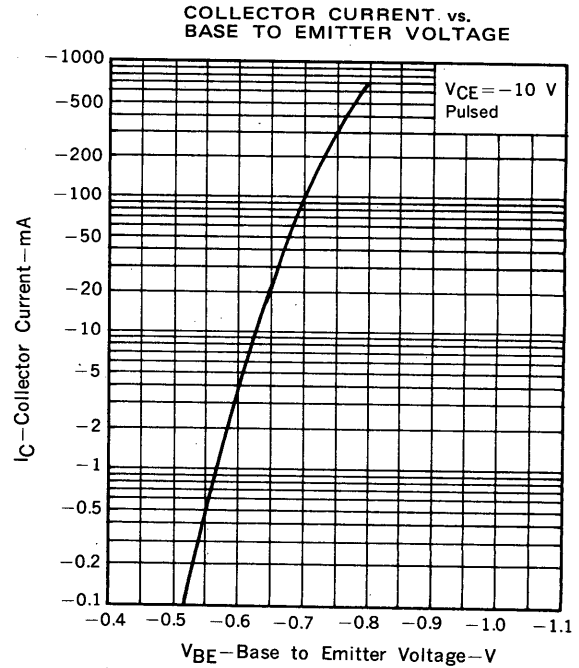
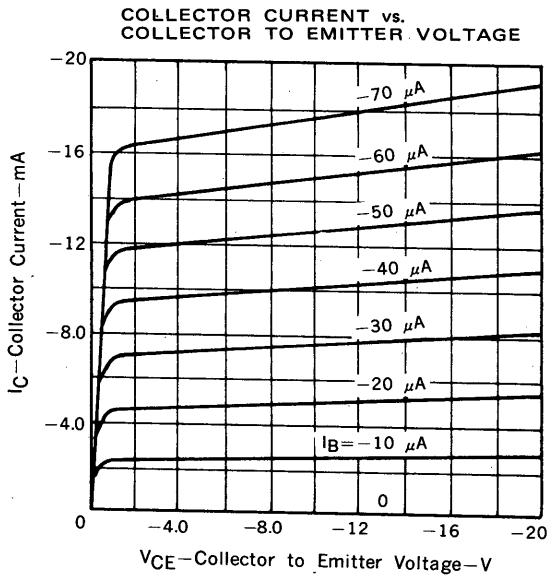
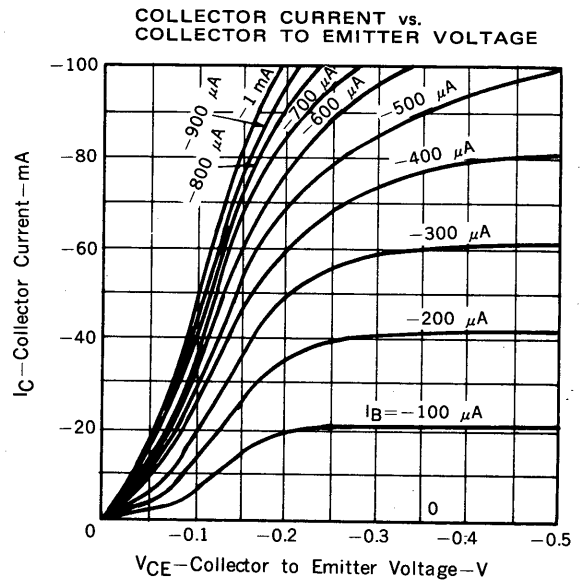
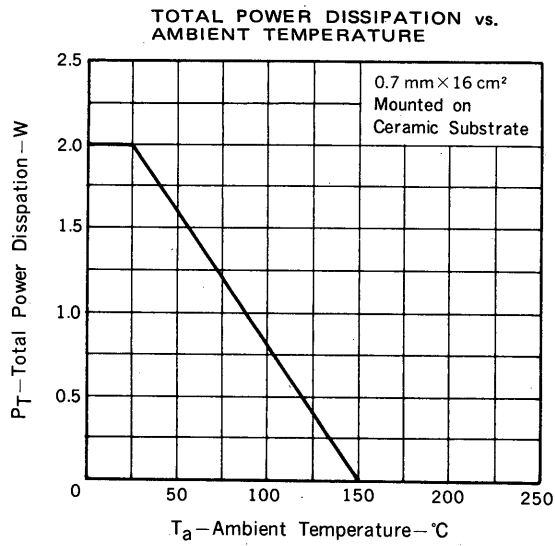
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
						2SB805	2SB806
Collector Cutoff Current	$I_{CBO}$			-100	nA	2SB805	$V_{CB} = -100\text{ V}, I_E = 0$
				-100	nA	2SB806	$V_{CB} = -120\text{ V}, I_E = 0$
Emitter Cutoff Current	$I_{EBO}$			-100	nA	$V_{EB} = -5.0\text{ V}, I_C = 0$	
DC Current Gain	$h_{FE1}$	45	200			$V_{CE} = -1.0\text{ V}, I_C = -5.0\text{ mA}$ ***	
DC Current Gain	$h_{FE2}$	90	200	400		$V_{CE} = -1.0\text{ V}, I_C = -100\text{ mA}$ ***	
Collector Saturation Voltage	$V_{CE(sat)}$		-0.4	-0.6	V	$I_C = -500\text{ mA}, I_B = -50\text{ mA}$ ***	
Base Saturation Voltage	$V_{BE(sat)}$		-0.9	-1.5	V	$I_C = -500\text{ mA}, I_B = -50\text{ mA}$ ***	
Base to Emitter Voltage	$V_{BE}$	-550	-620	-650	mV	$V_{CE} = -10\text{ V}, I_C = -10\text{ mA}$ ***	
Gain Bandwidth Product	$f_T$		75		MHz	$V_{CE} = -10\text{ V}, I_E = 10\text{ mA}$	
Output Capacitance	$C_{ob}$		14		pF	$V_{CB} = -10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$	

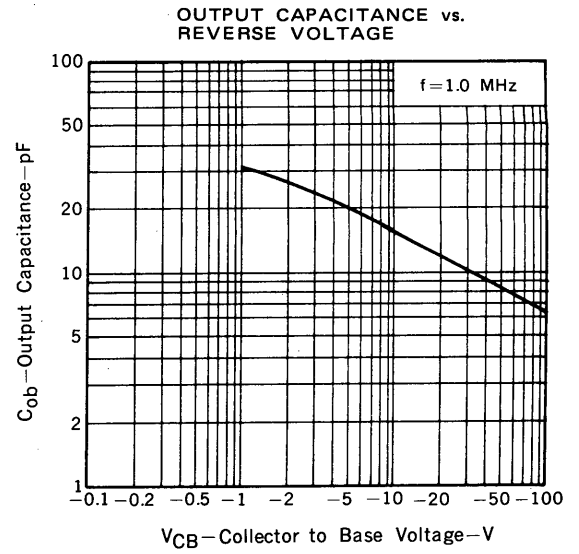
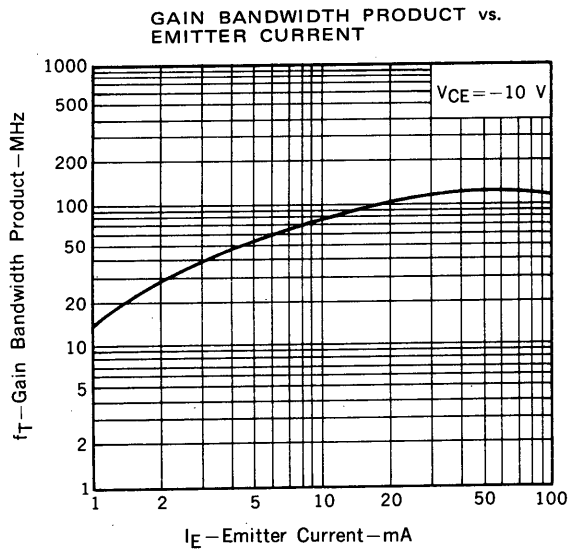
\*\*\*Pulsed : PW  $\leq$  350  $\mu\text{s}$ , duty cycle  $\leq$  2 %

$h_{FE}$  Classification

MARKING	2SB805	KM	KL	KK
		2SB806	KR	KQ
$h_{FE}$		90 - 180	135 - 270	200 - 400

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





**REFERENCE**

Document Name	Document No.
NEC semiconductor device reliability/quality control system.	TEI-1202
Quality grade on NEC semiconductor devices.	IEI-1209
Semiconductor device mounting technology manual.	IEI-1207
Semiconductor device package manual.	IEI-1213
Guide to quality assurance for semiconductor devices.	MEI-1202
Semiconductor selection guide.	MF-1134

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