

To our customers,

Old Company Name in Catalogs and Other Documents

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

April 1st, 2010
Renesas Electronics Corporation

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

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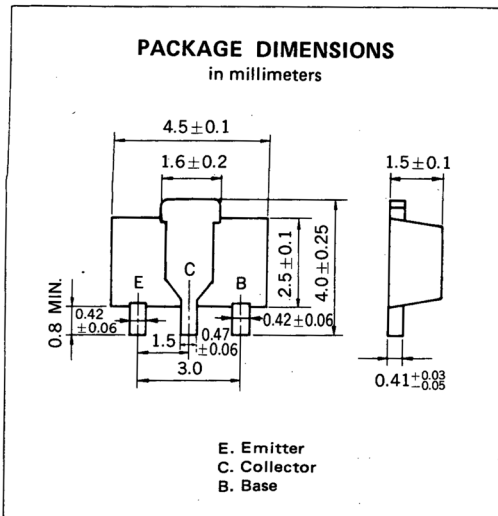
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NPN SILICON EPITAXIAL TRANSISTOR
POWER MINI MOLD

DESCRIPTION

The 2SD1006, 1007 are designed for audio frequency power amplifier application, especially in Hybrid Integrated Circuits.



FEATURES

- High Collector to Emitter Voltage : $V_{CE0} > 120$ V (2SD1007)
: $V_{CE0} > 100$ V (2SD1006)
- Complement to PNP type 2SB805, 806 respectively.

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

	2SD1006	2SD1007	
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)	$I_C(\text{DC})$ 0.7		A
Collector Current (Pulse) *	$I_C(\text{Pulse})$ 1.2		A
Total Power Dissipation **	P_T 2.0		W
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	
Collector Cutoff Current	I_{CBO}			100	nA	2SD1006	$V_{CB}=100\text{ V}, I_E=0$
				100	nA	2SD1007	$V_{CB}=120\text{ V}, I_E=0$
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		$V_{CE}=1.0\text{ V}, I_C=100\text{ mA}$ ***	
Base to Emitter Voltage	V_{BE}	550	620	650	mV	$V_{CE}=10\text{ V}, I_C=10\text{ mA}$ ***	
Collector Saturation Voltage	$V_{CE(\text{sat})}$		0.14	0.6	V	$I_C=500\text{ mA}, I_B=50\text{ mA}$ ***	
Base Saturation Voltage	$V_{BE(\text{sat})}$		0.88	1.5	V	$I_C=500\text{ mA}, I_B=50\text{ mA}$ ***	
Output Capacitance	C_{ob}		10		pF	$V_{CB}=10\text{ V}, I_E=0, f=1.0\text{ MHz}$	
Gain Bandwidth Product	f_T		90		MHz	$V_{CE}=10\text{ V}, I_E=-10\text{ mA}$	

***Pulsed: PW \leq 350 μs , duty cycle \leq 2 %

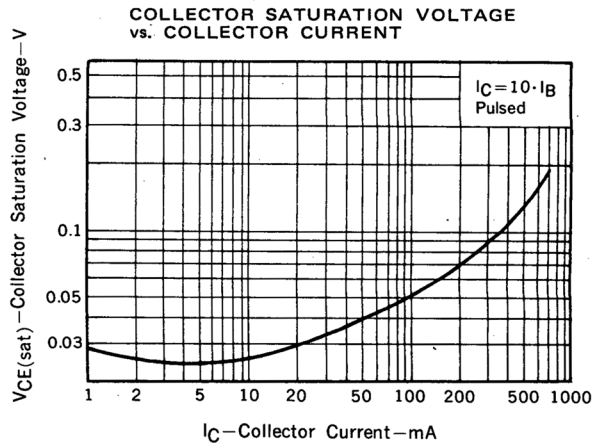
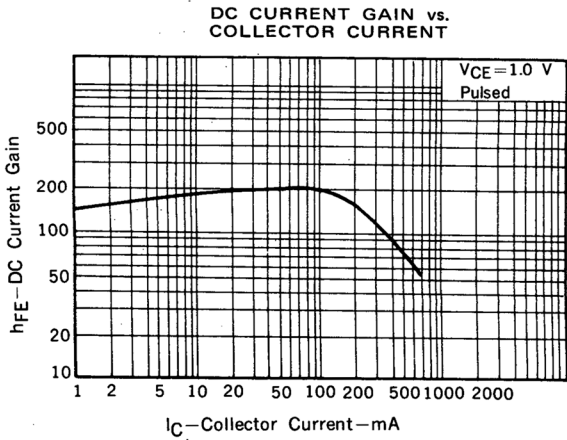
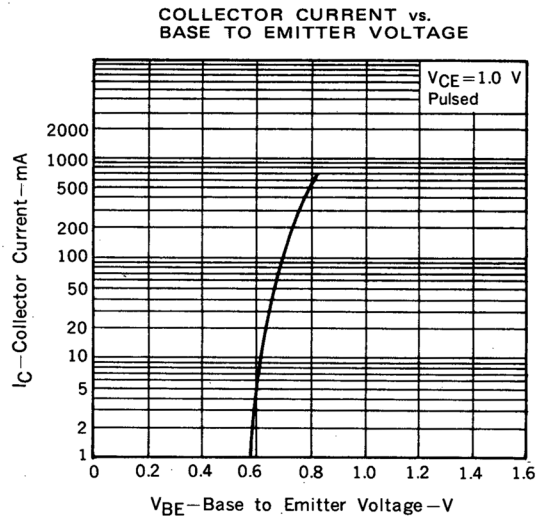
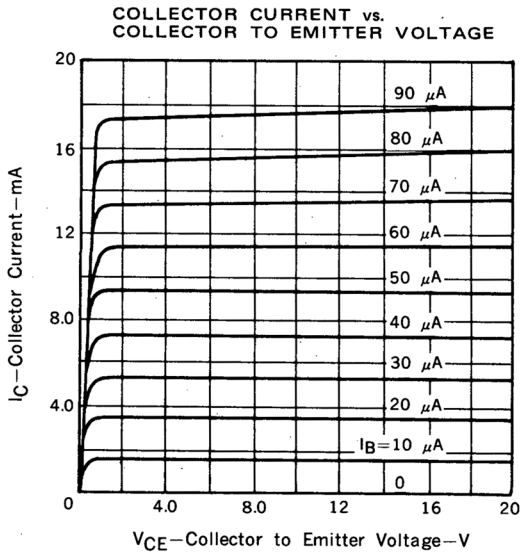
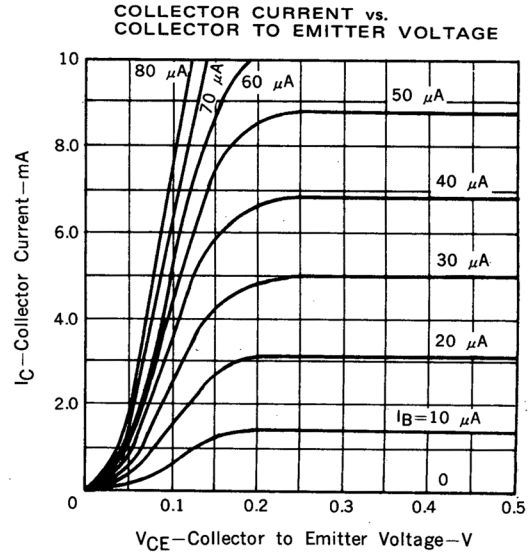
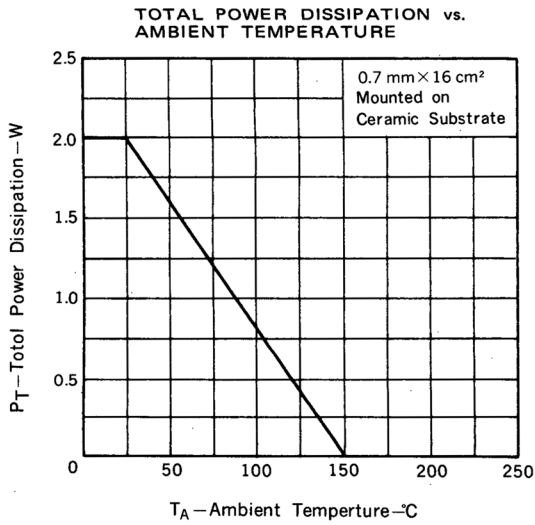
h_{FE} Classification

MARKING	2SD1006	HM	HL	HK
		2SD1007	HR	HQ
h_{FE2}		90 - 180	135 - 270	200 - 400

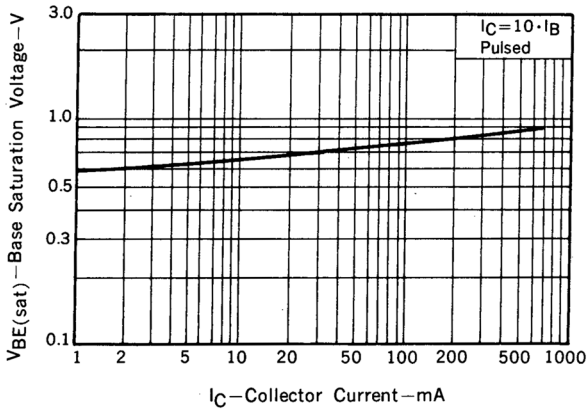
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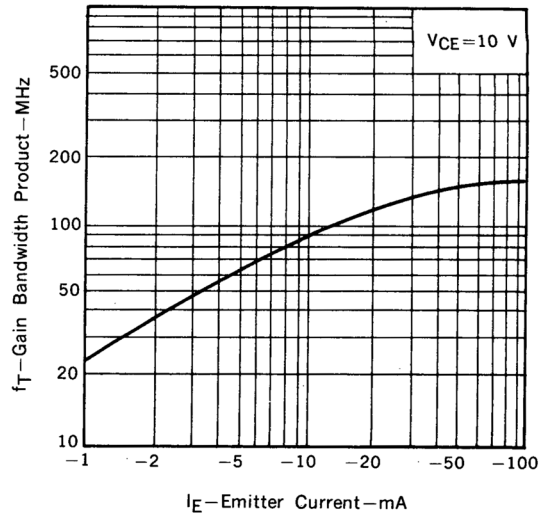
TYPICAL CHARACTERISTICS (T_A = 25°C)



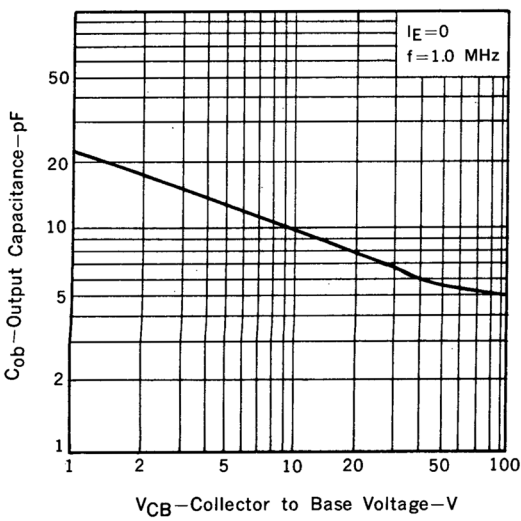
BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



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