

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

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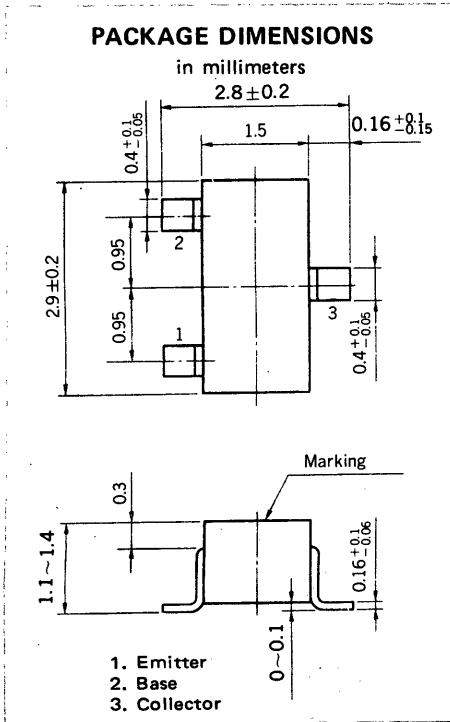
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# 2SD780, 2SD780A

## AUDIO FREQUENCY POWER AMPLIFIER NPN SILICON EPITAXIAL TRANSISTOR MINI MOLD



### DESCRIPTION

The 2SD780, 2SD780A are designed for use in small type equipments especially recommended for hybrid integrated circuit and other applications.

### FEATURES

- Micro package.
- High DC current gain.  $h_{FE}$  : 200 TYP. ( $V_{CE} = 1.0$  V,  $I_C = 50$  mA)
- Complimentary to NEC 2SB736, 2SB736A PNP Transistor.

### ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current ( $T_a = 25$ °C)	2SD780	2SD780A	
Collector to Base Voltage	$V_{CBO}$ 60	80	V
Collector to Emitter Voltage	$V_{CEO}$ 60	80	V
Emitter to Base Voltage	$V_{EBO}$	5.0	V
Collector Current (DC)	$I_C$	300	mA
Maximum Power Dissipation			
Total Power Dissipation			
at 25 °C Ambient Temperature	$P_T$	200	mW
Maximum Temperatures			
Storage Temperature Range	$T_{stg}$	- 55 to +150	°C
Operating Junction Temperature	$T_j$	150	°C

### ELECTRICAL CHARACTERISTICS ( $T_a = 25$ °C)

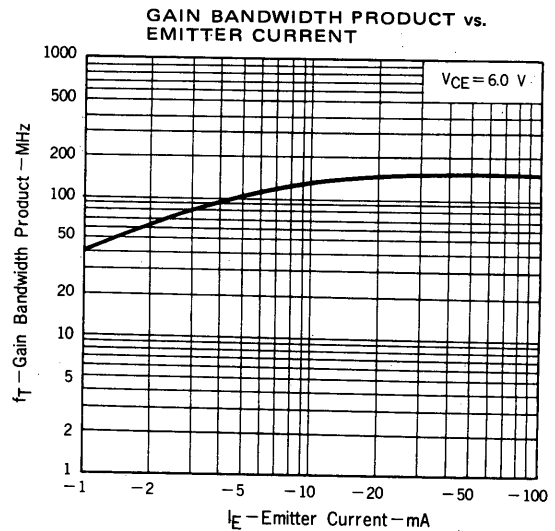
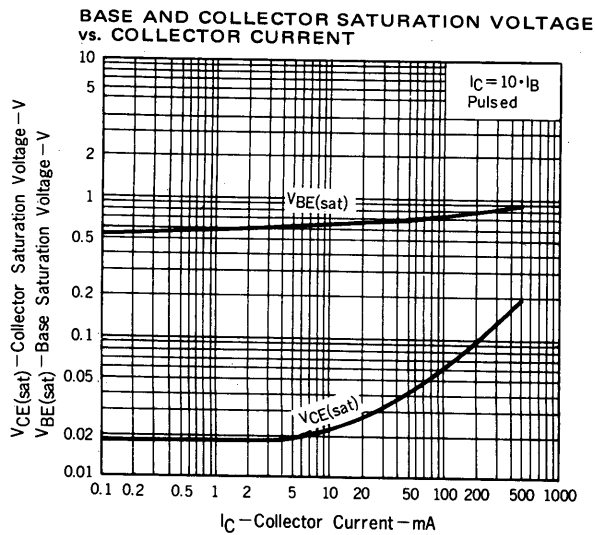
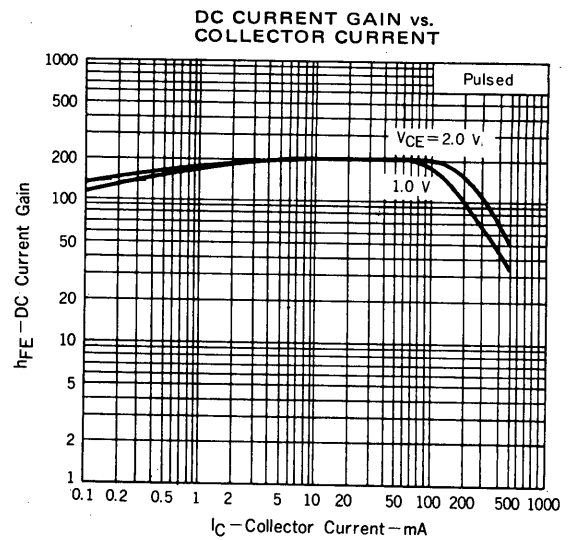
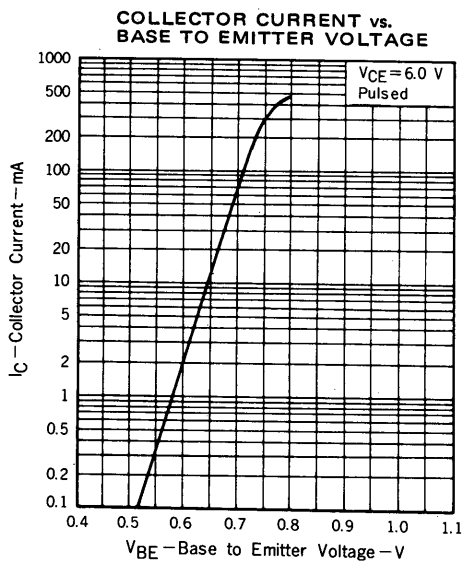
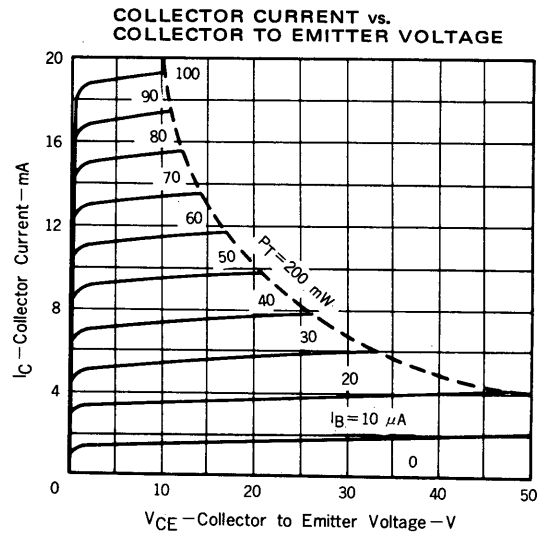
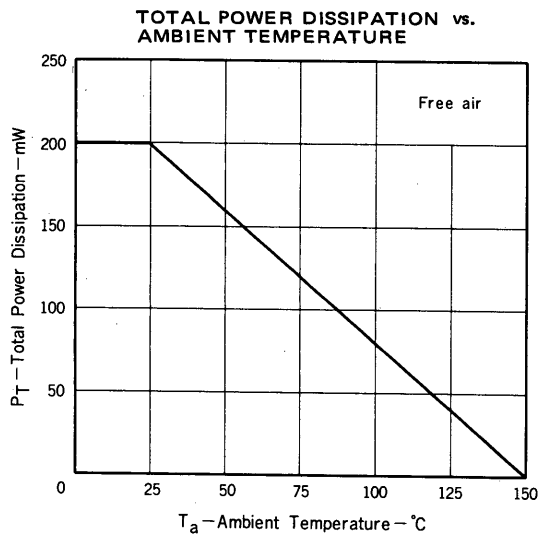
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	$I_{CBO}$			100	nA	$V_{CB} = 50$ V, $I_E = 0$
Emitter Cutoff Current	$I_{EBO}$			100	nA	$V_{EB} = 5.0$ V, $I_C = 0$
DC Current Gain	$h_{FE1}$	110	200	400		$V_{CE} = 1.0$ V, $I_C = 50$ mA *
DC Current Gain	$h_{FE2}$	30				$V_{CE} = 2.0$ V, $I_C = 300$ mA *
Base to Emitter Voltage	$V_{BE}$	600	645	700	mV	$V_{CE} = 6.0$ V, $I_C = 10$ mA *
Collector Saturation Voltage	$V_{CE(sat)}$		0.15	0.6	V	$I_C = 300$ mA, $I_B = 30$ mA *
Output Capacitance	$C_{ob}$		7.0		pF	$V_{CB} = 6.0$ V, $I_E = 0$ , $f = 1.0$ MHz
Gain Bandwidth Product	$f_T$		140		MHz	$V_{CE} = 6.0$ V, $I_E = -10$ mA

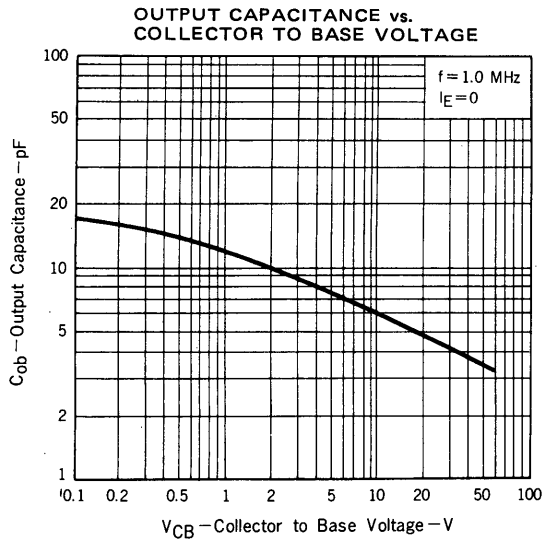
\* Pulsed PW  $\leq 350$   $\mu$ s, Duty Cycle  $\leq 2$  %

### $h_{FE1}$ Classification

Marking.	2SD780	DW1	DW2	DW3	DW4	DW5
	2SD780A	D51	D52	D53	D54	D55
$h_{FE}$	110 to 180	135 to 220	170 to 270	200 to 320	250 to 400	

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





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