

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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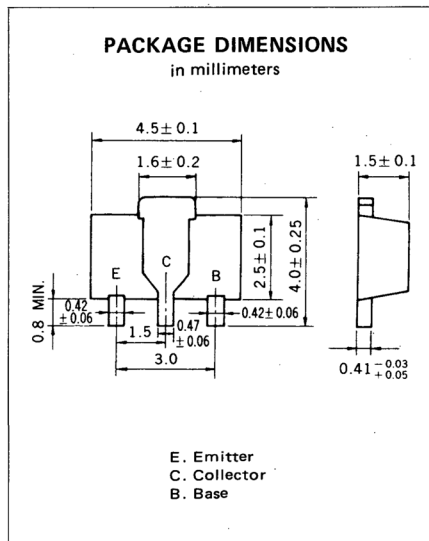
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NPN SILICON EPITAXIAL TRANSISTOR  
POWER MINI MOLD

DESCRIPTION

2SD1614 is designed for audio frequency power amplifier and switching application, especially in Hybrid Integrated Circuits.



FEATURES

- High DC Current Gain :  $h_{FE}$  135 to 600
- Low  $V_{CE(sat)}$  :  $V_{CE(sat)} = 0.2$  V
- Complement to 2SB1114

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

Collector to Base Voltage	$V_{CB0}$	40	V
Collector to Emitter Voltage	$V_{CEO}$	20	V
Emitter to Base Voltage	$V_{EBO}$	6.0	V
Collector Current (DC)	$I_C(\text{DC})$	2.0	A
Collector Current (Pulse)*	$I_C(\text{Pulse})$	3.0	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	$I_{CB0}$			100	nA	$V_{CB} = 30\text{ V}, I_E = 0$
Emitter Cutoff Current	$I_{EB0}$			100	nA	$V_{EB} = 6.0\text{ V}, I_C = 0$
DC Current Gain	$h_{FE1}^{***}$	135	350	600		$V_{CE} = 2.0\text{ V}, I_C = 100\text{ mA}$
DC Current Gain	$h_{FE2}^{***}$	40	250			$V_{CE} = 2.0\text{ V}, I_C = 2.0\text{ A}$
Collector Saturation Voltage	$V_{CE(sat)}^{***}$		0.3	0.5	V	$I_C = 2.0\text{ A}, I_B = 50\text{ mA}$
Base Saturation Voltage	$V_{BE(sat)}^{***}$		0.95	1.2	V	$I_C = 2.0\text{ A}, I_B = 50\text{ mA}$
Base to Emitter Voltage	$V_{BE}^{***}$	650	680	750	mV	$V_{CE} = 6.0\text{ V}, I_C = 100\text{ mA}$
Gain Bandwidth Product	$f_T$		200		MHz	$V_{CE} = 10\text{ V}, I_E = -50\text{ mA}$
Output Capacitance	$C_{ob}$		28		pF	$V_{CB} = 10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$

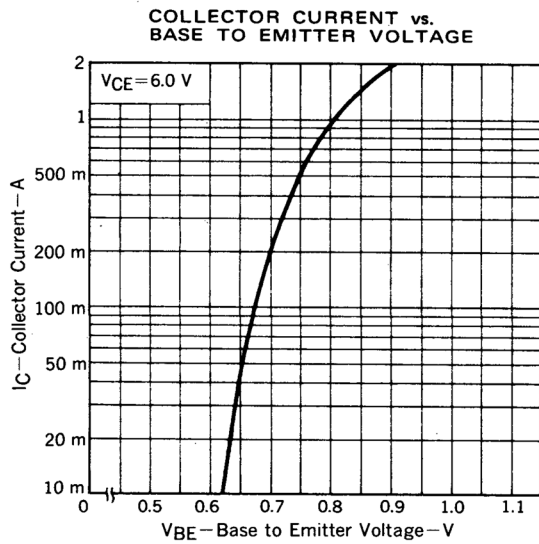
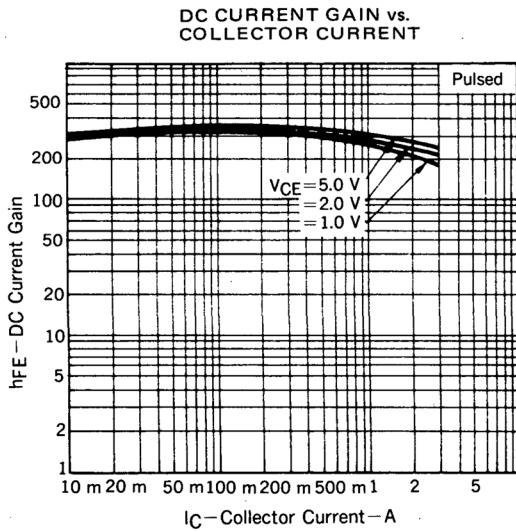
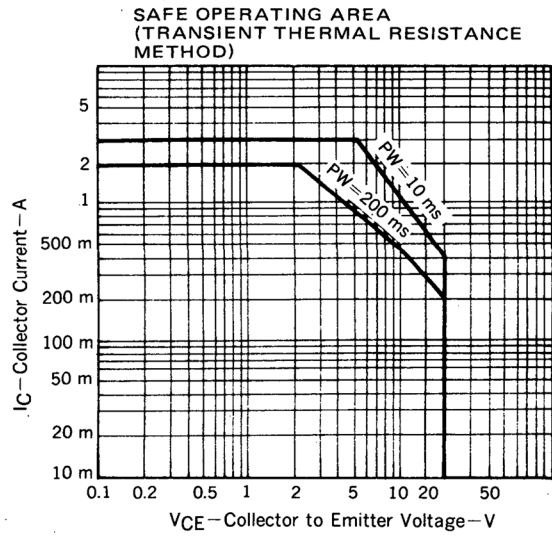
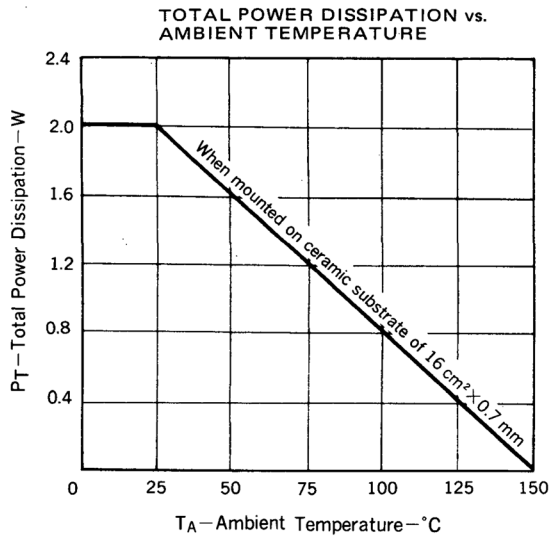
\*\*\*Pulsed:  $PW \leq 350\ \mu\text{s}$ , Duty Cycle  $\leq 2\%$

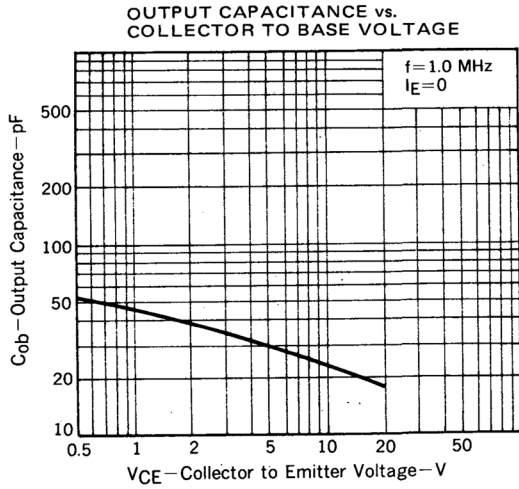
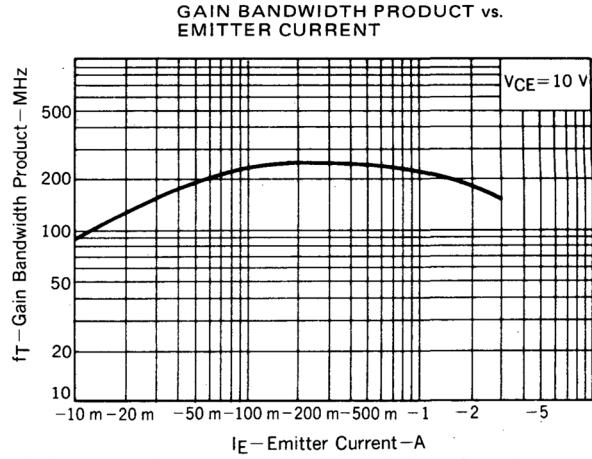
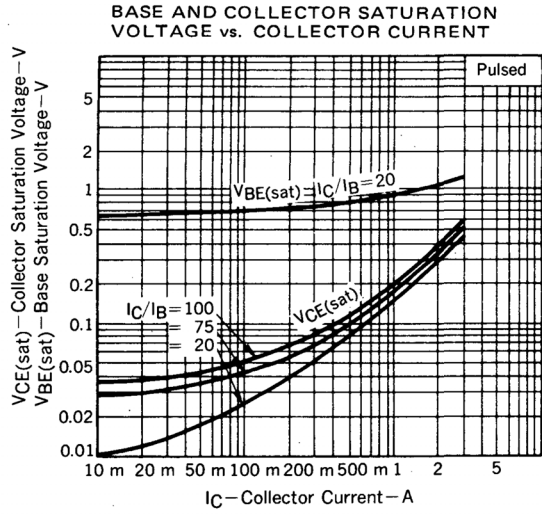
$h_{FE}$  Classification

MARKING	XM	XL	XK
$h_{FE1}$	135 to 270	200 to 400	300 to 600

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