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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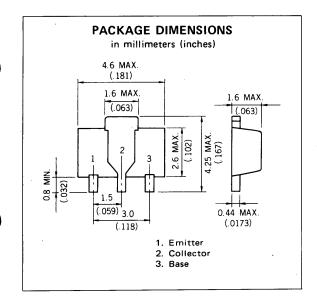


silicon transistor 2SD1005

NPN SILICON EPITAXIAL TRANSISTOR POWER MINI MOLD

DESCRIPTION

The 2SD1005 is designed for audio frequency power amplifier application, especially in Hybrid Integrated Circuits.



FEATURES

- World Standard Miniature Package
- : SOT-89
- High Collector to Base Voltage
 - : V_{CBO}>100 V
- Excellent DC Current Gain Linearity
- : $h_{FE} = 80 \text{ TYP. } (V_{CE} = 2.0 \text{ V}, I_{C} = 500 \text{ mA})$
- Complements to PNP type 2SB804

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

Maximum Voltages and Currents			
Collector to Base Voltage	$V_{\sf CBO}$	100	V
Collector to Emitter Voltage	V_{CEO}	80	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current (DC)	Ic	1.0	Α
Collector Current (Pulse)*	lс	1.5	Α
Maximum Power Dissipation			
Total Power Dissipation			
at 25 °C Ambient Temperature**	P_{T}	2.0	W
Maximum Temperatures		•	
Junction Temperature	Τ _i	150	°C
Storage Temperature Range	Tara	-55 to +150	°C

^{*}PW \leq 10 ms, duty cycle \leq 50 %

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	СВО			100	nA	V _{CB} =100 V, I _E =0
Emitter Cutoff Current	^I EBO			100	nA	V _{EB} =5.0 V, I _C =0
DC Current Gain	. hFE1	90	200	400		V _{CE} =2.0 V, I _C =100 mA **
DC Current Gain	hFE2	25	80			V _{CE} =2.0 V, I _C =500 mA **
Collector Saturation Voltage	V _{CE(sat)}		0.15	0.50	V	I _C =500 mA, I _B =50 mA **
Base Saturation Voltage	V _{BE(sat)}		0.9	1.50	V	I _C =500 mA, I _B =50 mA **
Base to Emitter Voltage	V _{BE}	600	630	700	mV	V _{CE} =10 V, I _C =10 mA **
Gain Bandwidth Product	fT		160		MHz	V _{CE} =5.0 V, I _E =-10 mA
Output Capacitance	C _{ob}		12		pF	V _{CB} =10 V, I _E =0, f=1.0 MHz

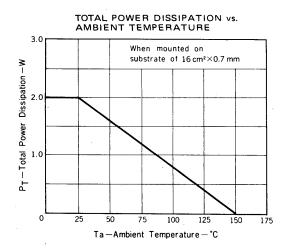
^{***}Pulsed: PW ≤350 μs, duty cycle ≤ 2 %

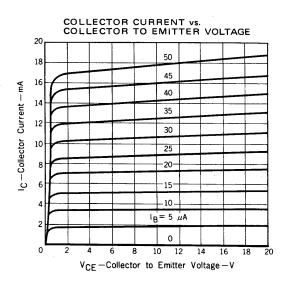
h_{FE} Classification

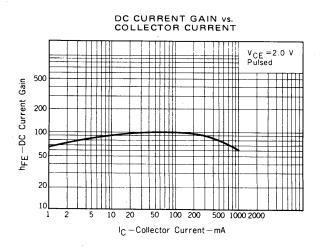
MARKING	BW	BV	BU
hFE1	90 – 180	135 – 270	200 – 400

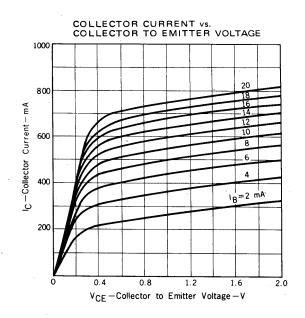
^{**}When mounted on ceramic substrate of 16 cm² x 0.7 mm

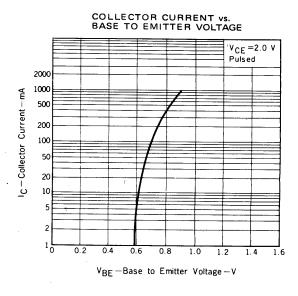
TYPICAL CHARACTERISTICS (Ta = 25 °C)

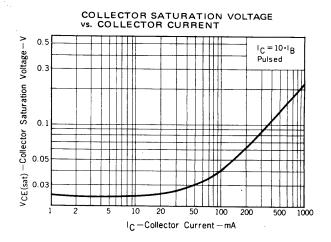


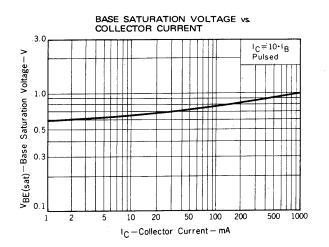


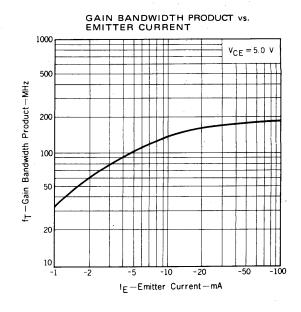


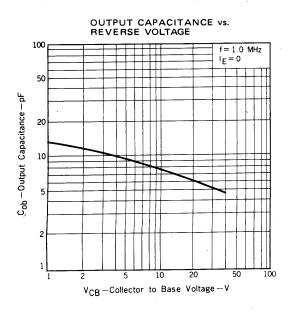












REFERENCE

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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