To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 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 1st, 2010
Renesas Electronics Corporation

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

Send any inquiries to http://www.renesas.com/inquiry.

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RENESAS

SILICON POWER TRANSISTOR

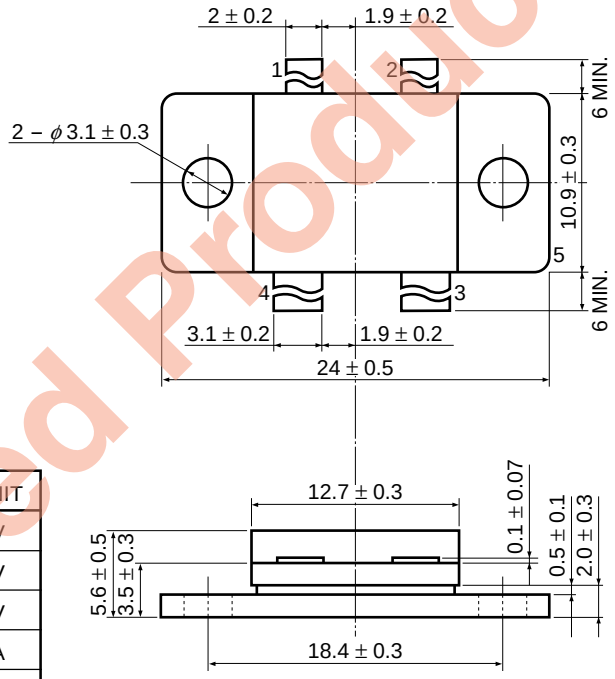
2SC3286-M

NPN SILICON EPITAXIAL TRANSISTOR FOR 230-MHz WIDEBAND POWER AMPLIFIER INDUSTRIAL USE

FEATURES

- High gain and high power output at 230 MHz
  P_{out} = 140 W @ V_{CC} = 28 V, P_{in} = 10 W, class AB
- Push-pull structure allows easy design of wideband amplifier
- Internal emitter balance resistor
- Withstand up to VSWR = ∞
- Internal impedance matching circuit
- High reliability due to gold electrodes

PACKAGE DIMENSIONS (in millimeters)



PIN CONNECTIONS

1. Collector
2. Collector
3. Base
4. Base
5. Emitter (heat sink)

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector to Base Voltage	V_{CBO}	55	V
Collector to Emitter Voltage	V_{CEO}	32	V
Emitter to Base Voltage	V_{EBO}	3	V
Collector Current	I_C	24	A
Thermal Resistance (junction to case)	$R_{th\ (j\text{-}c)}$	0.63	°C/W
Total Power Dissipation	$P_{T\ (T_C = 25\ °C)}$	280	W
Junction Temperature	T_j	200	°C
Storage Temperature	T_{stg}	-65 to +150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = 30 V, I_E = 0			4	mA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 2 V, I_C = 0			4	mA
DC Current Gain	h_{FE} Note	V_{CE} = 10 V, I_C = 2 A (pulse)	20	60	150	–
Output Power	P_{out}	f = 230 MHz, V_{CC} = 28 V	50	51.4		dBm
		P_{in} = 10 W (40 dBm)	100	140		W
Collector Efficiency	η_C	I_q = 500 mA × 2, class AB	55	65		%
Feedback Capacitance	C_{re} Note	V_{CB} = 28 V, f = 1 MHz		170	240	pF

Note Per unit

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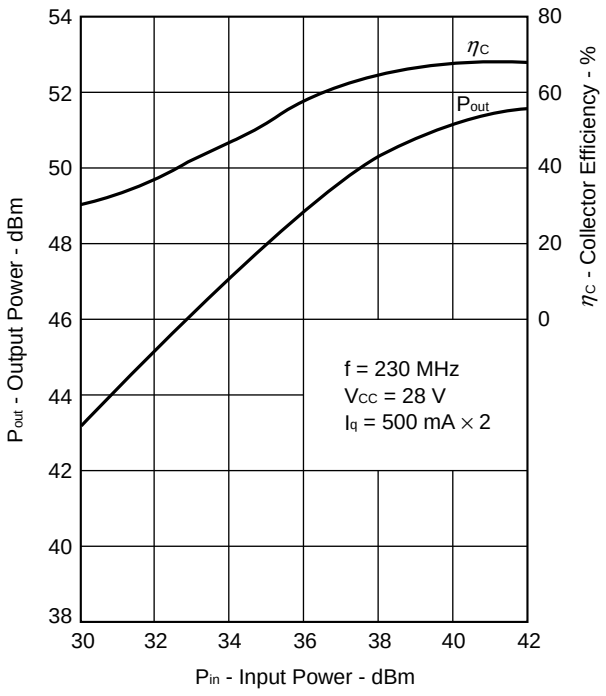
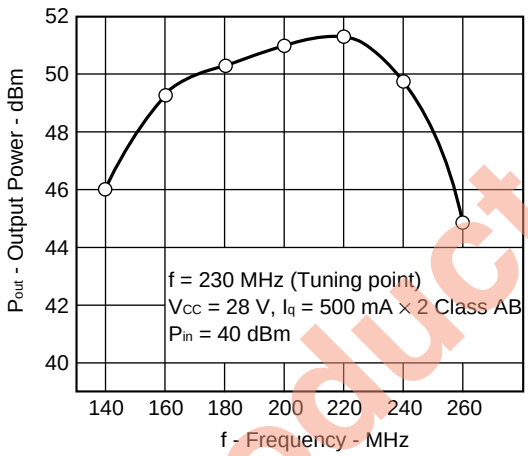
TYPICAL CHARACTERISTICS (T_A = 25 °C)

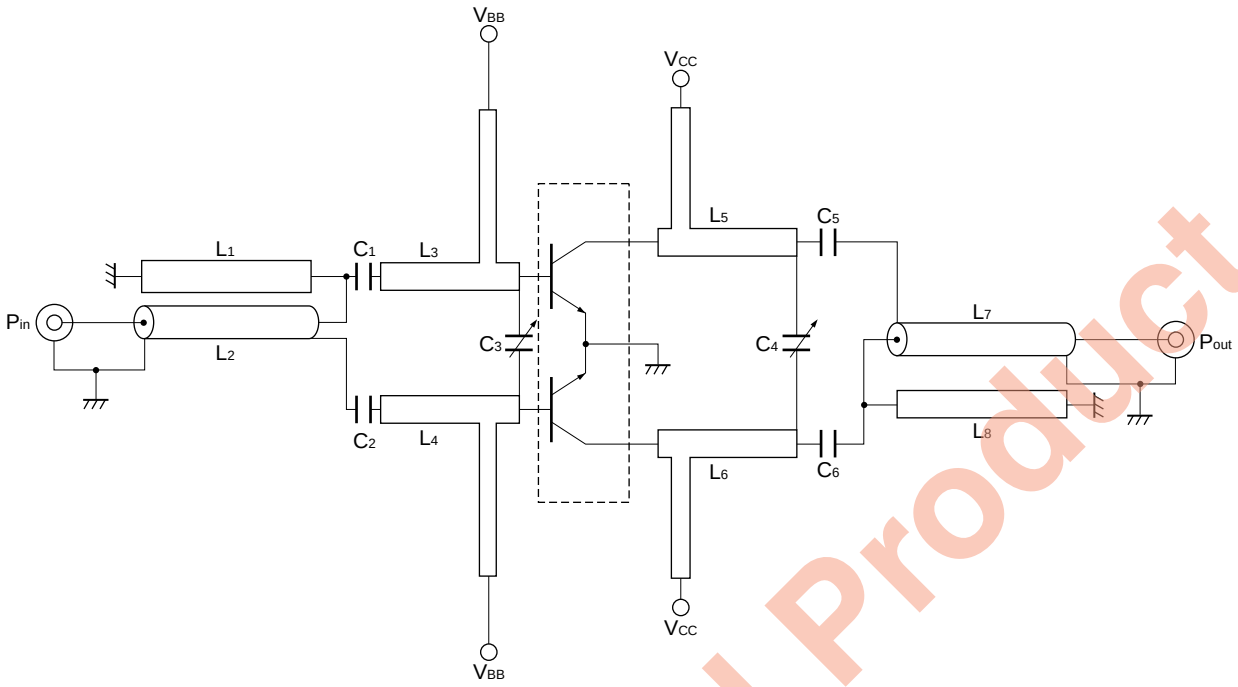
OUTPUT POWER AND COLLECTOR EFFICIENCY vs. INPUT POWER



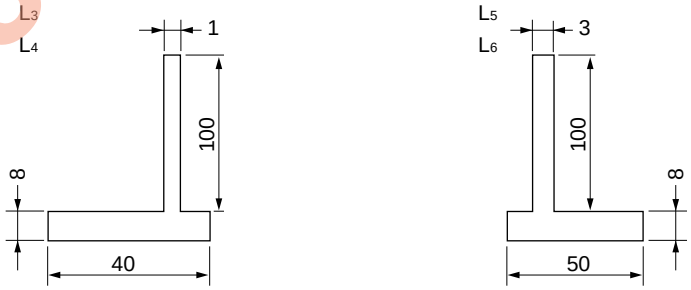
TYPICAL OUTPUT POWER vs. FREQUENCY



APPLICATION CIRCUIT EXAMPLE



$C_1 = C_2 = 51$ pF
$C_3 = 40$ pF
$C_4 = 35$ pF
$C_5 = C_6 = 39$ pF
$L_1 = L_8$ = Micro-strip line 70 × 5 mm
$L_2 = L_7$ = 50 Ω Semi-rigid cable 70 mm
$L_{3\ to\ 6}$ = Micro-strip line (in millimeters)



Substrate material: Glass-epoxy t = 1.6 mm

CAUTIONS ON HANDLING DEVICES

This device employs beryllia ceramics (beryllium oxide) internally. Inhalation of beryllium oxide powder or vapor into the human respiratory system may cause hazards such as breathing difficulties and other problems.

Therefore, do not disintegrate or chemically process this device.

Moreover, when disposing of this device, be sure to separate it from general industrial waste and domestic garbage.

[MEMO]

[MEMO]

[MEMO]