

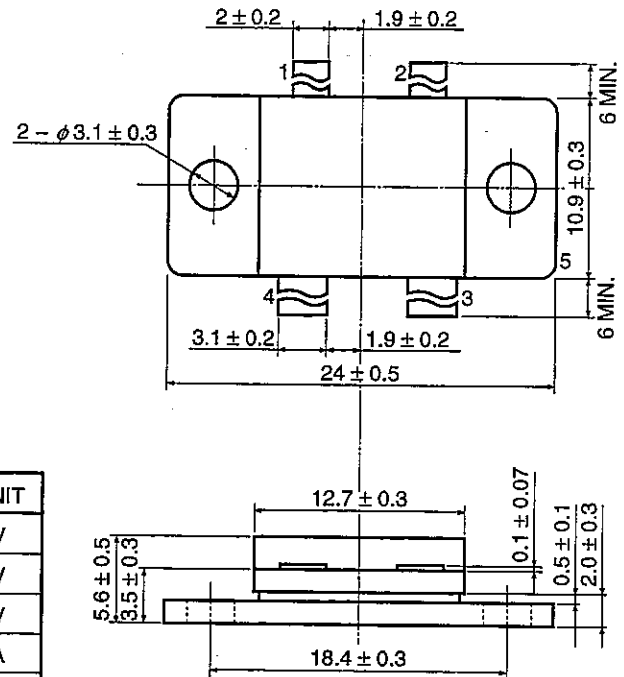
SILICON POWER TRANSISTOR  
2SC3286-M

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

FEATURES

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

PACKAGE DIMENSIONS (in millimeters)



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

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)	$R_{th(j-c)}$	0.63	$^\circ\text{C/W}$
Total Power Dissipation	$P_T (T_C = 25 \text{ }^\circ\text{C})$	280	W
Junction Temperature	$T_j$	200	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 to +150	$^\circ\text{C}$

PIN CONNECTIONS

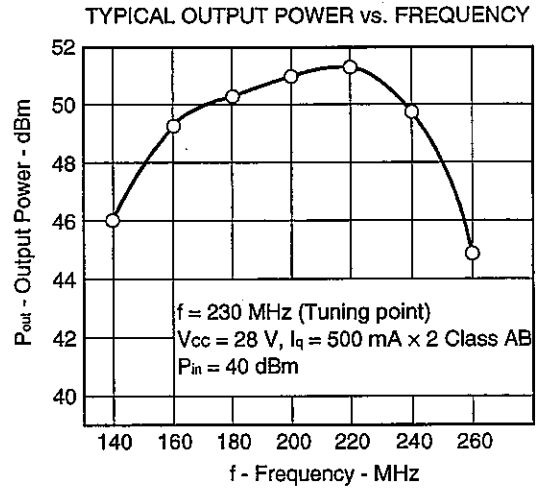
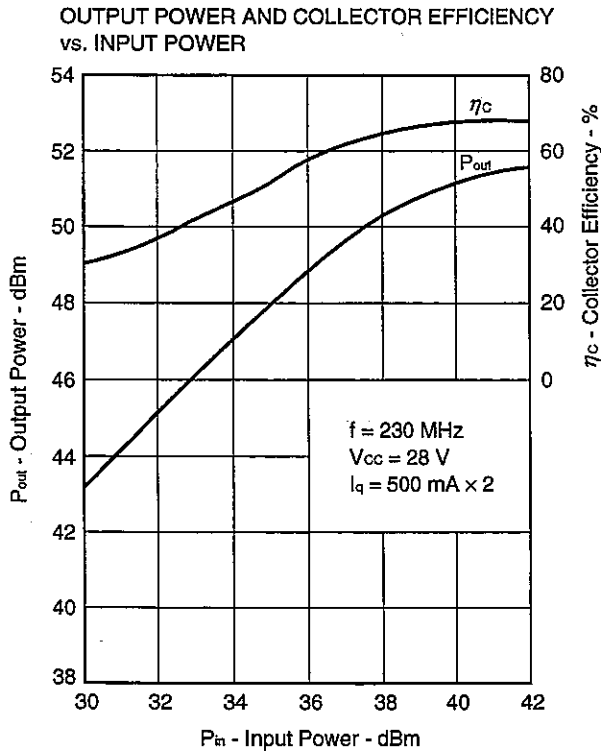
1. Collector
2. Collector
3. Base
4. Base
5. Emitter (heat sink)

ELECTRICAL CHARACTERISTICS ( $T_A = 25 \text{ }^\circ\text{C}$ )

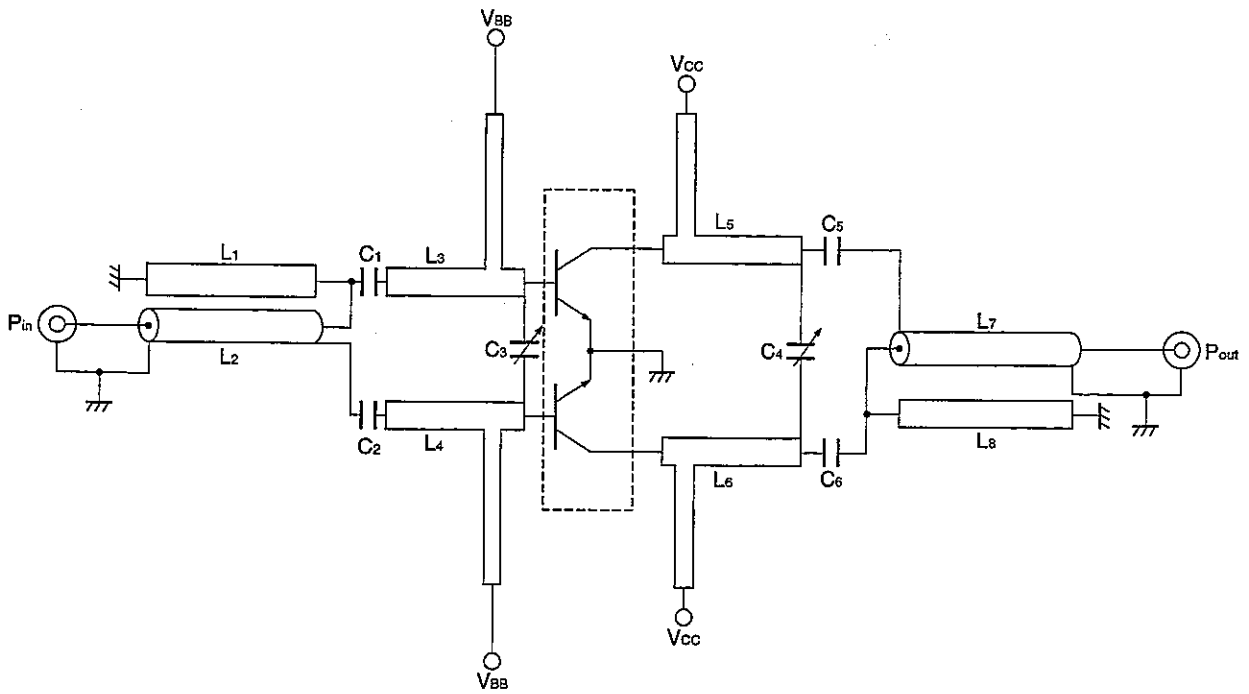
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 30 \text{ V, } I_E = 0$			4	mA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 2 \text{ V, } I_C = 0$			4	mA
DC Current Gain	$h_{FE}$ <small>Note</small>	$V_{CE} = 10 \text{ V, } I_C = 2 \text{ A (pulse)}$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

Note Per unit

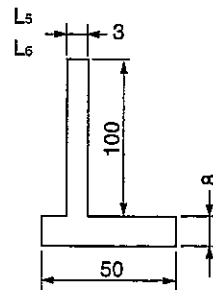
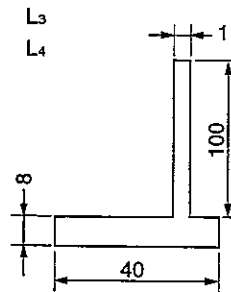
TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C)



APPLICATION CIRCUIT EXAMPLE



- C<sub>1</sub> = C<sub>2</sub> = 51 pF
- C<sub>3</sub> = 40 pF
- C<sub>4</sub> = 35 pF
- C<sub>5</sub> = C<sub>6</sub> = 39 pF
- L<sub>1</sub> = L<sub>8</sub> = Micro-strip line      70 × 5 mm
- L<sub>2</sub> = L<sub>7</sub> = 50 Ω Semi-rigid cable    70 mm
- L<sub>3 to 6</sub> = 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]

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Anti-radioactive design is not implemented in this product.