

SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC2509

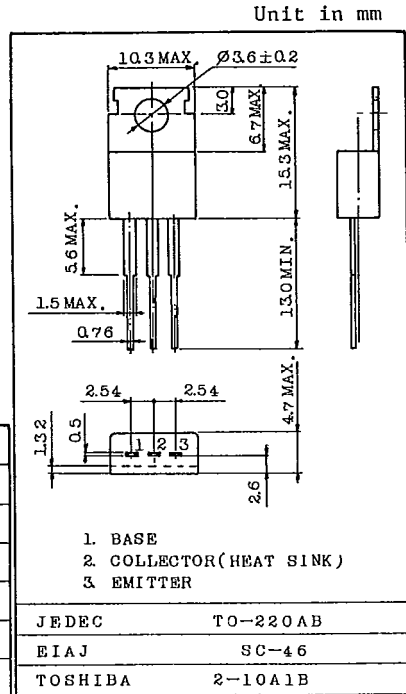
2 ~ 30MHz SSB LINEAR POWER AMPLIFIER APPLICATIONS.  
(LOW SUPPLY VOLTAGE USE)

**FEATURES:**

- . Specified 12.5V, 28MHz Characteristics
  - : Output Power :  $P_o=10W_{PEP}$
  - : Minimum Gain :  $G_{pe}=14dB$
  - : Efficiency :  $\eta_c=35\%$ (Min.)
  - : Intermodulation Distortion :  $IMD=-30dB$ (Max.)

**MAXIMUM RATINGS (Ta=25°C)**

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	40	V
Collector-Emitter Voltage	$V_{CES}$	40	V
Collector-Emitter Voltage	$V_{CEO}$	18	V
Emitter-Base Voltage	$V_{EBO}$	4	V
Collector Current	$I_C$	5	A
Collector Power Dissipation (Tc=25°C)	$P_C$	20	W
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55 ~ 150	°C



Weight : 1.9g

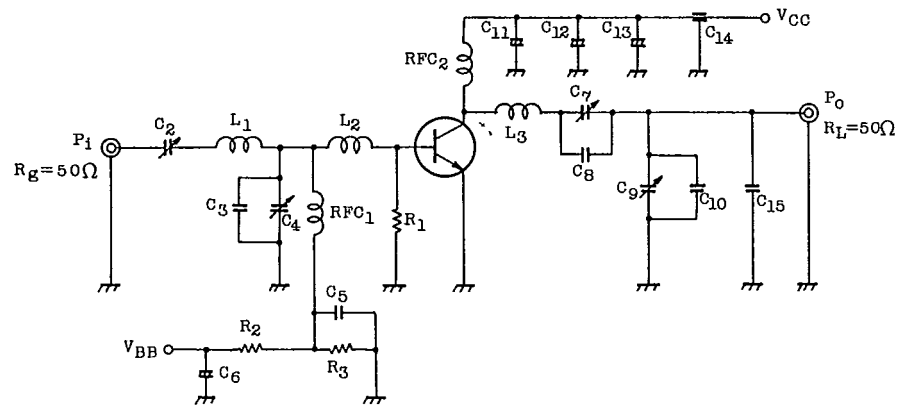
Mounting Kit No. AC75

**ELECTRICAL CHARACTERISTICS (Tc=25°C)**

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	18	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=50mA, V_{BE}=0$	40	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	4	-	-	V
DC Current Gain	$h_{FE}$	$V_{CE}=5V, I_C=1A$	20	-	-	
Transition Frequency	$f_T$	$V_{CE}=5V, I_C=1A$	-	200	-	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=12.5V, I_E=0, f=1MHz$	-	-	150	pF
Power Gain	$G_{pe}$	$V_{CC}=12.5V, f=28MHz$	14.0	-	-	dB
Input Power	$P_i$	2-Tone, $\Delta f=1kHz$	-	-	0.4	WPEP
Collector Efficiency	$\eta_c$	$I_{idle}=30mA, P_o=10W_{PEP}$	35	-	-	%
Intermodulation Distortion	IMD	(Fig.)	-	-	-30	dB

# 2SC2509

Fig. P<sub>i</sub> TEST CIRCUIT



- |  |   |
|--|---|
| C <sub>2</sub> , C <sub>4</sub> , C <sub>7</sub> : 7 ~ 150pF | L <sub>1</sub> : $\phi$ 0.8 ENAMEL COATED COPPER WIRE, 9ID, 6T      |
| C <sub>9</sub> : 10 ~ 200pF                                  | L <sub>2</sub> : $\phi$ 1 SILVER PLATED COPPER WIRE, 9ID, 2T        |
| C <sub>3</sub> : 400pF                                       | L <sub>3</sub> : $\phi$ 1.5 ENAMEL COATED COPPER WIRE, 9ID, 5T      |
| C <sub>5</sub> , C <sub>13</sub> : 0.4 $\mu$ F               | RFC <sub>1</sub> : $\phi$ 0.8 ENAMEL COATED COPPER WIRE, 9ID, 20T   |
| C <sub>6</sub> : 10.0 $\mu$ F 10W                            | RFC <sub>2</sub> : $\phi$ 1.5 ENAMEL COATED COPPER WIRE, 121ID, 15T |
| C <sub>8</sub> : 400pF                                       | R <sub>1</sub> : 5.6 $\Omega$ (1/2W)                                |
| C <sub>10</sub> : 200pF                                      | R <sub>2</sub> : 5 $\Omega$ (5W)                                    |
| C <sub>11</sub> , C <sub>12</sub> : 22 $\mu$ F 35WV          | R <sub>3</sub> : 1.5 $\Omega$ (10W)                                 |
| C <sub>14</sub> : 1000pF<br>FEED THROUGH                     | C <sub>15</sub> : 100pF   |

