

9097250 TOSHIBA (DISCRETE/OPTO)

56C 07460 DT-33-13

SILICON NPN EPITAXIAL PLANAR TYPE

2SC1764

2 ~ 30MHz SSB LINEAR POWER AMPLIFIER APPLICATIONS.
(28V SUPPLY VOLTAGE USE)

FEATURES:

Specified 28V, 28MHz Characteristics

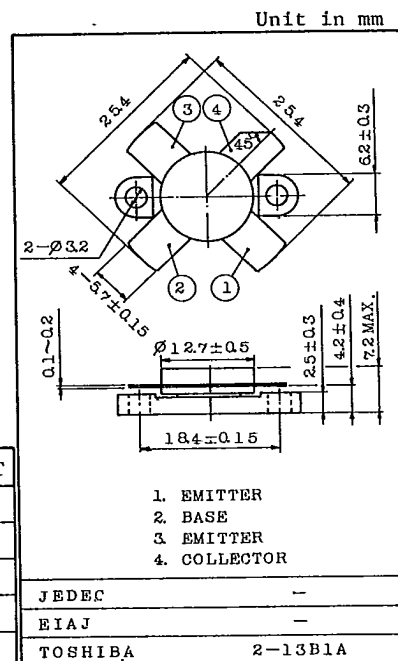
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: Output Power : $P_O=80W_{PEP}$
: Minimum Gain : $G_P=14.5dB$
: Efficiency : $\eta_c=40\%(Min.)$
: Intermodulation Distortion : $IMD=-30dB(Max.)$

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MAXIMUM RATINGS (Ta=25°C)

| CHARACTERISTIC                                              | SYMBOL    | RATING         | UNIT               |
|-------------------------------------------------------------|-----------|----------------|--------------------|
| Collector-Base Voltage                                      | $V_{CB0}$ | 65             | V                  |
| Collector-Emitter Voltage                                   | $V_{CE0}$ | 35             | V                  |
| Emitter-Base Voltage                                        | $V_{EB0}$ | 4              | V                  |
| Collector Current                                           | $I_C$     | 12             | A                  |
| Collector Power Dissipation<br>( $T_c=25^{\circ}\text{C}$ ) | $P_C$     | 140            | W                  |
| Junction Temperature                                        | $T_j$     | 175            | $^{\circ}\text{C}$ |
| Storage Temperature Range                                   | $T_{stg}$ | $-65 \sim 175$ | $^{\circ}\text{C}$ |



Weight : 5.2g

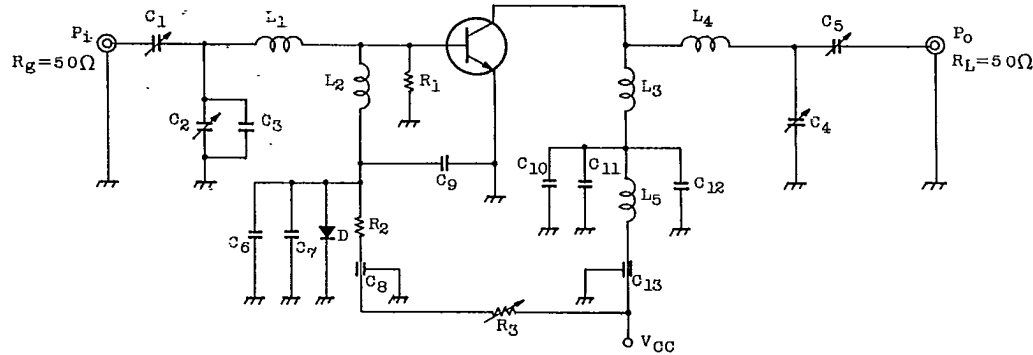
ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ )

| CHARACTERISTIC                      | SYMBOL        | TEST CONDITION                                                    | MIN. | TYP. | MAX. | UNIT             |
|-------------------------------------|---------------|-------------------------------------------------------------------|------|------|------|------------------|
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=100mA, I_B=0$                                                | 35   | -    | -    | V                |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CER}$ | $I_C=20mA, R_{EB}=10\Omega$                                       | 65   | -    | -    | V                |
| Emitter-Base Breakdown Voltage      | $V_{(BR)EBO}$ | $I_E=1mA, I_C=0$                                                  | 4    | -    | -    | V                |
| DC Current Gain                     | $h_{FE}$      | $V_{CE}=10V, I_C=10A$                                             | 10   | -    | -    |                  |
| Transition Frequency                | $f_T$         | $V_{CE}=15V, I_C=0.2A$                                            | 50   | -    | -    | MHz              |
| Collector Output Capacitance        | $C_{ob}$      | $V_{CB}=28V, I_E=0, f=1MHz$                                       | -    | 220  | 300  | pF               |
| Power Gain                          | $G_{pe}$      | $V_{CC}=28V, f=28MHz$<br>$I_{idle}=40mA, P_O=80W_{PEP}$<br>(Fig.) | 14.5 | -    | -    | dB               |
| Input Power                         | $P_i$         |                                                                   | -    | -    | 2.8  | W <sub>PEP</sub> |
| Collector Efficiency                | $\eta_c$      |                                                                   | 40   | -    | -    | %                |
| Intermodulation Distortion          | IMD           |                                                                   | -    | -    | -30  | dB               |

**TOSHIBA CORPORATION**

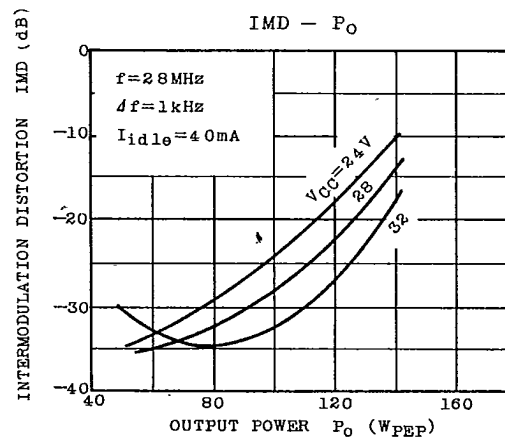
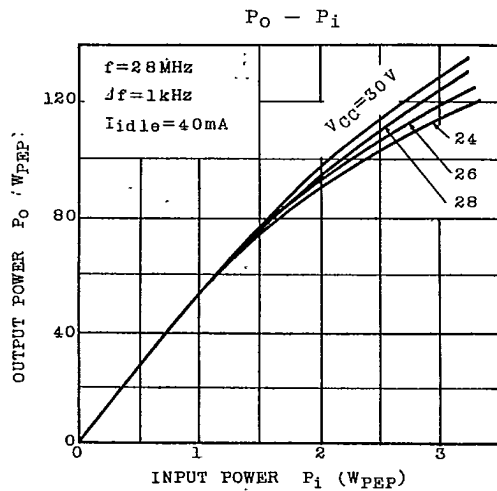
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**2SC1764**Fig.  $P_i$  TEST CIRCUIT

$C_1, C_4, C_5$  :  $\sim 100\text{pF}$   
 $C_2$  :  $\sim 50\text{pF}$   
 $C_3$  :  $100\text{pF}$   
 $C_6, C_{10}$  :  $0.1\mu\text{F}$   
 $C_7, C_{12}$  :  $22\mu\text{F}$   
 $C_8, C_{13}$  :  $6000\text{pF}$  FEED THROUGH  
 $C_9$  :  $0.1\mu\text{F}$   
 $C_{11}$  :  $0.01\mu\text{F}$   
 $R_1$  :  $10\Omega$ , 1W  
 $R_2$  :  $500\Omega$ , 2W  
 $R_3$  :  $\sim 200\Omega$

$L_1$  :  $\phi 1.0$  SILVER PLATED COPPER WIRE,  
 12ID, 4T, 20 LENGTH  
 $L_2$  :  $10\mu\text{H}$   
 $L_3$  :  $\phi 1.6$  SILVER PLATED COPPER WIRE,  
 12ID, 2T, 8 LENGTH  
 $L_4$  :  $\phi 1.6$  SILVER PLATED COPPER WIRE,  
 20ID, 3.5T, 22 LENGTH  
 $L_5$  :  $10\mu\text{H}$   
 $D$  : 1S1555



TOSHIBA CORPORATION