

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

## 2SC2640

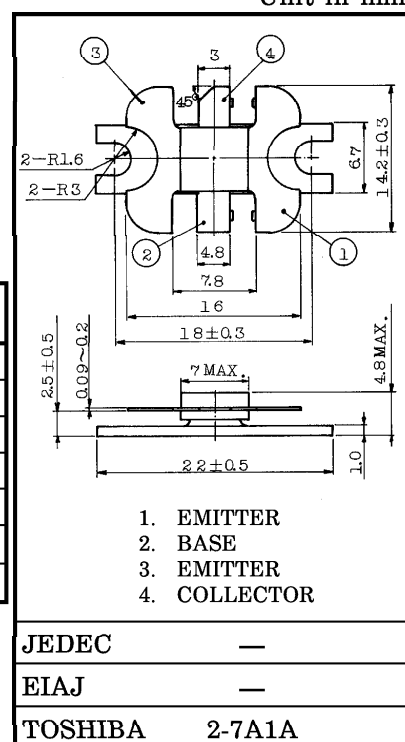
VHF BAND POWER AMPLIFIER APPLICATIONS

Unit in mm

- Output Power :  $P_o = 28\text{W}$  (Min.)  
( $f = 175\text{MHz}$ ,  $V_{CC} = 12.5\text{V}$ ,  $P_i = 4\text{W}$ )

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

| CHARACTERISTIC              | SYMBOL    | RATING         | UNIT             |
|-----------------------------|-----------|----------------|------------------|
| Collector-Base Voltage      | $V_{CBO}$ | 40             | V                |
| Collector-Emitter Voltage   | $V_{CEO}$ | 17             | V                |
| Emitter-Base Voltage        | $V_{EBO}$ | 4              | V                |
| Collector Current           | $I_C$     | 6              | A                |
| Collector Power Dissipation | $P_C$     | 70             | W                |
| Junction Temperature        | $T_j$     | 175            | $^\circ\text{C}$ |
| Storage Temperature Range   | $T_{stg}$ | $-65 \sim 175$ | $^\circ\text{C}$ |

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

Weight : 1.6g

| CHARACTERISTIC                      | SYMBOL        | TEST CONDITION                                         | MIN. | TYP.          | MAX. | UNIT     |
|-------------------------------------|---------------|--------------------------------------------------------|------|---------------|------|----------|
| Collector Cut-off Current           | $I_{CBO}$     | $V_{CB} = 15\text{V}$ , $I_E = 0$                      | —    | —             | 2    | mA       |
| Collector-Base Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C = 10\text{mA}$ , $I_E = 0$                        | 40   | —             | —    | V        |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 25\text{mA}$ , $I_B = 0$                        | 17   | —             | —    | V        |
| Emitter-Base Breakdown Voltage      | $V_{(BR)EBO}$ | $I_E = 1\text{mA}$ , $I_C = 0$                         | 4    | —             | —    | V        |
| DC Current Gain                     | $h_{FE}$      | $V_{CE} = 5\text{V}$ , $I_C = 5\text{A}$ *             | 10   | —             | —    | —        |
| Collector Output Capacitance        | $C_{ob}$      | $V_{CB} = 10\text{V}$ , $I_E = 0$<br>$f = 1\text{MHz}$ | —    | 110           | 160  | pF       |
| Output Power                        | $P_o$         | (Fig.)                                                 | 28   | 31            | —    | W        |
| Power Gain                          | $G_p$         | $V_{CC} = 12.5\text{V}$ , $f = 175\text{MHz}$          | 8.4  | 8.9           | —    | dB       |
| Collector Efficiency                | $\eta_C$      | $P_i = 4\text{W}$                                      | 60   | 71            | —    | %        |
| Series Equivalent Input Impedance   | $Z_{in}$      | $V_{CC} = 12.5\text{V}$ , $f = 175\text{MHz}$          | —    | 0.95<br>+j3.0 | —    | $\Omega$ |
| Series Equivalent Output Impedance  | $Z_{out}$     | $P_o = 28\text{W}$                                     | —    | 2.0<br>+j1.5  | —    | $\Omega$ |

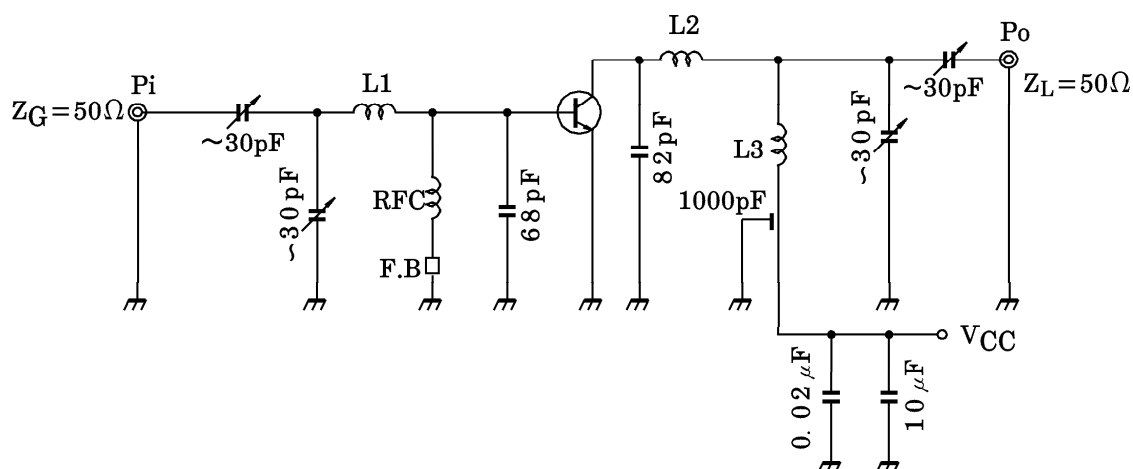
\* Pulse Test : Pulse Width  $\leq 100\mu\text{s}$ , Duty Cycle  $\leq 3\%$ 

## CAUTION

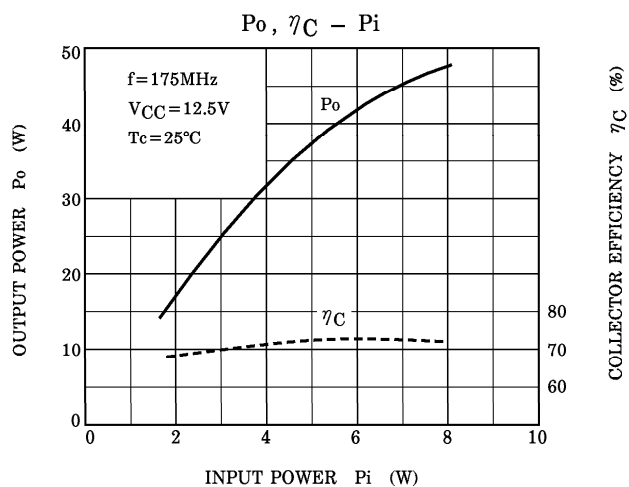
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Fig. P<sub>o</sub> TEST CIRCUIT

L1, L2 :  $\phi 1$  SILVER PLATED COPPER WIRE, 12ID, 1T  
 L3 :  $\phi 1$  SILVER PLATED COPPER WIRE, 12ID, 2T  
 RFC :  $\phi 0.5$  ENAMEL COATED COPPER WIRE, 6ID, 10T  
 F.B : FERRITE BEAD

**CAUTION**

These are only typical curves and devices are not necessarily guaranteed at these curves.