SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

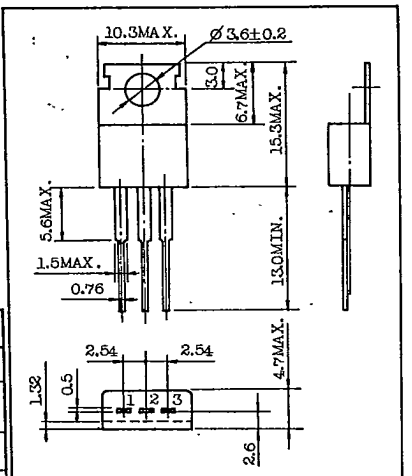
2SC2075

27MHz POWER AMPLIFIER APPLICATIONS.

FEATURES:

- Recommended for Output Stage Application of AM 4W Transmitter.
- High Power Gain.
- Wide Area of Safe Operation.

Unit in mm



1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

JEDEC	TO — 220 AB
EIAJ	SC — 46
TOSHIBA	2 — 10 A 1 A

Mounting Kit No. AC75
Weight : 1.9g

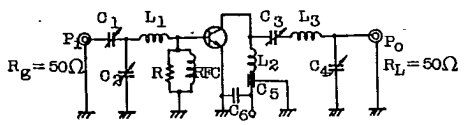
MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage R_{BE}=50Ω	V_{CER}	80	V
Emitter-Base Voltage	V_{EBO}	4.0	V
Collector Current	I_C	4	A
Emitter Current	I_E	-4	A
Collector Power Dissipation (Tc=25°C)	P_C	10	W
Junction Temperature	Tj	150	°C
Storage Temperature Range	Tstg	-55~150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=30V, I_E=0	-	-	10	μA
Breakdown Voltage	Collector-Emitter	$V_{(BR)CER}$	I_C=10mA, R_{BE}=50Ω	80	-	-	V
	Emitter-Base	$V_{(BR)EBO}$	I_E=1.0mA, I_C=0	4.0	-	-	V
DC Current Gain		$h_{FE(1)}$	V_{CE}=5V, I_C=0.5A	25	-	-	
		$h_{FE(2)}$	V_{CE}=2V, I_C=3A	15	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=3A, I_B=0.3A	-	-	1.5	V
Transition Frequency		f_T	V_{CE}=5V, I_C=500mA	-	100	-	MHz
Collector Output Capacitance		C_{ob}	V_{CB}=10V, I_E=0, f=1MHz	-	40	-	pF
Output Power (Fig. 1)		P_O	V_{CC}=12V, Pi=0.3W, f=27MHz	3.5	-	-	W

Fig.1 P_O TEST CIRCUIT



C_1 : ~100pF, C_2, C_3 : ~150pF, C_4 : ~300pF, C_5 : 1000pF
C_6 : 0.01μF R : 250Ω
L_1 : 0.8mmØ UEW, 7T, 8mm I.D L_2 : 0.8mmØ UEW, 5T, 8mm I.D
L_3 : 0.8mmØ UEW, 10T, 8mm I.D RFC : 0.35mmØ UEW, 17T, 5mm I.D

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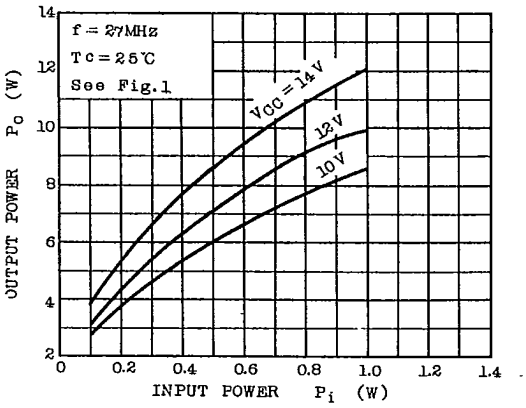
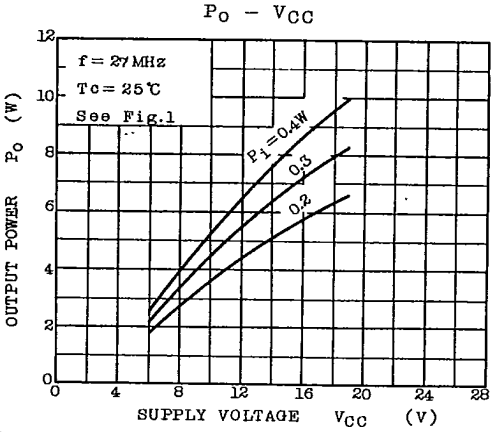
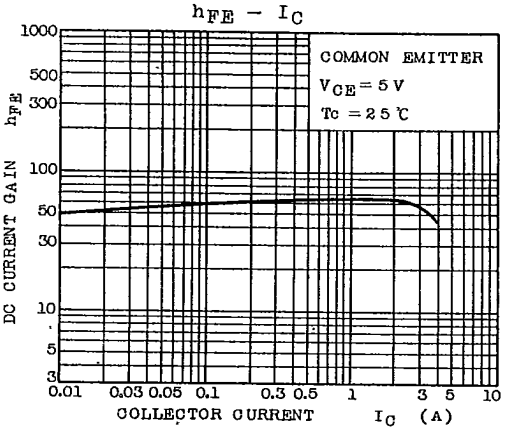
$P_O - P_i$



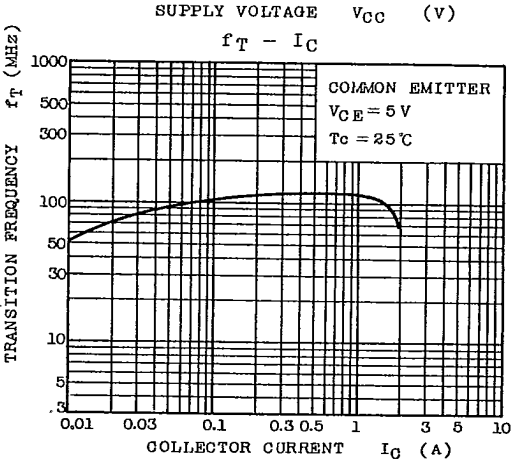
$P_O - V_{CC}$



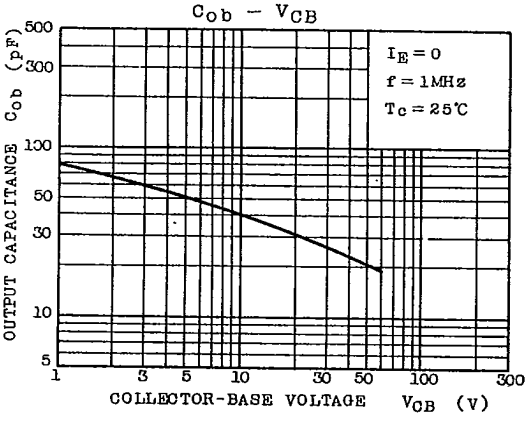
$h_{FE} - I_C$



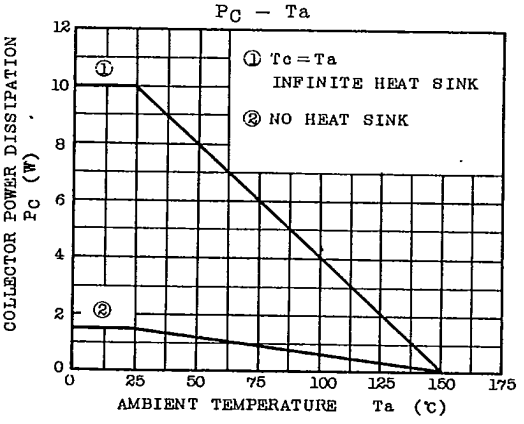
$f_T - I_C$



$C_{ob} - V_{CB}$



$P_C - Ta$



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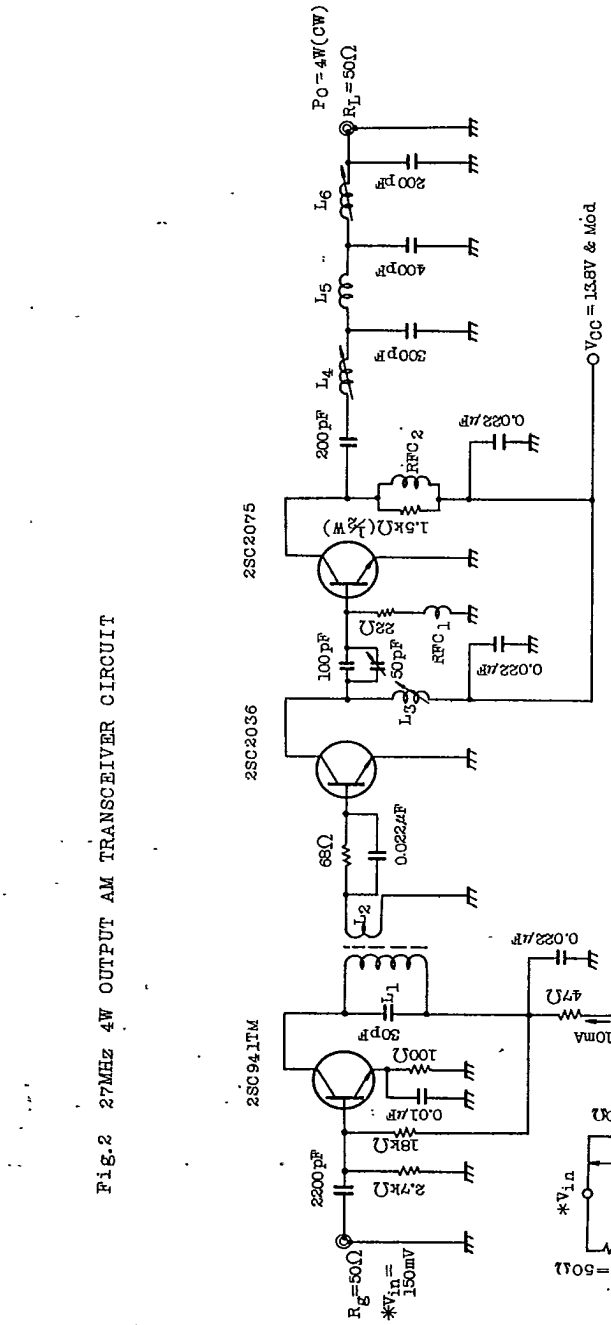

Fig.2 27MHz 4W OUTPUT AM TRANSCEIVER CIRCUIT

L_1 : 4mmØ BOBBIN WITH FERRITE CORE , 0.06mmØ UEW, 8 TURNS

L_2 : 4mmØ BOBBIN WITH FERRITE CORE , 0.06mmØ UEW, 2 TURNS

L_3,L_6 : 6.5mmØ BOBBIN WITH FERRITE CORE , 0.6mmØ Sn PLATED COPPER WIRE 6½ TURNS

L_4 : 6.5mmØ BOBBIN WITH FERRITE CORE , 0.6mmØ Sn PLATED COPPER WIRE 8½ TURNS

L_5 : 0.6mmØ Sn PLATED COPPER WIRE , 6.5mm I.D, 8½ TURNS

RFC_1 : 47μH, 7BA-480k (TOKO)

RFC_2 : 0.2mmØ UEW, 30 TURNS

RESISTER : ¼W CARBON

CAPACITER : CERAMIC

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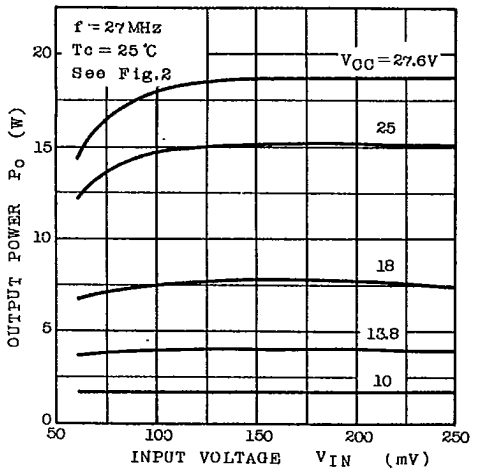
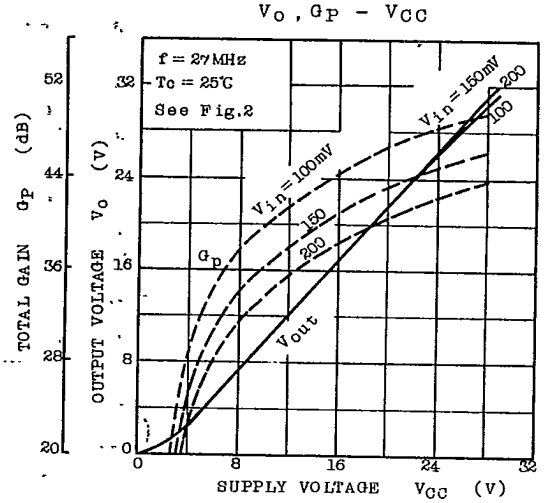
APPLICATION CIRCUIT CHARACTERISTIC

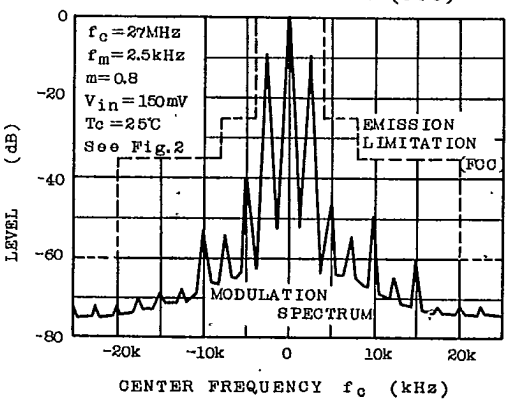
P_O - V_{IN}



V_O, G_P - V_{CC}



80% MODULATION SPECTRUM
EMISSION LIMITATION (FCC)



85% MODULATION SPECTRUM
EMISSION LIMITATION (FCC)