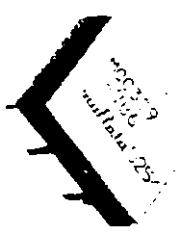
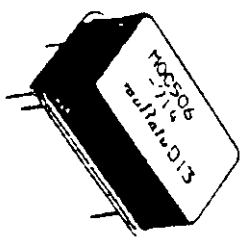


✓



FEATURES

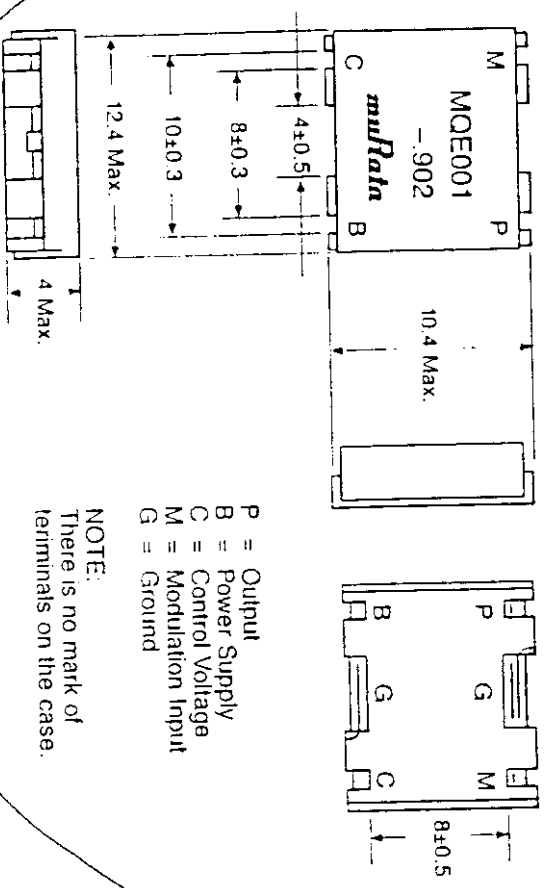
- Small and lightweight
- Low power consumption
- Excellent temperature stability

APPLICATIONS

- Mobile and Hand Held Telephone
- Cordless Telephone (European)
- Personal Radio
- MCA Radio

DIMENSIONS: mm

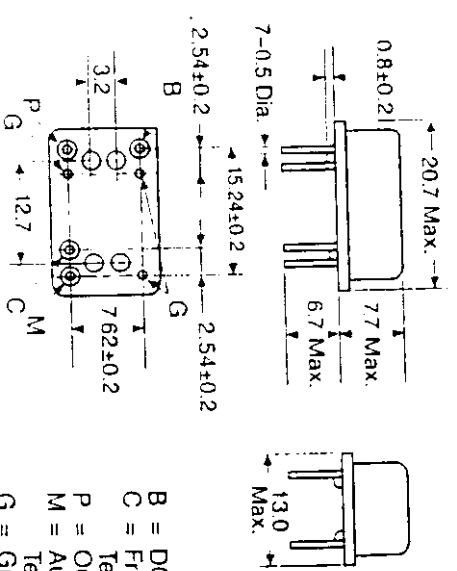
MQE 000 Series



P = Output
B = Power Supply
C = Control Voltage
M = Modulation Input
G = Ground

NOTE:
There is no mark of terminals on the case.

MQC 500 Series



B = DC Power Supply
C = Frequency Control
P = Output Terminal
M = Audio Modulation
G = Ground
Case = Ground

MQC 200 Series

8±0.3

SPECIFICATION	Rev./Date	'95 - '95							
	Prepared	Y. Kudo							
	checked	T. Kudo							
	approved	Y. Kudo							

MITSUBISHI ELECTRIC CORPORATION

THICK FILM HYBRID INTEGRATED CIRCUIT

1. TYPE NUMBER M68701

2. APPLICATION Amplification for 820-851MHz band mobil radio application

3. STRUCTURE Thick film hybrid integrated circuit

4. FUNCTION 5W output power amplification for f = 820-851MHz

at the standard operating conditions :

Vdd=12.5V, P_{in}=1mW,

Power controlling by V_{gs}

5. OUTLINE G477089

6. WARRANTY MITSUBISHI obligation shall be and limited to

replacing the products which may be proved to be

defective by MITSUBISHI according to

this specification.

7. WARRANTY PERIOD limited one year after the arrival of the products

at the port of the destination.

8. MARKING

The following items are marked

MITSUBISHI LOGO MARK

TYPE NUMBER M68701

LOT CODE

COUNTRY CODE JAPAN

SPECIFICATION		TYPE:	THICK FILM INTEGRATED CIRCUIT	SPEC. No.	GNOK-M68701-E01	PAGE	1/5
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MITSUBISHI ELECTRIC CORPORATION

SPECIFICATION

MAXIMUM RATINGS (Tc= 25 °C Zg=21=50Ω UNLESS OTHERWISE SPECIFIED)

RATING	SYMBOL	Tc(°C)	CONDITIONS	VALUE	UNIT
Drain DC Supply	Vdd	25		17	V
Gate DC Supply	Vgg	25		5.5	V
DC Current	Idd	25		2.5	A
Input Power	Pin	25	f=820-851MHz, Vgg≤5V	10	mW
Output Power	Po	25	f=820-851MHz, Vgg≤5V	10	W
Operation case temperature	Tc(op)	—		-30 — +100	°C
Storage temperature	Tstg	—		-40 — +110	°C

NOTE : EACH MAXIMUM RATINGS IS GUARANTEED INDEPENDENTLY.

MITSUBISHI ELECTRIC CORPORATION

SPECIFICATION

ELECTRICAL CHARACTERISTICS ($T_c = 25^{\circ}C$, $Z_g = 21 = 50\Omega$ UNLESS OTHERWISE SPECIFIED)

CHARACTERISTIC	SYMBOL	Tc(°C)	CONDITIONS	LIMIT			UNIT	RMKS
				MIN.	MAX.			
Frequency Range	f	25		820	851		MHz	
Output Power	P _{o1}	25	V _{DD} =12.5V, V _{APC} =5V, P _{in} =1mW	6			W	
Total Efficiency	η_t	25	V _{DD} =12.5V, P _o =6W, P _{in} =1mW V _{APC} =Adj.	35			%	
2nd Harmonic	2fo	25			-30		dB	
3rd Harmonic	3fo	25			-35		dB	
Input VSWR	P _{in}	25			3		-	
Load VSWR		25	f=820-851MHz V _{DD} =15.2V, P _{in} =1mW, P _o =6W (V _{sg} :adjust), LOAD VSWR=20:1(A11Phase)	No degradation or destroy				
Stability		25	f=820-851MHz, P _o ≤9W, Z _g =50 Ω , LOAD VSWR≤4:1(A11 Phase)	No Oscillation More than -60dBc				note 1

f (MHz)	820, 851				
V _{DD} (V)	10		12.5		16
P _{in} (mW)	1	2	4	1	2
	4	1	2	4	1
	1	2	4	1	2
	4	1	2	4	1

note 1 : This item is tested by sampling test (10pcs / lot)

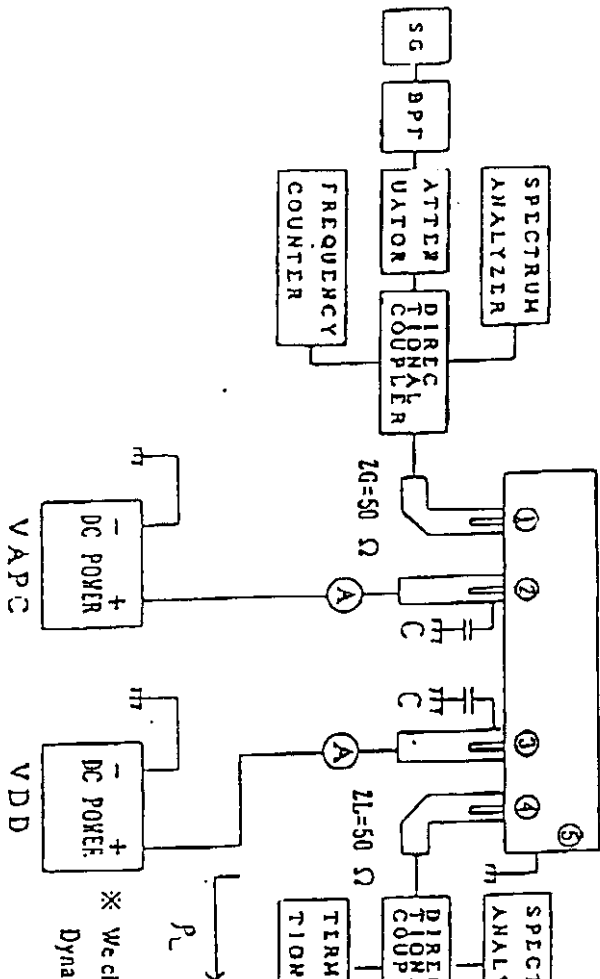
SPECIFICATION	TYPE:	THICK FILM INTEGRATED CIRCUIT	SPEC. No.	GNOK-M68701-E01	PAGE	3/5
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SPECIFICATION

※ We checked the ρ_r at Network Analyzer.
Dynamic range of Spectrum Analyzer set 60dB
, when output power is 9W.

C:103pF, 1000pF, 0.02 μ F, 2.2 μ F, 10 μ F

- electrolytic capacitor



- ① INPUT
- ② DC POKER SUPPLY (VAPC)
- ③ IC POKER SUPPLY (VDD)
- ④ CUPPUT
- ⑤ GROUND (T1K)

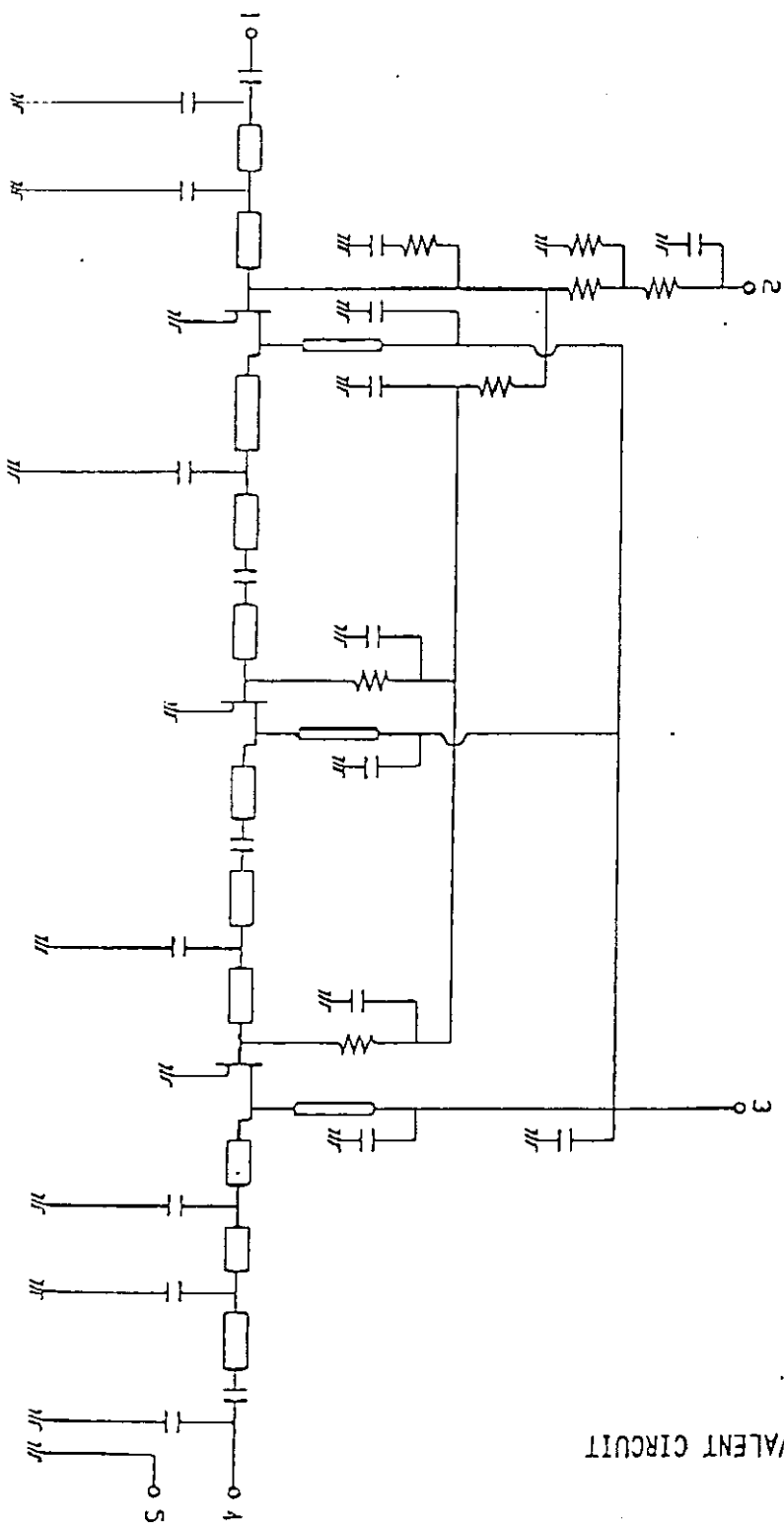


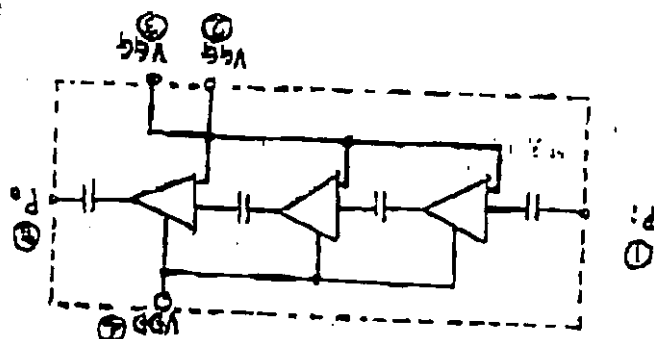
Fig. 2 EQUIVALENT CIRCUIT

MITSUBISHI ELECTRIC CORPORATION

FAX to : MELA
 attn : Mr G Kaufman
 date : Aug 1 1996
 No. : G2K-R-980801-1
 from : Mitsubishi Electric Kite-itani Works
 dept. High freq. / Opt. semicon.

Re: M68701

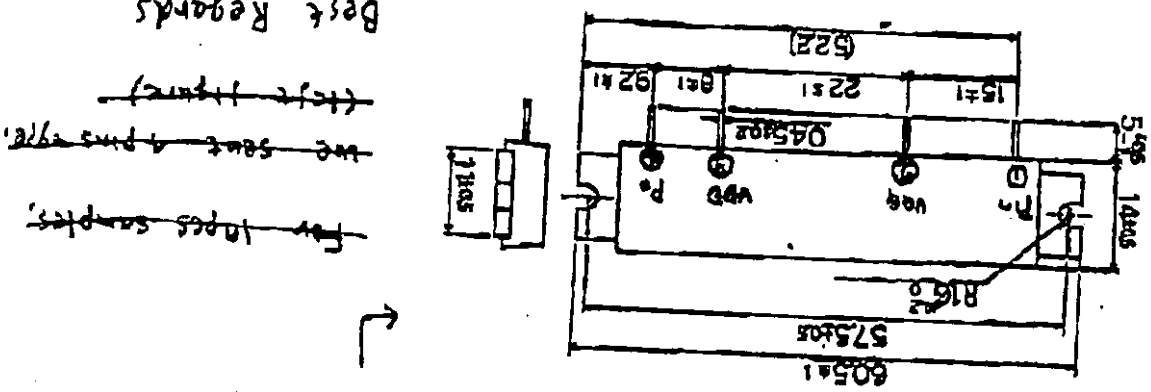
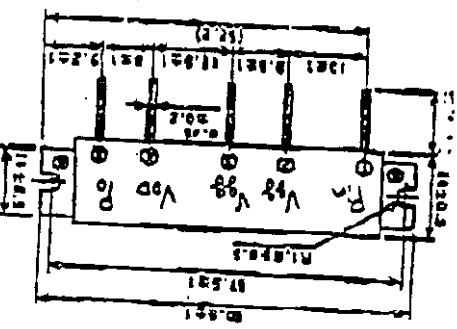
• We show the block diagram of M68701.



←
 Samples
 sent
 with
 pins

VDD and VSS connected

the same VDD line in module.
 (Customer can select the VDD or VSS for gate bias.)
 • And then, we standardize VDD only.

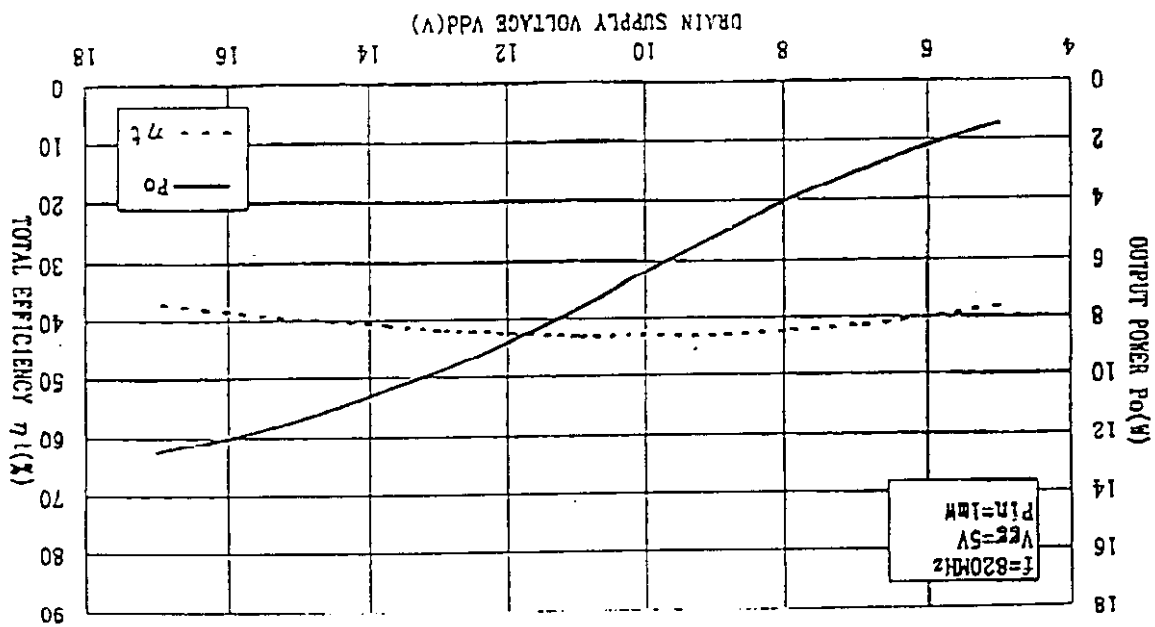


←
 induction

for 1000 samples,
 we sent 4 pins only.
 (test figure)
 Best Regards
 T. Kobayashi

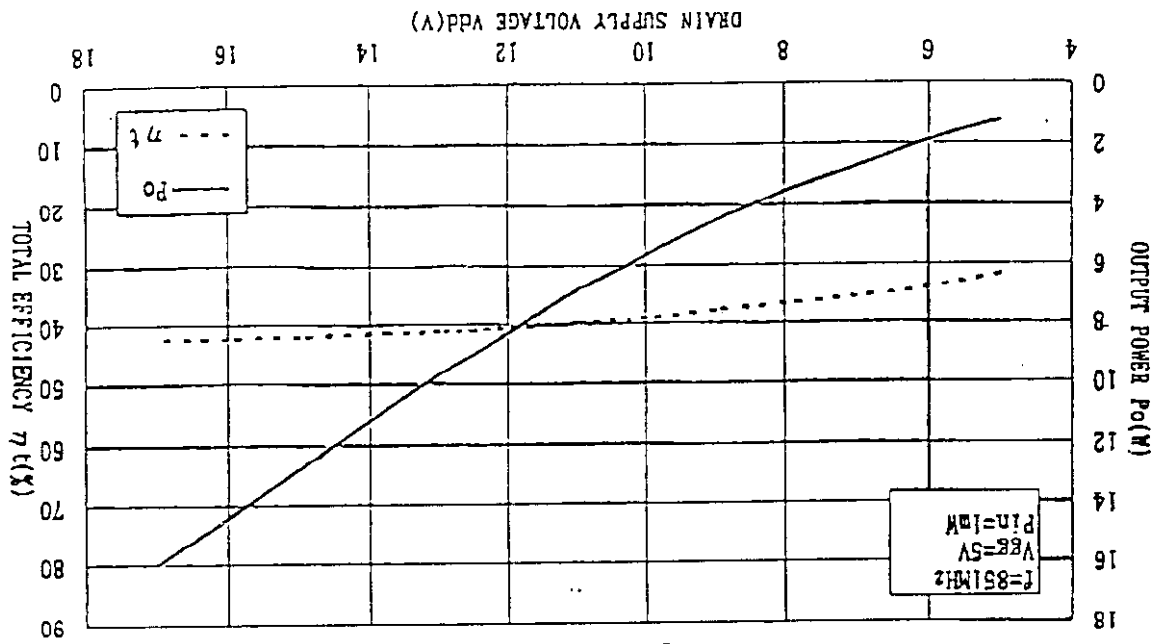
M68701 Po-Vdd Characteristics (Typical)

$f=820\text{MHz}$

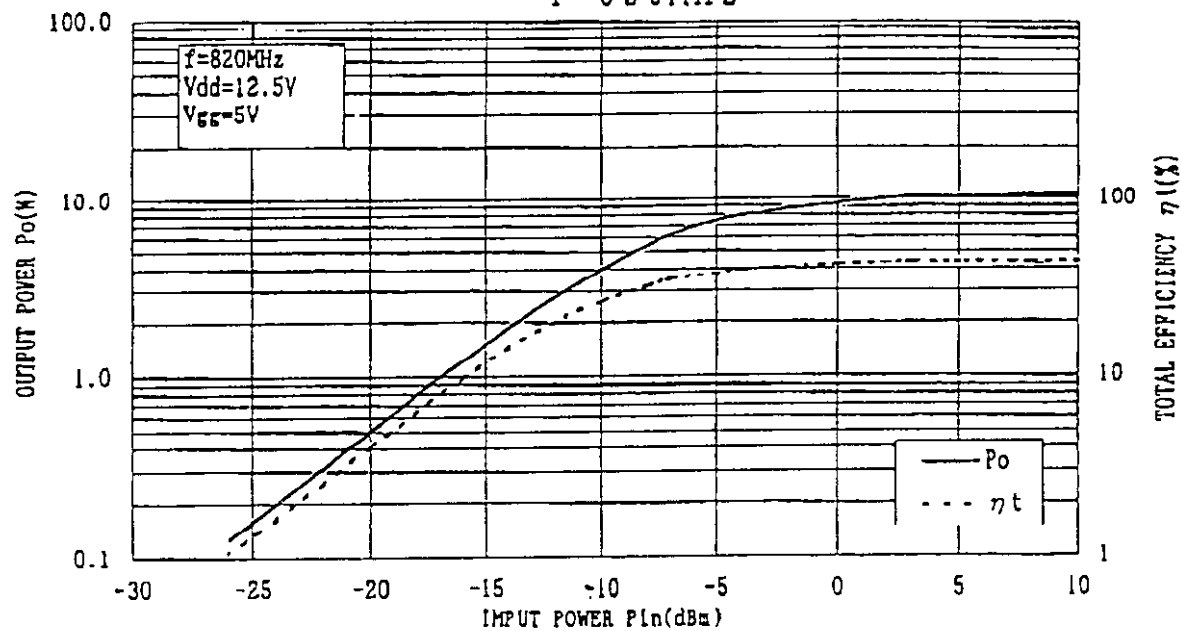


M68701 Po-Vdd Characteristics (Typical)

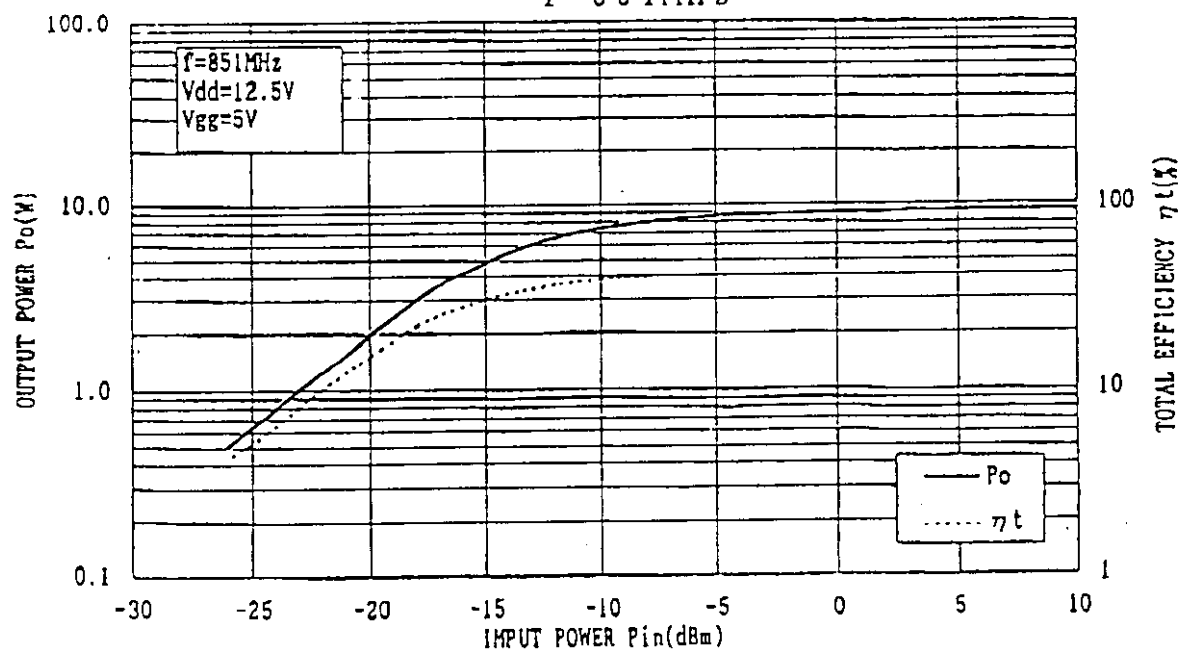
$f=851\text{MHz}$



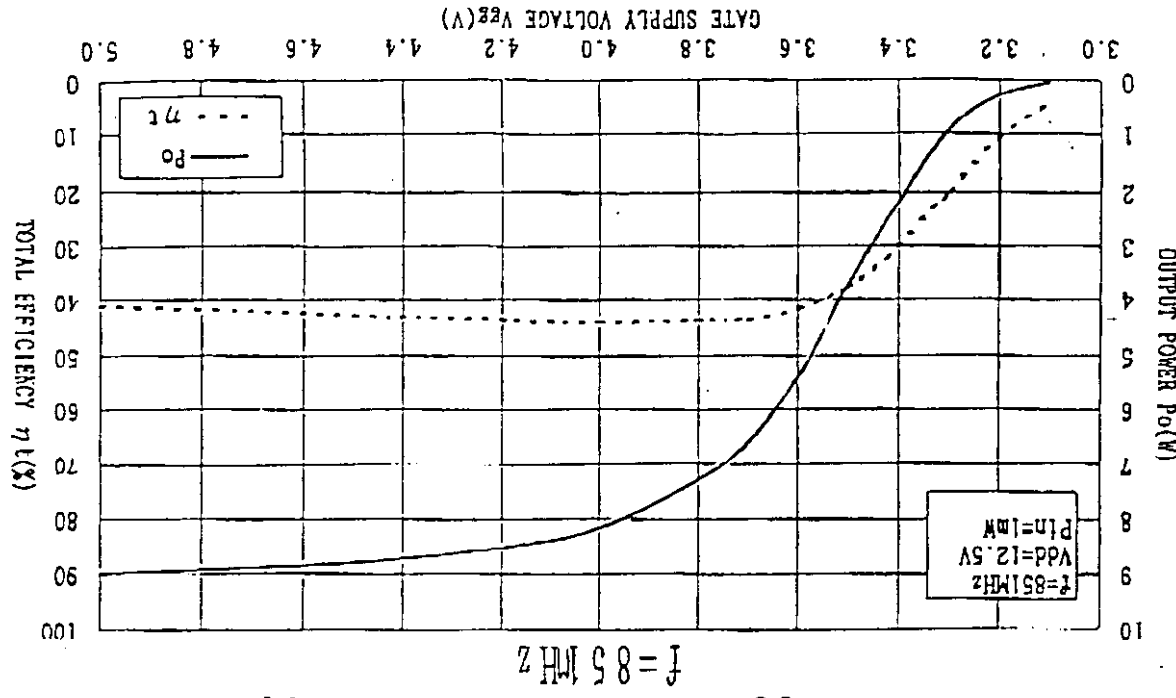
M68701 Pin-Pout Characteristics (Typical) $f=820\text{MHz}$



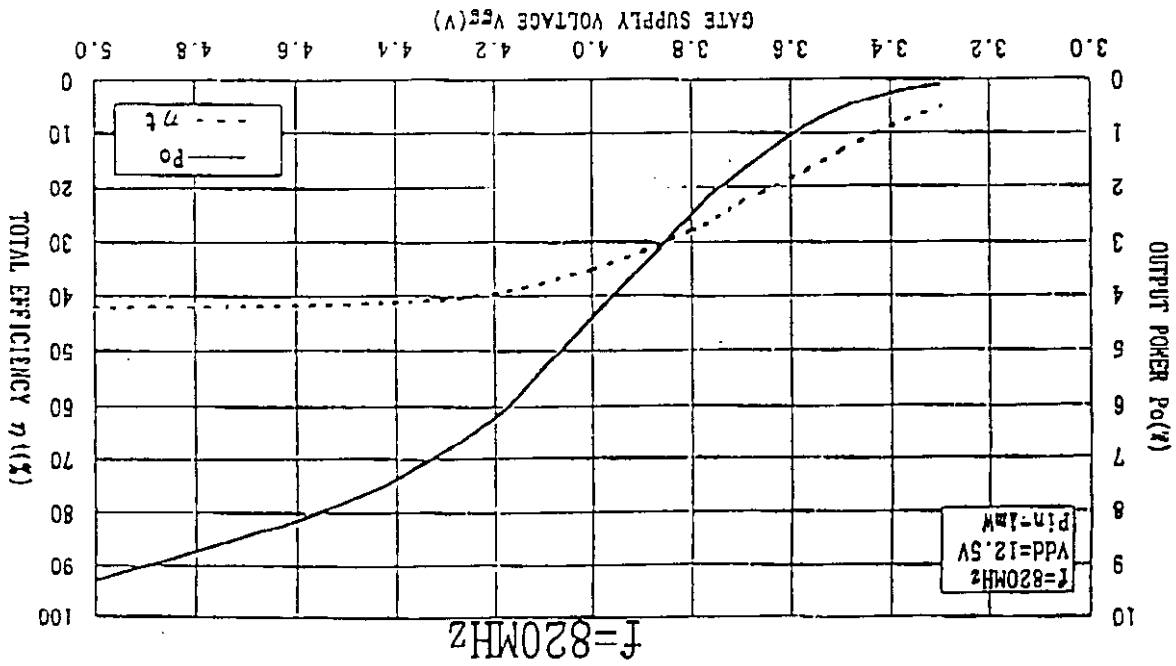
M68701 Pin-Pout Characteristics (Typical) $f=851\text{MHz}$



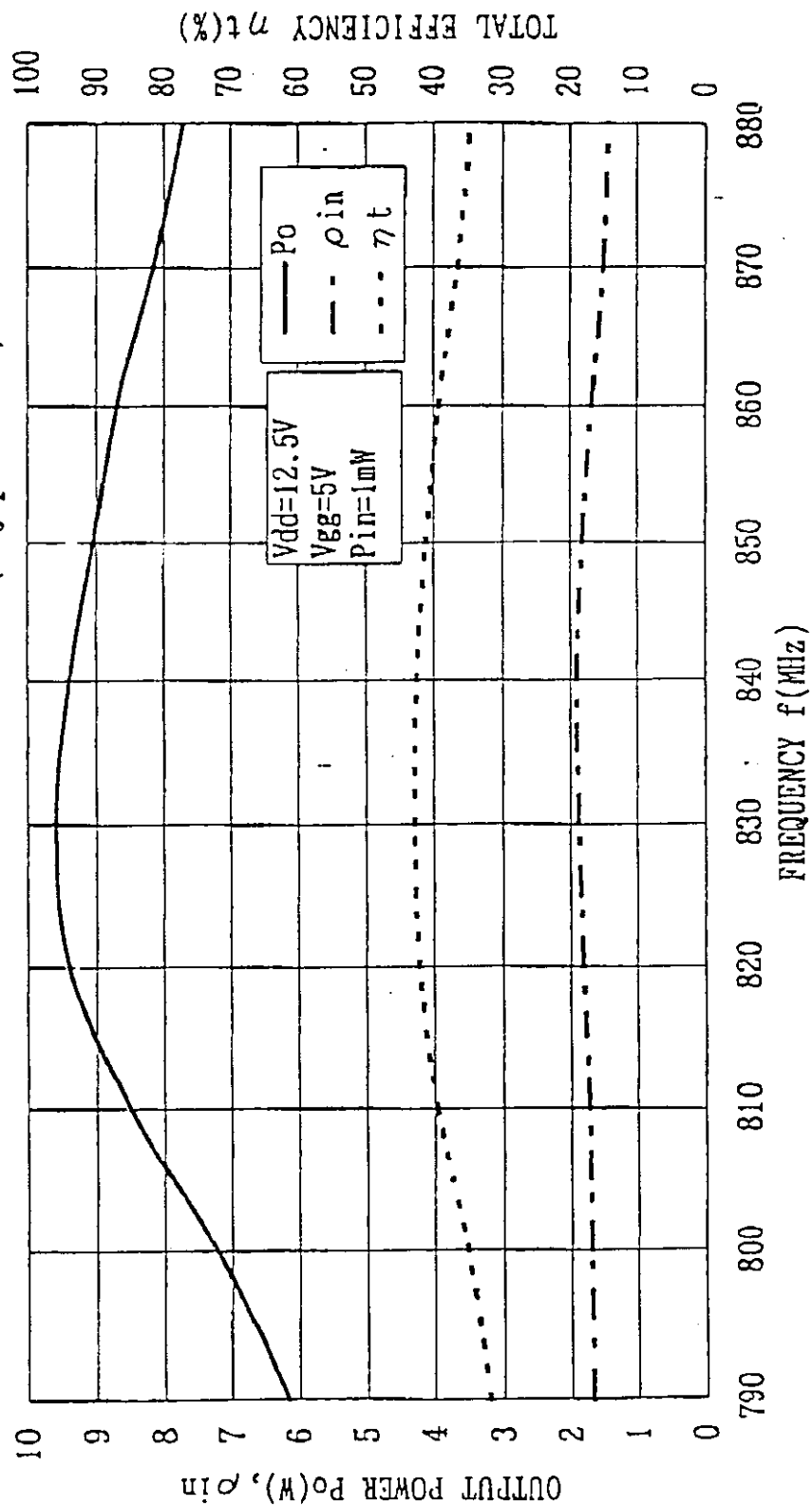
M68701 Po-V_{GS} Characteristics (Typical)



M68701 Po-V_{GS} Characteristics (Typical)



M68701 Po-Frequency Characteristics(Typical)



AMPS Duplexer Surface Mount Ceramic Filter

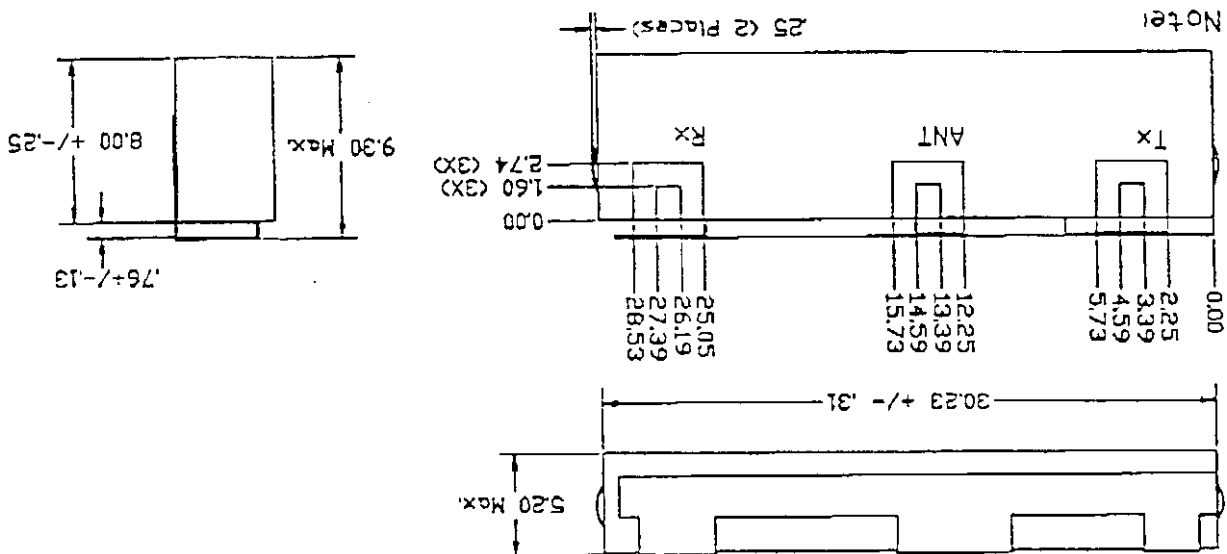
KFF6567A

1.0 Electrical Specifications

Parameter	Specification @ 25 deg C	Typical Variation -30 to +85 deg C
Tx		
Pass Band	824 - 849 MHz	
Pass Band Insertion Loss	2.5 dB max	0.2 dB
Pass Band Return Loss (@ Tx)	10.0 dB min	1.0 dB
Attenuation @ 779 - 804 MHz	10.0 dB min	1.0 dB
	@ 869 - 894 MHz	2.0 dB
RX		
Pass Band	869 - 894 MHz	
Pass Band Insertion Loss	3.3 dB max	0.25 dB
Pass Band Return Loss (@ Rx)	8.0 min	1.0 dB
Attenuation @ 824 - 849 MHz	52.0 dB min	2.0 dB
	@ 914 - 939 MHz	1.0 dB
	@ 959 - 984 MHz	1.0 dB
Max. Transmit Power	3 W	

2.0 Mechanical Specifications

2.1 Mechanical Outline



2.2 Filter Weight

6.2 Grams (Typical)

2.3 SMD Information

2.3.1 Coplanarity

0.1 mm Max.

SMDUPLEXER

MOTOROLA

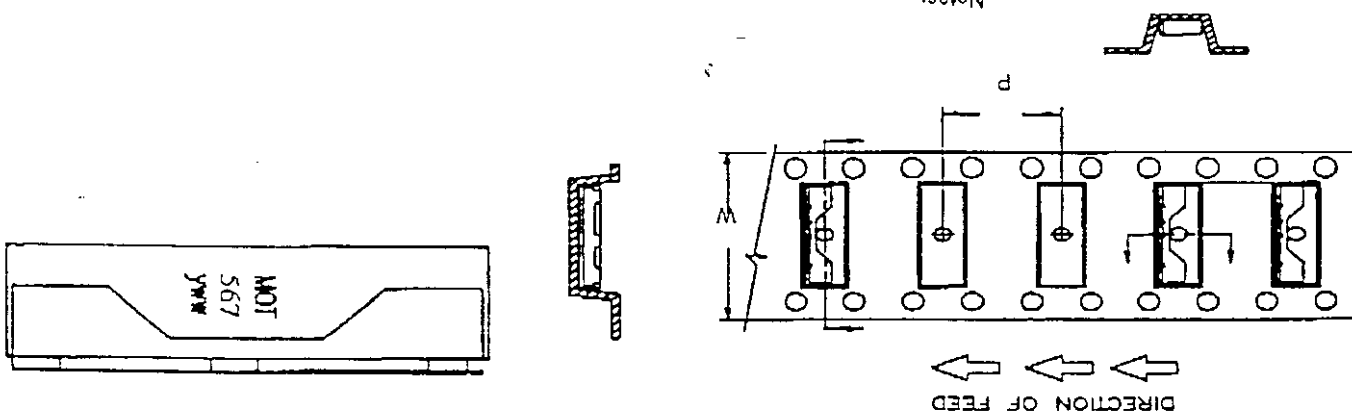


AMPS Duplexer Surface Mount Ceramic Filter

KFF6567A

Part Marking

2.3.2 Tape and Reel Specifications

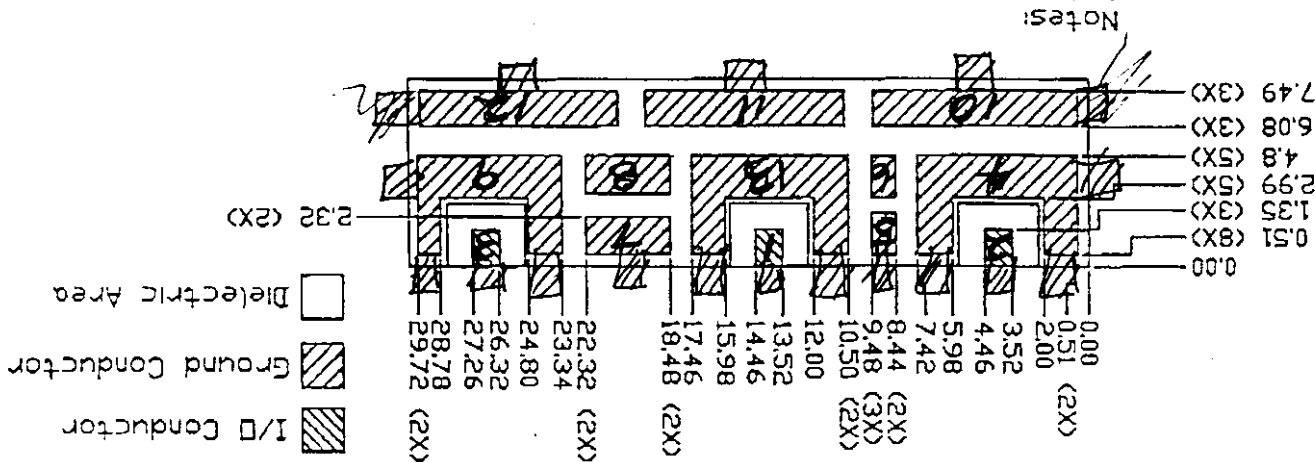


Notes:
1. Dimension "W" is equal to 44 mm (width of tape).
2. Dimension "P" is equal to 20 mm (pitch of tape).

2.3.3 Parts per Reel

160 per reel

2.3.4 Recommended Board Layout



Notes:

1. All dimensions in mm
2. Tolerances are +/- .13
3. Ground plane under Tx, Rx and Antenna pads and the dielectric area that surrounds them should be at least .63 mm below top surface. There should also be no active traces under these areas.
4. Via ground holes (not shown in drawing) should be .254 mm in diameter with a pitch of 1.27 mm. There should be a minimum of 2 via holes per ground pad.

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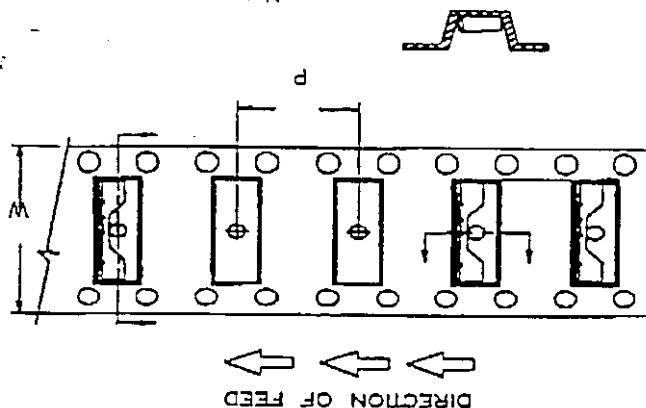
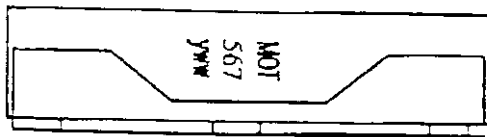
MOTOROLA



AMPS Duplexer Surface Mount Ceramic Filter

KFF6567A

Part Marking



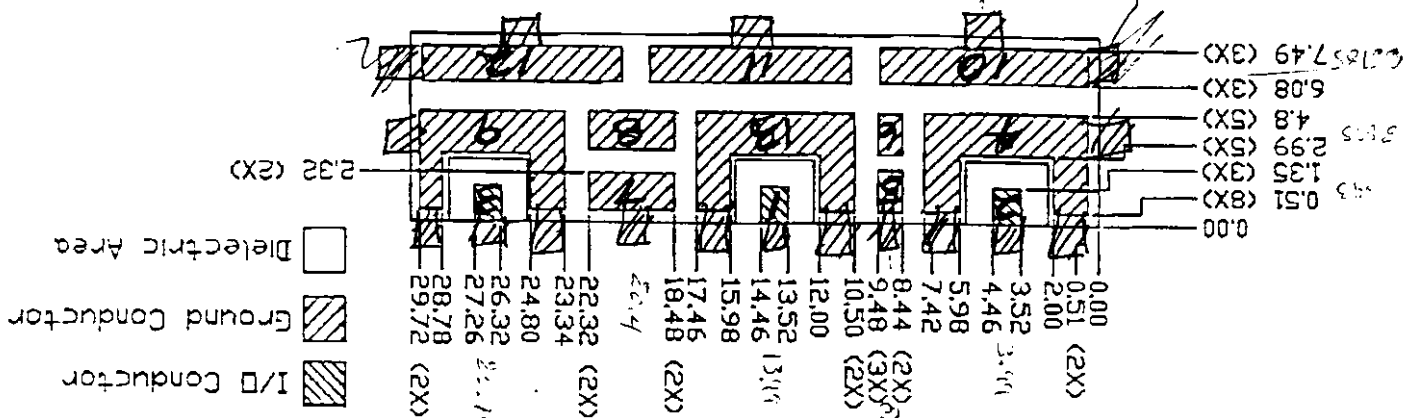
Notes:

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2.3.3 Parts per Reel

160 per reel

2.3.4 Recommended Board Layout



Notes:

1. All dimensions in mm
2. Tolerances are ± 0.13
3. Ground plane under Tx, Rx and Antenna pads and the dielectric area that surrounds them should be at least 0.63 mm below top surface. There should also be no active traces under these areas.
4. Via ground holes (not shown in drawing) should be a minimum diameter with a pitch of 1.27 mm. There should be a minimum of 2 via holes per ground pad.

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