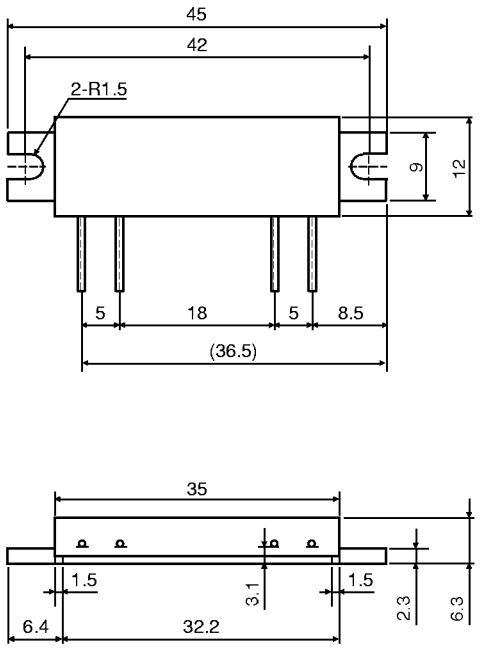
# M68745H

## SILICON MOS FET POWER AMPLIFIER, 896-941MHz, 3.8W, FM PORTABLE RADIO

### OUTLINE DRAWING

Dimensions in mm

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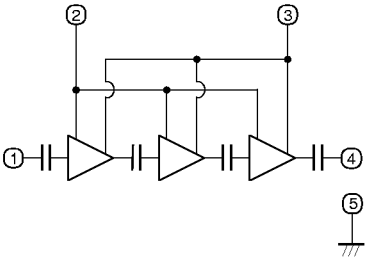
### BLOCK DIAGRAM




PIN:
①$P_{in}$ : RF INPUT
②$V_{GG}$ : GATE BIAS SUPPLY
③$V_{DD}$ : DRAIN BIAS SUPPLY
④$P_O$ : RF OUTPUT
⑤GND: FIN

### ABSOLUTE MAXIMUM RATINGS (Tc=25°C unless otherwise noted)

| Symbol | Parameter | Conditions | Ratings | Unit |
|---|---|---|---|---|
| $V_{DD}$ | Supply voltage | $Z_G$=$Z_L$=50Ω | 9 | V |
| $V_{GG}$ | Gate bias voltage | | 5.5 | V |
| $P_{in}$ | Input power | f=896-941MHz, $Z_G$=$Z_L$=50Ω | 6 | mW |
| $P_O$ | Output power | f=896-941MHz, $Z_G$=$Z_L$=50Ω | 6 | W |
| $T_{C\ (OP)}$ | Operation case temperature | f=896-941MHz, $Z_G$=$Z_L$=50Ω | -30 to +100 | °C |
| $T_{stg}$ | Storage temperature | | -40 to +100 | °C |

Note. Above parameters are guaranteed independently.

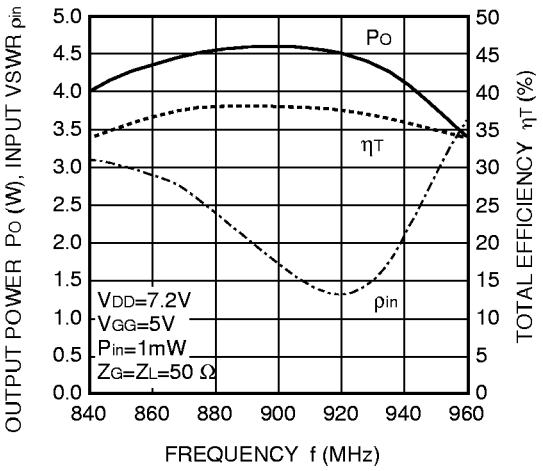
### ELECTRICAL CHARACTERISTICS (Tc=25°C, $Z_G$=$Z_L$=50Ω unless otherwise noted)

| Symbol | Parameter | Test conditions | Limits | | Unit |
|---|---|---|---|---|---|
| | | | Min | Max | |
| f | Frequency range | | 896 | 941 | MHz |
| $P_O$ | Output power | $V_{DD}$=7.2V, $V_{GG}$=5V, $P_{in}$=1mW, $Z_G$=$Z_L$=50Ω | 3.8 | | W |
| 2$f_O$ | 2nd. harmonic | | | -30 | dBc |
| $\rho_{in}$ | Input VSWR | | | 4 | — |
| $\eta_T$ | Total efficiency | $P_O$=3.8W($V_{GG}$=Adjust), $V_{DD}$=7.2V, $P_{in}$=1mW, $Z_G$=$Z_L$=50Ω | 30 | | % |
| — | Stability | $Z_G$=$Z_L$=50Ω, $V_{DD}$=5-9.3V, Load VSWR <4:1 | No parasitic oscillation | | — |
| — | Load VSWR tolerance | $V_{DD}$=9V, $P_{in}$=1mW, $P_O$=3.8W ($V_{GG}$ Adjust), $Z_L$=20:1 | No degradation or destroy | | — |

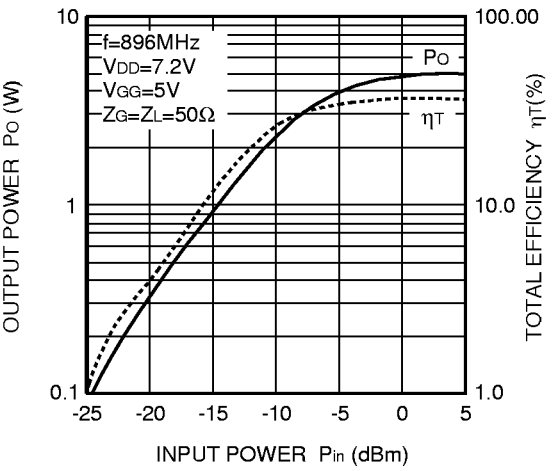
Note. Above parameters, ratings, limits and test conditions are subject to change.

## TYPICAL PERFORMANCE DATA

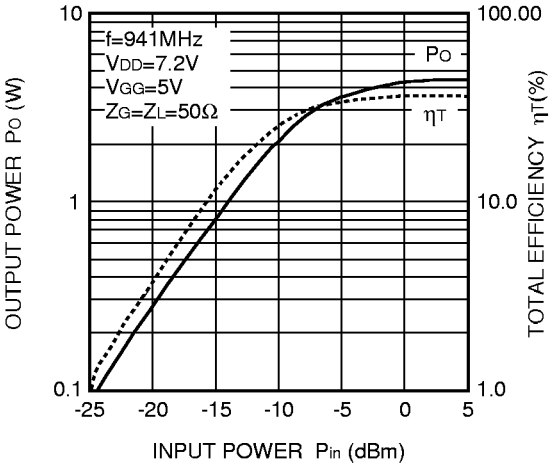
OUTPUT POWER, INPUT VSWR, TOTAL EFFICIENCY VS. FREQUENCY



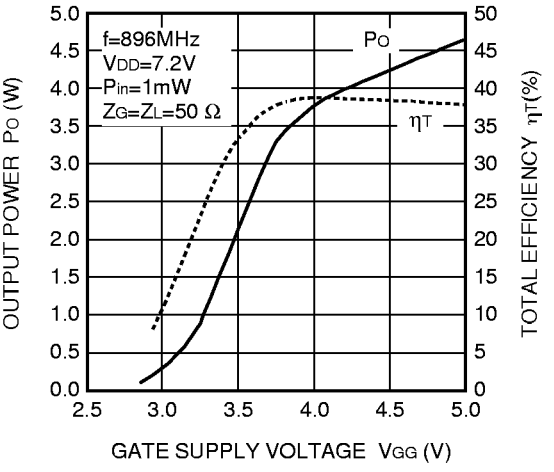

OUTPUT POWER, TOTAL EFFICIENCY VS. INPUT POWER



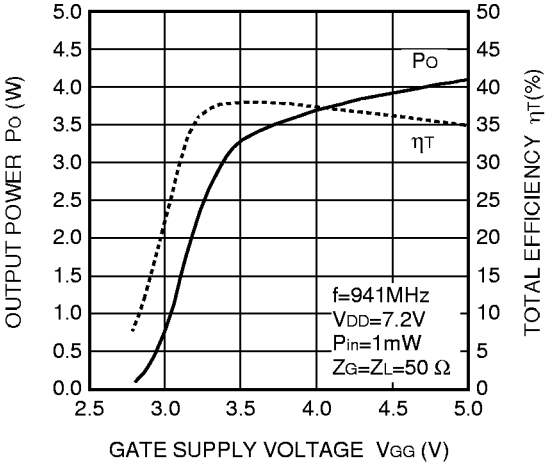

OUTPUT POWER, TOTAL EFFICIENCY VS. INPUT POWER



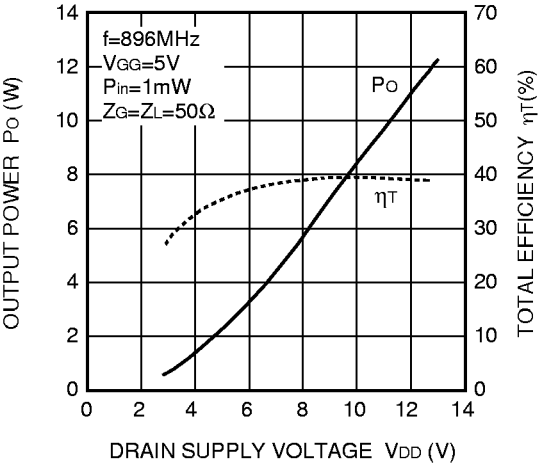

OUTPUT POWER, TOTAL EFFICIENCY VS. GATE SUPPLY VOLTAGE




OUTPUT POWER, TOTAL EFFICIENCY VS. GATE SUPPLY VOLTAGE




OUTPUT POWER, TOTAL EFFICIENCY VS. DRAIN SUPPLY VOLTAGE



**OUTPUT POWER, TOTAL EFFICIENCY VS. DRAIN SUPPLY VOLTAGE**