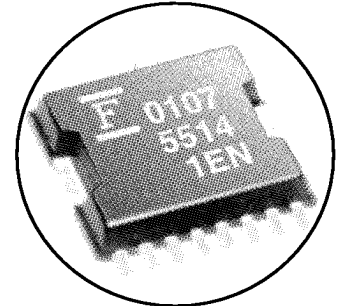


## DESCRIPTION

The FMM5514ZE contains a three-stage amplifier that is designed for GSM cellular phone applications in the 890 to 915 MHz frequency range. This product is well suited for applications where high power, high efficiency, low noise power, and single power supply are required.

## FEATURES

- High Power Output: 35dBm
- **Single Supply** Voltage Operation (Enhancement Mode)
- No Negative Voltage Generator
- Low Leakage Current Eliminates Drain Switch
- Single Control Voltage with >70dB Power Control
- High Efficiency: 45%
- Low Rth
- Small Size: SSOP-16 **Plastic** package for SMT applications



ZE PACKAGE

## ELECTRICAL CHARACTERISTICS (GSM pulsed, Pin=+3dBm, Tc=25°C, VDD1, 2, 3=+4.8V, VGG2, 3=+4.8V)

| Item                                     | Symbol | Conditions                                                                                   | Limits                                                                  |      |      | Unit |
|------------------------------------------|--------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------|------|------|
|                                          |        |                                                                                              | Min.                                                                    | Typ. | Max. |      |
| Frequency                                | f      |                                                                                              | 890                                                                     | -    | 915  | MHz  |
| Drain Cutoff Current                     | IDDt   | Vapc=0V, Pin=Off                                                                             | -                                                                       | -    | 100  | μA   |
| Control Voltage Range                    | Vapc   |                                                                                              | 0.2                                                                     | -    | 3.5  | V    |
| Output Power-1 (Note 1, 2, 3)            | Pout1  | Vapc=3.5V                                                                                    | 35.0                                                                    | -    | -    | dBm  |
| Output Power-2 (Note 1, 2, 3)            | Pout2  | VDD1, 2, 3=4.3V<br>Vapc=3.5V, Tc=85°C                                                        | 33.0                                                                    | -    | -    | dBm  |
| Total Efficiency (Note 1, 2, 3)          | Nt     | Pout=35.0dBm<br>at Vapc controlled                                                           | 40                                                                      | 45   | -    | %    |
| Harmonics up to 12GHz<br>(Notes 1, 2, 3) | nHD    |                                                                                              | -                                                                       | -    | -30  | dBc  |
| Input Return Loss (Note 1, 2, 3)         | S11    |                                                                                              | -                                                                       | -10  | -6   | dB   |
| Isolation (Note 1, 2, 3)                 | Piso   | Vapc=0.2V                                                                                    | -                                                                       | -    | -35  | dBm  |
| Stability (Note 1, 2, 3)                 |        | Pout ≤ 35.0dBm<br>at Vapc controlled with<br>VDD1, 2, 3=6.0V<br>Load VSWR ≤ 6:1<br>All phase | Spurious below 60dBc with<br>respect to the fundamental<br>signal level |      |      |      |
| Load Mismatch (Note 1, 2, 3)             |        | Vapc=3.5V<br>VDD1, 2, 3=6.0V<br>Load VSWR ≤ 20:1<br>All phase 10 sec.                        | No damage to MMIC                                                       |      |      |      |
| Noise Power (Note 1, 2, 3)               | Pnp    | 20MHz above f<br>Pout=35.0dBm<br>at Vapc controlled<br>B.W. = 100KHz                         | -                                                                       | -    | -79  | dBm  |
| Thermal Resistance                       | Rth    |                                                                                              | -                                                                       | -    | 6    | °C/W |

### CASE STYLE: ZE

Note 1: Measured with a Fujitsu test fixture containing external matching circuits optimized for operation with  $Z_S = Z_L = 50\Omega$ .

Note 2: Measured at the RF<sub>in</sub> and RF<sub>out</sub> connectors of the Fujitsu test fixture.

Note 3: Pulsed operation: ton=600μsec, toff=4200μsec.

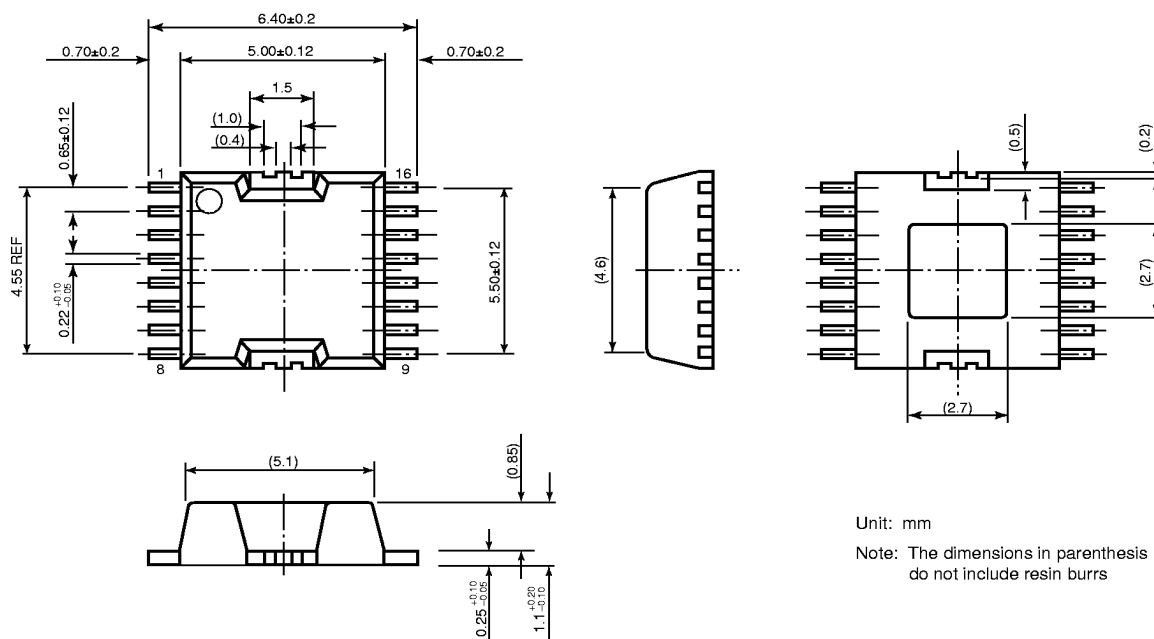
# FMM5514ZE

900MHz Band GaAs Power Amplifier MMIC

**ABSOLUTE MAXIMUM RATINGS** (Ambient Temperature  $T_a=25^{\circ}\text{C}$ )

| Parameter               | Symbol    | Condition | Rating      | Unit               |
|-------------------------|-----------|-----------|-------------|--------------------|
| Drain Voltage           | $V_{DD}$  |           | +10         | V                  |
| Gate Voltage            | $V_{GG}$  |           | +10         | V                  |
| Power Control Voltage   | $V_{apc}$ |           | 5           | V                  |
| Storage Temperature     | $T_{stg}$ |           | -55 to +145 | $^{\circ}\text{C}$ |
| Total Power Dissipation | $P_T$     |           | 7.5         | W                  |
| Channel Temperature     | $T_{ch}$  |           | +145        | $^{\circ}\text{C}$ |

Case Style "ZE"



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