

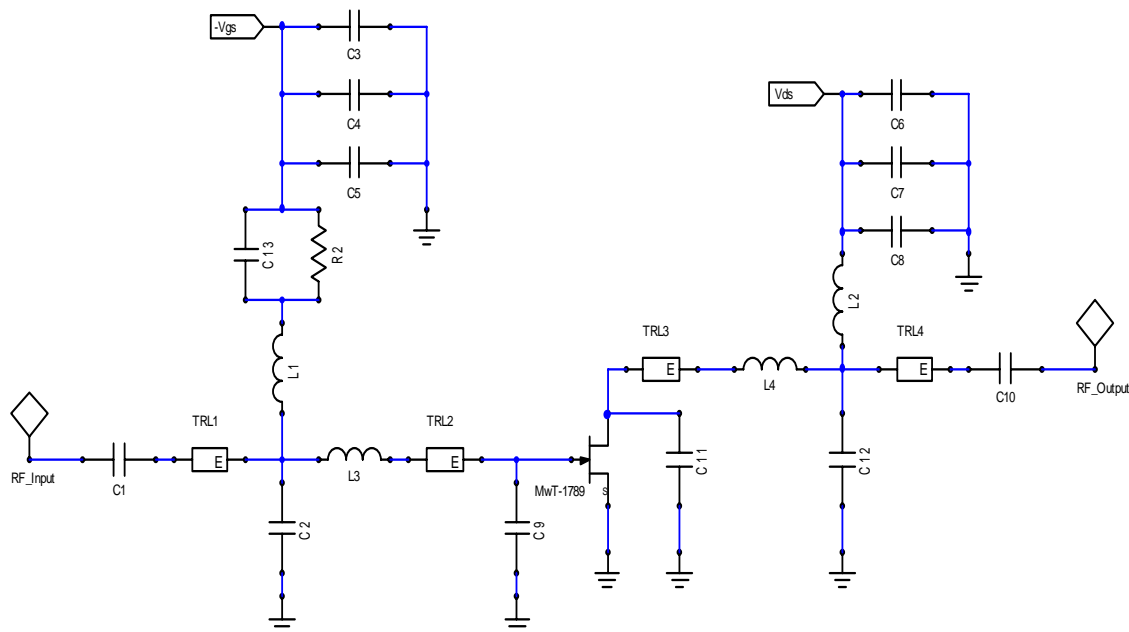
Application Circuits For Low Noise

Typical RF Performance bias at $V_{ds}=5V$, $I_{ds}=200mA$, $T_a=25^\circ C$

| Parameter | Units | Typical Data | | | |
|-----------------|-------|--------------|-----------|-----------|-----------|
| Test Frequency | MHz | 870-960 | 1800-2100 | 2400-2600 | 3400-3600 |
| Gain | dB | 18 | 16 | 13 | 10 |
| Output IP3 | dBm | 43 | 43 | 46 | 46 |
| Noise Figure(*) | dB | 0.8 | 1.3 | 1.5 | 2.2 |

* NF measure at $I_{ds}=100mA$

Circuit Schematic:

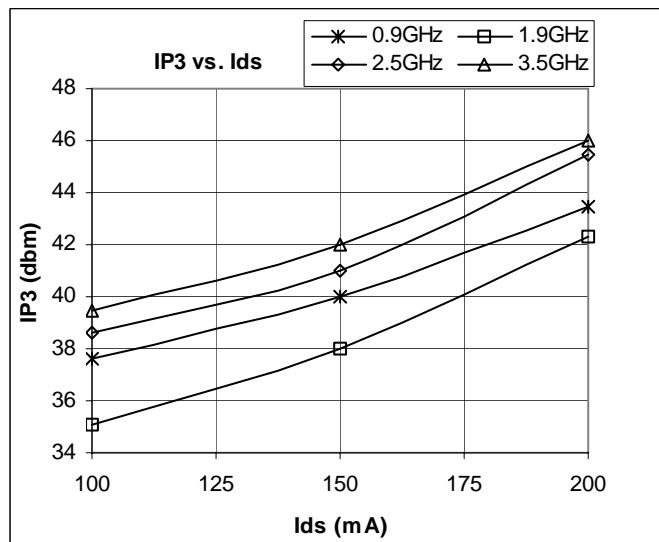
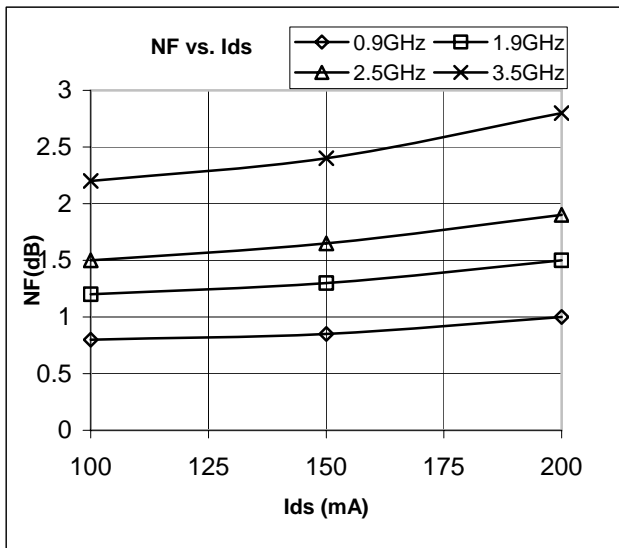


1. This circuit requires a balanced configuration for good return losses.
2. The information and the circuit provided in this note intend to show the capability of MwT-1789 and to help customers use the device in their designs. It is a reference only.

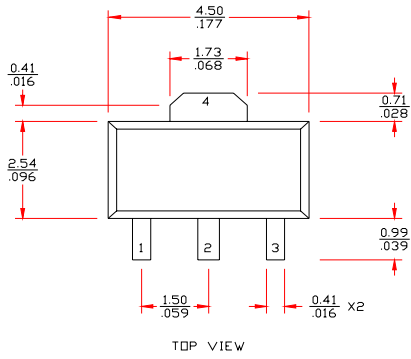
Bill of Material

| Reference Designator | Value | | | | Unit | part | Size |
|----------------------|-------------|-----------|-----------|-----------|------|----------------|-------|
| | 0.87 – 0.96 | 1.8 – 2.1 | 2.4 – 2.6 | 3.4 – 3.6 | | | |
| C5, C8 | 100 | 100 | 100 | 100 | pF | Chip capacitor | 0505 |
| C4, C7 | 1000 | 1000 | 1000 | 1000 | pF | Chip capacitor | 0505 |
| C3, C6 | 0.1 | 0.1 | 0.1 | 0.1 | uF | Chip capacitor | 1111 |
| C1 | 100 | 22 | 4.7 | 2.2 | pF | Chip capacitor | 0505 |
| C2 | 0.8 | 2 | 1.5 | NI | pF | Chip capacitor | 0505 |
| C9 | NI | NI | NI | 1.5 | pF | Chip capacitor | 0505 |
| C10 | 100 | 22 | 4.7 | 3.3 | pF | Chip capacitor | 0505 |
| C11 | NI | NI | NI | 1.0 | pF | Chip Capacitor | 0505 |
| C12 | 1.6 | NI | 1.2 | NI | pF | Chip capacitor | 0505 |
| C13 | NI | 47 | NI | NI | pF | Chip capacitor | 0505 |
| L1 | 100 | 82 | 18 | 10 | nH | Chip Inductor | 0603 |
| L2 | 100 | 82 | 18 | 15 | nH | Chip Inductor | 0603 |
| L3 | 6.8 | 0 | 0 | 0 | nH | Chip Inductor | 0603 |
| L4 | 5.1 | 0 | 0 | 0 | nH | Chip Inductor | 0603 |
| R1 | 51 | 150 | 51 | 150 | Ohm | Chip Resistor | 0603 |
| TRL1 | 15 | 21 | 30 | 35 | Deg. | 50 Ohm TRL | |
| TRL2 | 0 | 16 | 20 | 25 | Deg. | 50 Ohm TRL | |
| TRL3 | 0 | 16 | 20 | 25 | Deg. | 50 Ohm TRL | |
| TRL4 | 15 | 21 | 30 | 35 | Deg. | 50 Ohm TRL | |
| Q | MwT-1789 | MwT-1789 | MwT-1789 | MwT-1789 | | MESFET | SOT89 |

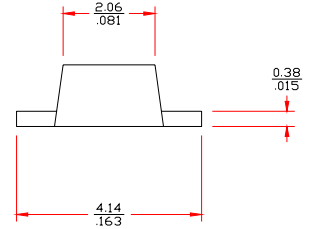
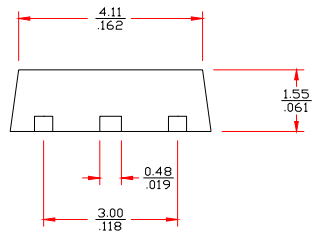
NI: Not Installed



OUTLINE DRAWING



mm
inch



Recommended PCB Layout: (Via holes and backside metal as the heat sink, Unit is mm/inch)