FEATURES
- High Output Power: $P_{1\text{dB}} = 34.0\text{dBm}(\text{Typ.})$
- High Gain: $G_{1\text{dB}} = 8.0\text{dB}(\text{Typ.})$
- High PAE: $\eta_{\text{add}} = 35\%(\text{Typ.})$
- Proven Reliability
- Hermetic Metal/Ceramic Package

DESCRIPTION
The FLC257MH-8 is a power GaAs FET that is designed for general purpose applications in the C-Band frequency range as it provides superior power, gain, and efficiency.

Eudyna's stringent Quality Assurance Program assures the highest reliability and consistent performance.

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Condition</th>
<th>Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain-Source Voltage</td>
<td>$V_{DS}$</td>
<td>$V_{GS} = V_{DS} = 0V$</td>
<td>15</td>
<td>V</td>
</tr>
<tr>
<td>Gate-Source Voltage</td>
<td>$V_{GS}$</td>
<td>-5</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Total Power Dissipation</td>
<td>$P_T$</td>
<td>$T_C = 25^\circ\text{C}$</td>
<td>15</td>
<td>W</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{stg}$</td>
<td>-65 to +175</td>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Channel Temperature</td>
<td>$T_{ch}$</td>
<td>175</td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>

Eudyna recommends the following conditions for the reliable operation of GaAs FETs:
1. The drain-source operating voltage ($V_{DS}$) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 17.8 and -1.2 mA respectively with gate resistance of 200 $\Omega$.
3. The operating channel temperature ($T_{ch}$) should not exceed 145°C.

ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$)

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Test Conditions</th>
<th>Limit</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturated Drain Current</td>
<td>$I_{DSS}$</td>
<td>$V_{DS} = 5V, V_{GS} = 0V$</td>
<td>- 1000 1500</td>
<td>mA</td>
</tr>
<tr>
<td>Transconductance</td>
<td>$g_m$</td>
<td>$V_{DS} = 5V, I_{DS} = 600mA$</td>
<td>- 500</td>
<td>mS</td>
</tr>
<tr>
<td>Pinch-off Voltage</td>
<td>$V_p$</td>
<td>$V_{DS} = 5V, I_{DS} = 50mA$</td>
<td>-1.0 -2.0 -3.5</td>
<td>V</td>
</tr>
<tr>
<td>Gate Source Breakdown Voltage</td>
<td>$V_{GSO}$</td>
<td>$I_{GS} = -50\mu A$</td>
<td>-5</td>
<td>V</td>
</tr>
<tr>
<td>Output Power at 1dB G.C.P.</td>
<td>$P_{1\text{dB}}$</td>
<td>$V_{DS} = 10V, I_{DS} = 0.6 I_{DSS} (\text{Typ.}), f = 8.5 \text{GHz}$</td>
<td>32.5 34.0 -</td>
<td>dBm</td>
</tr>
<tr>
<td>Power Gain at 1dB G.C.P.</td>
<td>$G_{1\text{dB}}$</td>
<td>$V_{DS} = 0.6 I_{DSS} (\text{Typ.}), f = 8.5 \text{GHz}$</td>
<td>7.0 8.0 -</td>
<td>dB</td>
</tr>
<tr>
<td>Power-added Efficiency</td>
<td>$\eta_{\text{add}}$</td>
<td>-</td>
<td>35</td>
<td>%</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>$R_{th}$</td>
<td>Channel to Case</td>
<td>- 8 10</td>
<td>°C/W</td>
</tr>
</tbody>
</table>

CASE STYLE: MH

G.C.P.: Gain Compression Point
### S-Parameters

**FLC257MH-8**  
**C-Band Power GaAs FET**

<table>
<thead>
<tr>
<th>FREQUENCY (MHZ)</th>
<th>S11 MAG</th>
<th>ANG</th>
<th>S21 MAG</th>
<th>ANG</th>
<th>S12 MAG</th>
<th>ANG</th>
<th>S22 MAG</th>
<th>ANG</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>.928</td>
<td>-142.8</td>
<td>7.163</td>
<td>109.2</td>
<td>.021</td>
<td>28.8</td>
<td>.344</td>
<td>-157.2</td>
</tr>
<tr>
<td>6000</td>
<td>.826</td>
<td>127.2</td>
<td>1.097</td>
<td>90.1</td>
<td>.025</td>
<td>99.3</td>
<td>.778</td>
<td>-174.5</td>
</tr>
<tr>
<td>6500</td>
<td>.770</td>
<td>114.2</td>
<td>1.179</td>
<td>92.6</td>
<td>.026</td>
<td>98.5</td>
<td>.798</td>
<td>-179.6</td>
</tr>
<tr>
<td>7000</td>
<td>.666</td>
<td>98.0</td>
<td>1.270</td>
<td>84.3</td>
<td>.030</td>
<td>81.0</td>
<td>.834</td>
<td>175.7</td>
</tr>
<tr>
<td>7500</td>
<td>.485</td>
<td>78.9</td>
<td>1.453</td>
<td>73.2</td>
<td>.035</td>
<td>67.7</td>
<td>.863</td>
<td>169.2</td>
</tr>
<tr>
<td>8000</td>
<td>.170</td>
<td>55.0</td>
<td>1.500</td>
<td>53.1</td>
<td>.041</td>
<td>43.3</td>
<td>.894</td>
<td>162.7</td>
</tr>
<tr>
<td>8500</td>
<td>.243</td>
<td>-164.9</td>
<td>1.368</td>
<td>29.9</td>
<td>.042</td>
<td>14.0</td>
<td>.889</td>
<td>156.1</td>
</tr>
<tr>
<td>9000</td>
<td>.561</td>
<td>170.0</td>
<td>1.053</td>
<td>10.3</td>
<td>.038</td>
<td>-12.0</td>
<td>.874</td>
<td>150.6</td>
</tr>
<tr>
<td>9500</td>
<td>.740</td>
<td>150.0</td>
<td>.758</td>
<td>-1.9</td>
<td>.029</td>
<td>-29.6</td>
<td>.848</td>
<td>146.0</td>
</tr>
<tr>
<td>10000</td>
<td>.828</td>
<td>134.3</td>
<td>.569</td>
<td>-9.3</td>
<td>.023</td>
<td>-40.1</td>
<td>.846</td>
<td>143.4</td>
</tr>
</tbody>
</table>

*V_{DS} = 10V, I_{DS} = 600mA*
FLC257MH-8
C-Band Power GaAs FET

Case Style "MH"
Metal-Ceramic Hermetic Package

1: Gate
2: Source (Flange)
3: Drain
Unit: mm (Inches)