

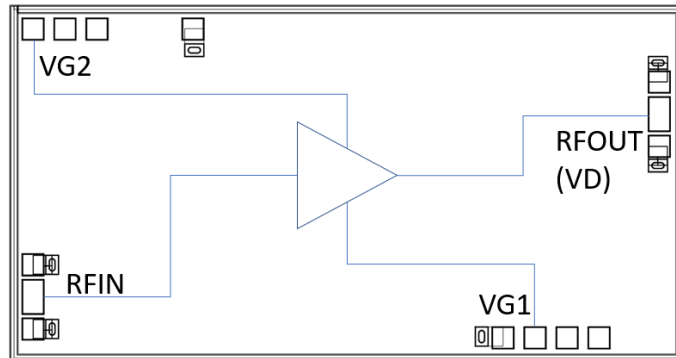
### Features

- Frequency: DC-25GHz
- Small Signal Gain: 14dB
- Gain Flatness:  $\leq \pm 0.3\text{dB}@DC-25\text{GHz}$
- Noise Figure:  $\leq 3.5\text{ dB}$
- P1dB: >15dBm, 16.5dBm at 10GHz
- Psat: >16.5dBm, 18dBm at 10GHz
- Power Supply: +8V/60mA
- Input/Output: 50Ω
- Die Size: 3.12 x 1.63 x 0.1 mm

### Typical Applications

- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

### Functional Block Diagram



### Electrical Specifications

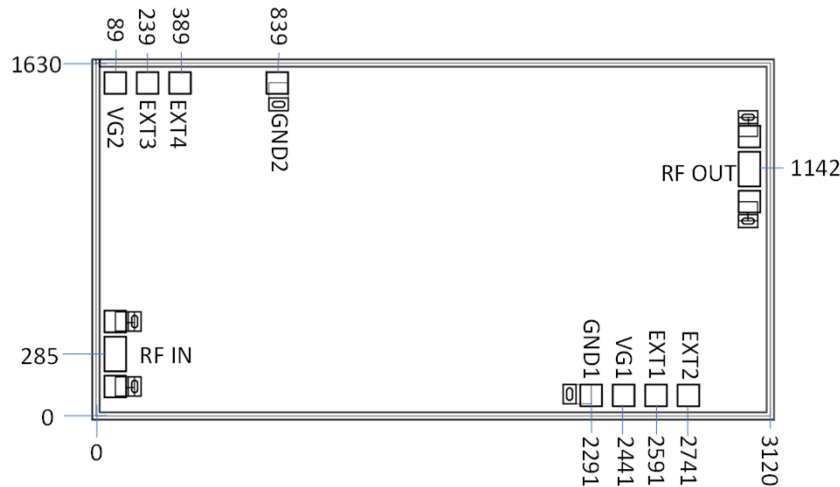
TA = +25°C, VD = +8V, VG1 = -0.4V, VG2 = 3.6V, ID = 60mA

Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
<b>Frequency</b>	<b>DC-10</b>			<b>10-20</b>			<b>20-25</b>			<b>GHz</b>
<b>Small Signal Gain</b>		<b>14.0</b>			<b>13.6</b>			<b>13.5</b>		<b>dB</b>
<b>Gain Flatness</b>		<b>±0.1</b>			<b>±0.1</b>			<b>±0.1</b>		<b>dB</b>
<b>Noise Figure</b>		<b>2.5</b>			<b>2.6</b>			<b>3.3</b>		<b>dB</b>
<b>Output 1dB Compression (P1dB)</b>		<b>17</b>			<b>16.5</b>			<b>15.5</b>		<b>dBm</b>
<b>Saturated Output Power (Psat)</b>		<b>19</b>			<b>17</b>			<b>16.6</b>		<b>dBm</b>
<b>OIP3</b>		<b>28</b>			<b>27</b>			<b>26</b>		<b>dB</b>
<b>Input Return Loss</b>		<b>25</b>			<b>22</b>			<b>20</b>		<b>dB</b>
<b>Output Return Loss</b>		<b>25</b>			<b>17</b>			<b>15</b>		<b>dB</b>

\* Adjust VG1, VG2 slightly to obtain device current of 60mA.



**Outline Drawing:**  
All Dimensions in  $\mu\text{m}$

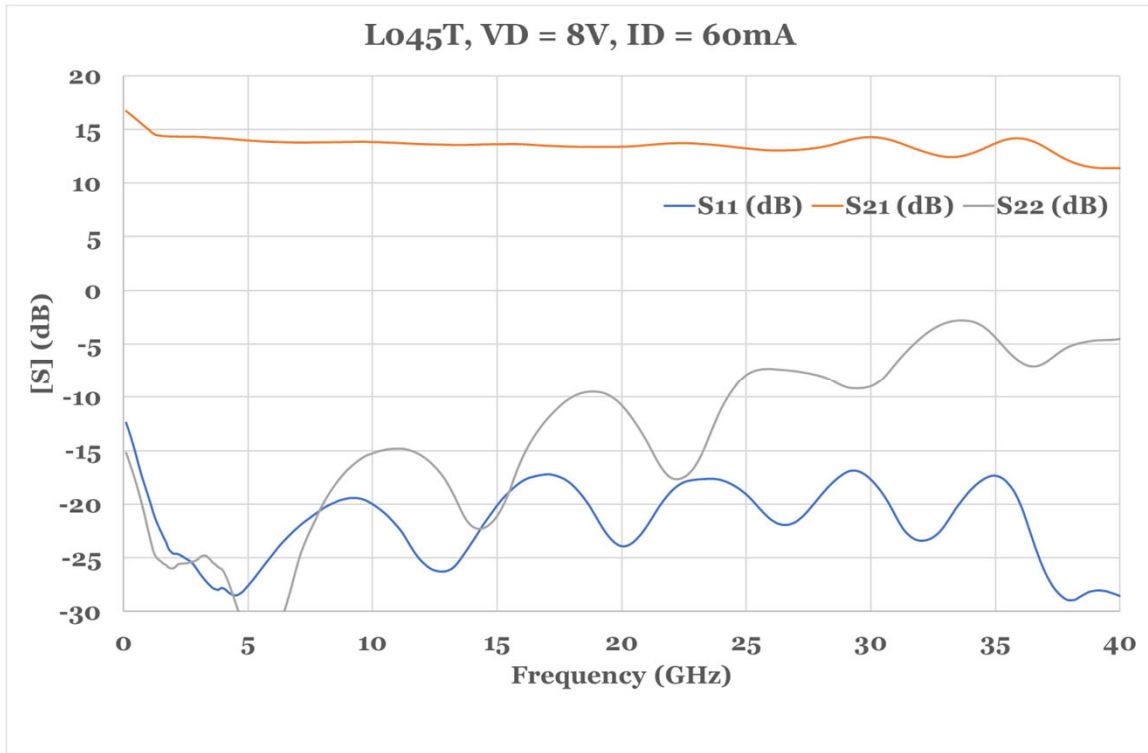


**Pad Description**

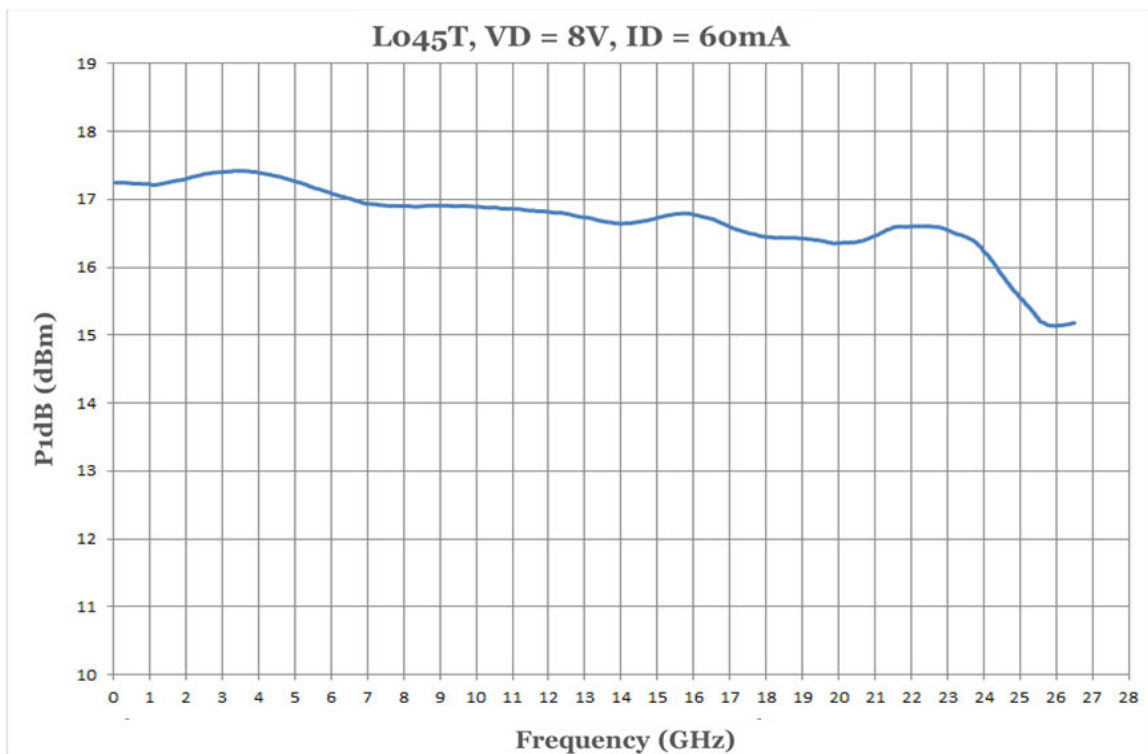
No	Function	Description
1	RF IN	Signal input terminal, connected to 50Ω circuit; blocking capacitor required.
2	RF OUT	Signal output terminal, connected to 50Ω circuit; blocking capacitor required; external DC biasing network required; drain current provided.
3	VG1	Amplifier 1 <sup>st</sup> gate bias; connect to external 1000pF and 0.1uF bypass capacitors.
4	VG2	Amplifier 2 <sup>nd</sup> gate bias; connect to external 1000pF and 0.1uF bypass capacitors.
5	EXT1	External bypass pad; connect to external 0.47uF bypass capacitor.
6	EXT2	External bypass pad; connect to external 1000pF bypass capacitor.
7	EXT3	External bypass pad; connect to external 1000pF bypass capacitor.
8	EXT4	External bypass pad; connect to external 0.47uF bypass capacitor.
9	GND1	Ground pad.
10	GND2	Ground pad.



### Measurement Plots: S-parameters

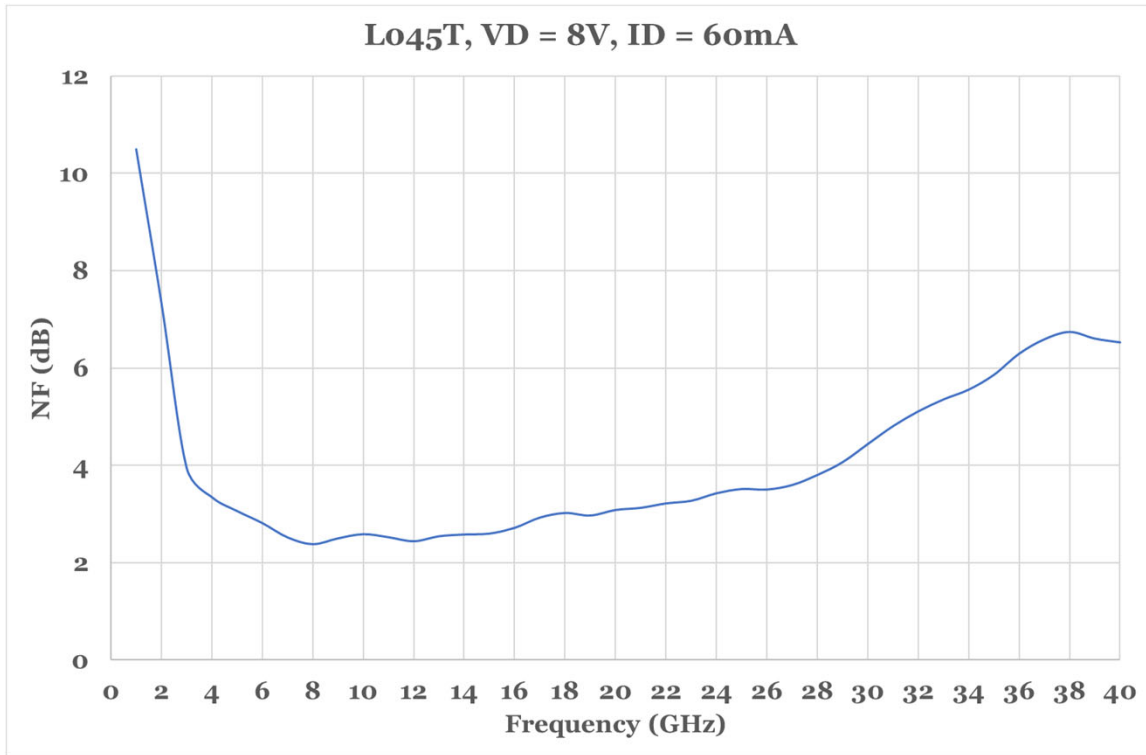


### Measurement Plots: P1dB

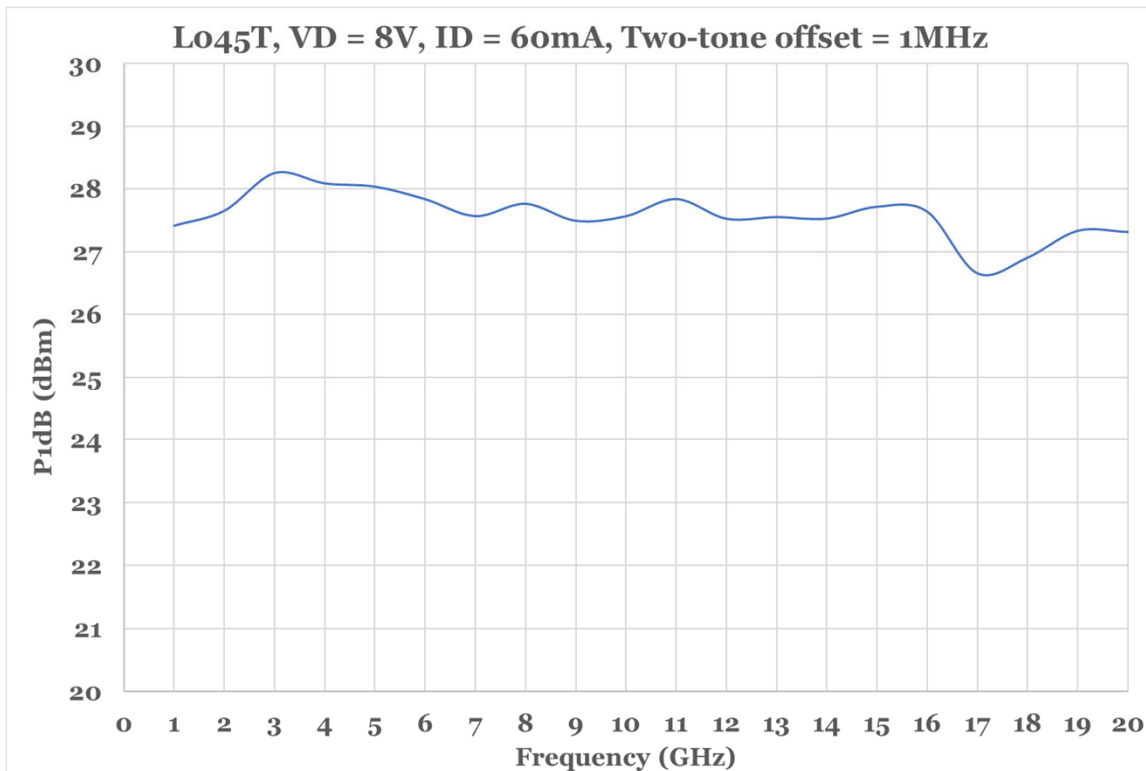




### Measurement Plots: Noise Figure

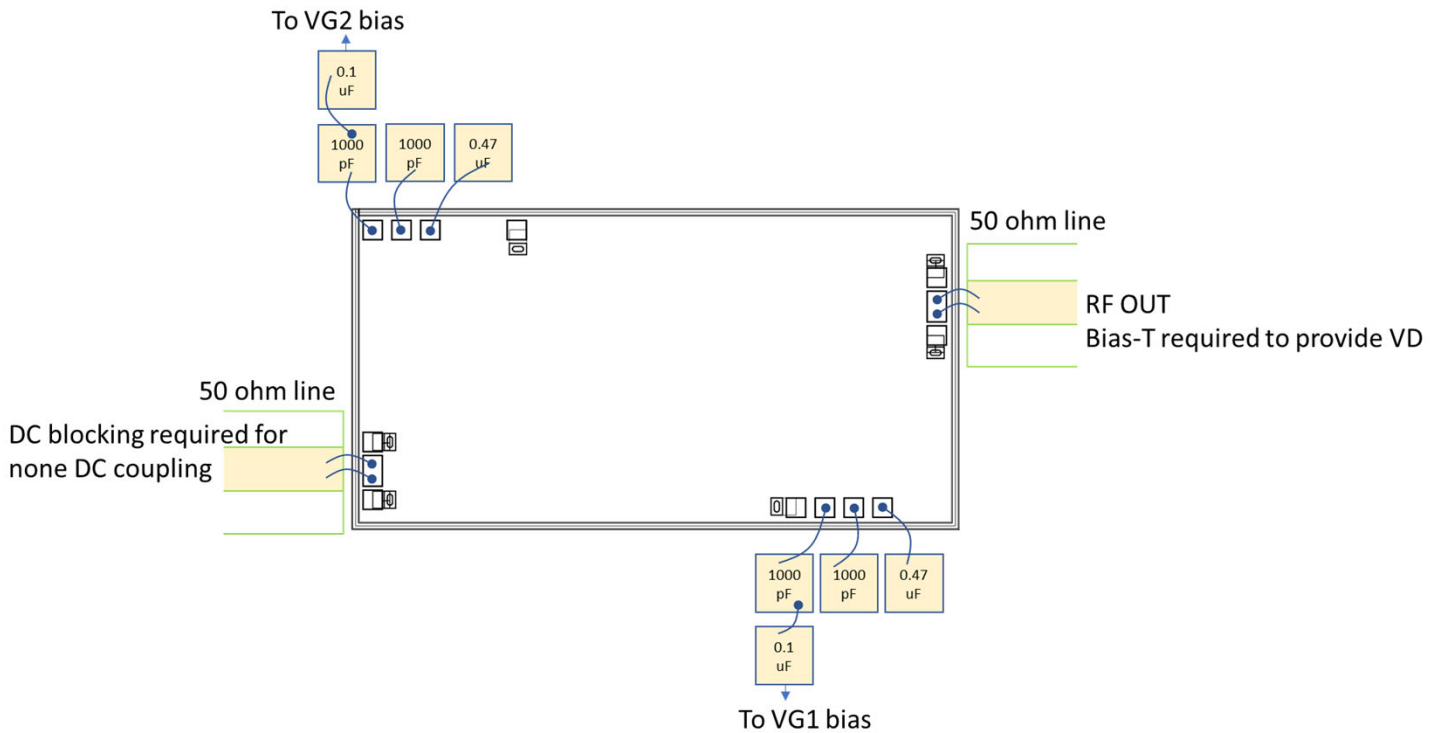


### Measurement Plots: OIP3





### Assembly Drawing



#### Notes:

1. Die thickness: 100um
2. DC bond pad is 100 x 100  $\mu\text{m}^2$
3. RF IN/OUT bond pad is 100 x 160  $\mu\text{m}^2$
4. Bond pad metalization: Gold
5. Backside metalization: Gold
6. Backside of the die (GND)

#### Maximum Ratings:

1. Maximum drain voltage: +10V
2. Maximum gate bias: -3V
3. Maximum input power: +20dBm
4. Operating temperature: -55°C to +85°C
5. Storage temperature: -65°C to +150°C