

TOSHIBA

Product Guide 2021

Microwave Semiconductors

MICROWAVE
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MICROWAVE SEMICONDUCTORS

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Pout vs. Frequency Map



GaN HEMTs and Amplifier

C-band Internally Matched Power GaN HEMTs

(Ta = 25 °C)

| FREQUENCY BAND (GHz) | MODEL No. | BIAS CONDITIONS | | RF PERFORMANCE SPECIFICATIONS | | | | | | | | | | ABSOLUTE MAXIMUM RATINGS | | | | | ELECTRICAL CHARACTERISTICS (TYP.) | | | PACKAGE CODE | | | | |
|----------------------|-----------------------|---------------------|-------------------------|-------------------------------|------|---------------------|------|----------------------|------------------------|---------------------|------|------------|------------------------|--------------------------|------|--|------------|---------------------|-----------------------------------|---------------------|-------------------------------|--------------|----------|---------------------------------------|------------------------|---|
| | | V _{DS} (V) | I _{DS} Set (A) | P _{out} (dBm) | | I _{DS} (A) | | η _{add} (%) | @P _{in} (dBm) | G _L (dB) | | ΔG*** (dB) | @P _{in} (dBm) | IM ₃ (dBc) | | P _o @single carrier level (dBm) | ΔTch* (°C) | V _{DS} (V) | V _{GS} (V) | I _{DS} (A) | P _T (W) (Tc=25 °C) | | Tch (°C) | R _{th(C-C)} MAX./TYP. (°C/W) | V _{GSoff} (V) | I _{DS} (mA) @V _{DS} = 5 V |
| | | | | MIN. | TYP. | TYP. | MAX. | | | TYP. | MIN. | | | TYP. | MAX. | | | | | | | | | | | |
| 5.0-5.9 | TGI5059-120L | 24 | 4.0 | 50.0 | 51.0 | 11.0 | 12.0 | 40 | 42.0 | 12.5 | 13.5 | ±0.8 | 20.0 | -25 | -27 | 44.0 | 140 | 50 | -10 | 18.0 | 280 | 250 | 0.8/0.6 | -4.0 | 46 | 7-AA06A |
| 5.85-6.75 | TGI5867-25L | 24 | 1.75 | 44.0 | 44.5 | 2.7 | 3.2 | 39 | 35.0 | 12.5 | 13.5 | ±0.8 | 20.0 | -40 | -42 | 29.0 | 150 | 50 | -10 | 7.5 | 70 | 250 | 3.2/2.8 | -4.0 | 12 | 7-AA04A |
| | TGI5867-50L | 24 | 3.0 | 46.0 | 47.0 | 5.4 | 6.3 | 33 | 40.0 | 12.5 | 13.5 | ±0.8 | 20.0 | -40 | -42 | 32.0 | 150 | 50 | -10 | 15.0 | 140 | 250 | 1.6/1.4 | -4.0 | 23 | 7-AA04A |
| | TGI5867-60LHA | 40 | 0.4 | 47.0 | 48.0 | 3.5 | 4.5 | 38 | 40.0 | 11.5 | 12.5 | ±0.8 | 20.0 | -25 | -30 | 41.0 | 140*** | 50 | -10 | 6.0 | 111 | 225 | 1.8/1.6 | -3.0 | 15 | 7-AA04A |
| | TGI5867-130LHA | 40 | 0.8 | 50.0 | 51.0 | 7.0 | 9.0 | 38 | 43.0 | 11.5 | 12.5 | ±0.8 | 20.0 | -25 | -30 | 44.0 | 140*** | 50 | -10 | 12.0 | 200 | 225 | 1.0/0.8 | -3.0 | 30 | 7-AA06A |
| 5.9-6.4 | TGI5964-120L | 24 | 4.0 | 50.0 | 51.0 | 10.0 | 12.0 | 42 | 43.0 | 12.5 | 13.5 | ±0.8 | 20.0 | -25 | -30 | 44.0 | 140 | 50 | -10 | 18.0 | 280 | 250 | 0.8/0.6 | -4.0 | 46 | 7-AA06A |
| 6.4-7.2 | TGI6472-120L | 24 | 4.0 | 50.0 | 51.0 | 11.0 | 12.0 | 38 | 44.0 | 10.5 | 11.5 | ±0.8 | 20.0 | -25 | -28 | 44.0 | 140 | 50 | -10 | 18.0 | 280 | 250 | 0.8/0.6 | -4.0 | 46 | 7-AA06A |
| 7.1-7.9 | TGI7179-60LHA | 40 | 0.4 | 47.0 | 48.0 | 3.5 | 4.5 | 37 | 40.5 | 11.0 | 12.0 | ±0.8 | 20.0 | -25 | -30 | 41.0 | 140*** | 50 | -10 | 6.0 | 111 | 225 | 1.8/1.6 | -3.0 | 15 | 7-AA04A |
| | TGI7179-130LHA | 40 | 0.8 | 50.0 | 51.0 | 7.0 | 9.0 | 36 | 43.5 | 11.0 | 12.0 | ±0.8 | 20.0 | -25 | -30 | 44.0 | 140*** | 50 | -10 | 12.0 | 200 | 225 | 1.0/0.8 | -3.0 | 30 | 7-AA06A |
| 7.7-8.5 | TGI7785-25L | 24 | 1.75 | 44.0 | 44.5 | 2.7 | 3.2 | 39 | 35.0 | 11.0 | 12.0 | ±0.8 | 20.0 | -40 | -42 | 29.0 | 150 | 50 | -10 | 7.5 | 70 | 250 | 3.2/2.8 | -4.0 | 12 | 7-AA04A |
| | TGI7785-50L | 24 | 3.0 | 46.0 | 47.0 | 5.0 | 6.3 | 33 | 40.0 | 10.0 | 11.0 | ±0.8 | 20.0 | -40 | - | 32.0 | 150 | 50 | -10 | 15.0 | 140 | 250 | 1.6/1.4 | -4.0 | 23 | 7-AA04A |
| | TGI7785-60LHA | 40 | 0.4 | 47.0 | 48.0 | 4.0 | 4.5 | 32 | 41.0 | 10.5 | 11.5 | ±0.8 | 20.0 | -25 | -30 | 41.0 | 140*** | 50 | -10 | 6.0 | 111 | 225 | 1.8/1.6 | -3.0 | 15 | 7-AA04A |
| | TGI7785-120L | 24 | 4.0 | 50.0 | 51.0 | 10.0 | 12.0 | 42 | 44.0 | 10.0 | 11.0 | ±0.8 | 20.0 | -25 | -30 | 44.0 | 140 | 50 | -10 | 18.0 | 280 | 250 | 0.8/0.6 | -4.0 | 46 | 7-AA06A |
| | TGI7785-130LHA | 40 | 0.8 | 50.0 | 51.0 | 7.0 | 9.0 | 36 | 44.0 | 10.5 | 11.5 | ±0.8 | 20.0 | -25 | -30 | 44.0 | 140*** | 50 | -10 | 12.0 | 200 | 225 | 1.0/0.8 | -3.0 | 30 | 7-AA06A |

* : ΔTch = Channel Temperature Rise, Formula: ΔTch = (V_{DS} × I_{DS} + P_{in} - P_{out}) × R_{th(C-C)} *** : Gain Flatness

*** : ΔTch is calculated using the same condition as IM₃ test

X-band Internally Matched Power GaN HEMTs

(Ta = 25 °C)

| FREQUENCY BAND (GHz) | MODEL No. | BIAS CONDITIONS | | RF PERFORMANCE SPECIFICATIONS | | | | | | | | | | ABSOLUTE MAXIMUM RATINGS | | | | | ELECTRICAL CHARACTERISTICS (TYP.) | | | PACKAGE CODE |
|----------------------|-----------------------|---------------------|-------------------------|-------------------------------|------|---------------------|------|----------------------|------------------------|---------------------|------|------------|---------------------|--------------------------|---------------------|-------------------------------|----------|---------------------------------------|-----------------------------------|---|------|--------------|
| | | V _{DS} (V) | I _{DS} Set (A) | P _{out} (dBm) | | I _{DS} (A) | | η _{add} (%) | @P _{in} (dBm) | G _L (dB) | | ΔTch* (°C) | V _{DS} (V) | V _{GS} (V) | I _{DS} (A) | P _T (W) (Tc=25 °C) | Tch (°C) | R _{th(C-C)} MAX./TYP. (°C/W) | V _{GSoff} (V) | I _{DS} (mA) @V _{DS} = 5 V | | |
| | | | | MIN. | TYP. | TYP. | MAX. | | | TYP. | MIN. | | | | | | | | | | TYP. | |
| 8.5-9.6 | TGI8596-50 | 24 | 1.5 | 46.0 | 47.0 | 5.0 | 6.0 | 31 | 41.0 | 7.0 | 9.0 | 20.0 | 150 | 50 | -10 | 15.0 | 140 | 250 | 1.6/1.4 | -4.0 | 23 | 7-AA04A |
| 9.0-9.8 | TGI9098-100P ☆ | 24 | 6.0 | 49.0 | 50.0 | 10.0 | 13.0 | 40 | 42.0 | - | 12.0 | 35.0 | - | 50 | -10 | 22.5 | 280 | 250 | -/0.8 | -4.0 | 46 | 7-AA03B |
| 9.5-10.5 | TGI0910-50 | 24 | 1.5 | 46.0 | 47.0 | 5.0 | 6.0 | 31 | 41.0 | 7.0 | 9.0 | 20.0 | 150 | 50 | -10 | 15.0 | 140 | 225 | 1.6/1.4 | -4.0 | 23 | 7-AA04A |

* : ΔTch = Channel Temperature Rise, Formula: ΔTch = (V_{DS} × I_{DS} + P_{in} - P_{out}) × R_{th(C-C)} ☆: PULSE OPERATION (PULSE WIDTH: 100μs Duty:10%)

Ku-band Internally Matched Power GaN HEMTs

(Ta = 25 °C)

| FREQUENCY BAND (GHz) | MODEL No. | BIAS CONDITIONS | | RF PERFORMANCE SPECIFICATIONS | | | | | | | | | | ABSOLUTE MAXIMUM RATINGS | | | | | ELECTRICAL CHARACTERISTICS (TYP.) | | | PACKAGE CODE | | | | |
|----------------------|---------------------|---------------------|-------------------------|-------------------------------|------|---------------------|------|----------------------|------------------------|---------------------|------|------------|------------------------|--------------------------|------|--|------------|---------------------|-----------------------------------|---------------------|-------------------------------|--------------|----------|---------------------------------------|------------------------|---|
| | | V _{DS} (V) | I _{DS} Set (A) | P _{out} (dBm) | | I _{DS} (A) | | η _{add} (%) | @P _{in} (dBm) | G _L (dB) | | ΔG*** (dB) | @P _{in} (dBm) | IM ₃ (dBc) | | P _o @single carrier level (dBm) | ΔTch* (°C) | V _{DS} (V) | V _{GS} (V) | I _{DS} (A) | P _T (W) (Tc=25 °C) | | Tch (°C) | R _{th(C-C)} MAX./TYP. (°C/W) | V _{GSoff} (V) | I _{DS} (mA) @V _{DS} = 5 V |
| | | | | MIN. | TYP. | TYP. | MAX. | | | TYP. | MIN. | | | TYP. | MAX. | | | | | | | | | | | |
| 12.7-13.2 | TGI1213-25LA | 24 | 1.0 | 43.0 | 44.0 | 2.5 | 3.0 | 29 | 39.0 | 7.0 | 8.0 | ±0.8 | 20.0 | -25 | - | 37.0 | 140 | 50 | -10 | 7.5 | 70 | 250 | 3.2/2.8 | -4.0 | 11.5 | 7-AA07A |
| | TGI1213-50LA | 24 | 2.0 | 46.0 | 47.0 | 5.0 | 6.0 | 29 | 42.0 | 7.0 | 8.0 | ±0.8 | 20.0 | -25 | - | 40.0 | 160 | 50 | -10 | 15.0 | 140 | 250 | 1.6/1.4 | -4.0 | 23 | 7-AA07A |
| 13.75-14.5 | TGI1314-25LA | 24 | 1.0 | 43.0 | 44.0 | 2.5 | 3.0 | 29 | 39.0 | 7.0 | 8.0 | ±0.8 | 20.0 | -25 | - | 37.0 | 140 | 50 | -10 | 7.5 | 70 | 250 | 3.2/2.8 | -4.0 | 11.5 | 7-AA07A |
| | TGI1314-50LA | 24 | 2.0 | 46.0 | 47.0 | 5.0 | 6.0 | 29 | 42.0 | 7.0 | 8.0 | ±0.8 | 20.0 | -25 | - | 40.0 | 160 | 50 | -10 | 15.0 | 140 | 225 | 1.6/1.4 | -4.0 | 23 | 7-AA07A |

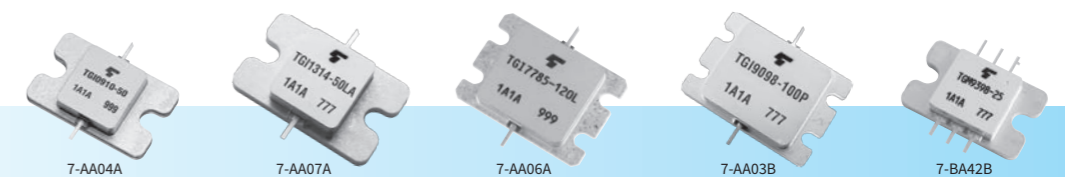
* : ΔTch = Channel Temperature Rise, Formula: ΔTch = (V_{DS} × I_{DS} + P_{in} - P_{out}) × R_{th(C-C)} *** : Gain Flatness

X-band Power GaN Amplifier

(Ta = 25 °C)

| FREQUENCY BAND (GHz) | MODEL No. | BIAS CONDITIONS | | RF PERFORMANCE SPECIFICATIONS | | | | | | | | | | ABSOLUTE MAXIMUM RATINGS | | | | | PACKAGE CODE |
|----------------------|-------------------|---------------------|-------------------------|-------------------------------|------|-----------------------|------|----------------------|------------------------|---------------------|------|------------------------|------------------------|--------------------------|-----------------------|-------------------------------|---------------|---------|--------------|
| | | V _{DS} (V) | I _{DS} Set (A) | P _{out} (dBm) | | I _{DD} * (A) | | η _{add} (%) | @P _{in} (dBm) | G _L (dB) | | @P _{in} (dBm) | V _{DD1,2} (V) | V _{GG1,2} (V) | P _{in} (dBm) | P _T (W) (Tc=25 °C) | Tf | | |
| | | | | MIN. | TYP. | TYP. | MAX. | | | TYP. | MIN. | | | | | | | TYP. | |
| 9.3-9.8 | TGM9398-25 | 24 | 1.2 | 43.0 | 44.0 | 2.6 | 3.5 | 38 | 23.0 | 20.0 | 24.0 | 7.0 | 50 | -10 | 27.0 | 140 | -40 to +90 °C | 7-BA42B | |

* : I_{DD} = I_{DD1} + I_{DD2}

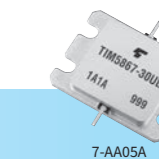
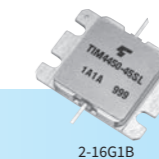


C-band Internally Matched Power GaAs FETs (1/2)

(Ta = 25 °C)

| FREQUENCY BAND (GHz) | MODEL No. | BIAS CONDITIONS | | RF PERFORMANCE SPECIFICATIONS | | | | | | | | | | ABSOLUTE MAXIMUM RATINGS | | | | | ELECTRICAL CHARACTERISTICS (TYP.) | | | PACKAGE CODE | |
|----------------------|-------------------|---------------------|-------------------------|-------------------------------|------|-----------------------|------|---------------------|------|------------|----------------------|-----------------------|---|--------------------------|---------------------|---------------------|---------------------|---------------------------------|-----------------------------------|---------------------------------------|------------------------|--------------|---|
| | | V _{DS} (V) | I _{DS} Set (A) | P _{1dB} (dBm) | | G _{1dB} (dB) | | I _{DS} (A) | | ΔG*** (dB) | η _{add} (%) | IM ₃ (dBc) | P _{o@single carrier level} (dBm) | ΔTch* (°C) | V _{DS} (V) | V _{GS} (V) | I _{DS} (A) | P _T (W) (Tc = 25 °C) | Tch (°C) | R _{th(C-C)} MAX./TYP. (°C/W) | V _{Gsoff} (V) | | I _{DS} (mA) @V _{DS} = 3 V |
| | | | | MIN. | TYP. | MIN. | TYP. | TYP. | MAX. | | | | | | | | | | | | | | |
| 3.3-3.6 | TIM3742-4SL-341 | 10 | 1.1 | 35.5 | 36.5 | 10.0 | 11.0 | 1.1 | 1.3 | ±0.6 | 37 | | | 80 | 15 | -5 | 3.5 | 23.1 | 175 | 6.5/4.5 | -2.5 | 15 | 2-11D1B |
| | TIM3742-30SL-341 | 10 | 7.0 | 44.0 | 45.0 | 10.0 | 11.0 | 7.0 | 8.0 | ±0.8 | 42 | | | 100 | 15 | -5 | 20.0 | 115.4 | 175 | 1.3/1.0 | -2.5 | 100 | 2-16G1B |
| | TIM3742-45SL-341 | 10 | 9.0 | 46.0 | 46.5 | 10.0 | 11.0 | 9.6 | 10.8 | ±0.8 | 43 | | | 100 | 15 | -5 | 20.0 | 125.0 | 175 | 1.2/0.8 | -2.5 | 170 | 2-16G1B |
| 3.7-4.2 | TIM3742-4UL | 10 | 0.9 | 35.5 | 36.5 | 11.0 | 12.0 | 1.1 | 1.3 | ±0.6 | 38 | | | 80 | 15 | -5 | 3.5 | 25.0 | 175 | 6.0/4.5 | -2.5 | 15 | 2-11D1B |
| | TIM3742-8UL | 10 | 1.8 | 38.5 | 39.5 | 10.0 | 11.0 | 2.2 | 2.6 | ±0.6 | 37 | | | 80 | 15 | -5 | 7.0 | 42.9 | 175 | 3.5/2.5 | -2.5 | 30 | 2-11D1B |
| | TIM3742-25UL | 10 | 5.2 | 43.5 | 44.5 | 9.5 | 10.5 | 6.8 | 7.6 | ±0.6 | 38 | | | 80 | 15 | -5 | 20.0 | 100.0 | 175 | 1.5/1.2 | -2.5 | 80 | 2-16G1B |
| | TIM3742-35SL | 10 | 8.0 | 45.0 | 45.5 | 9.0 | 10.0 | 8.0 | 9.0 | ±0.8 | 40 | | | 100 | 15 | -5 | 20.0 | 115.4 | 175 | 1.3/1.0 | -2.5 | 140 | 2-16G1B |
| 4.4-5.0 | TIM4450-4UL | 10 | 0.9 | 35.5 | 36.5 | 10.0 | 11.0 | 1.1 | 1.3 | ±0.6 | 37 | | | 80 | 15 | -5 | 3.5 | 25.0 | 175 | 6.0/4.5 | -2.5 | 15 | 2-11D1B |
| | TIM4450-8UL | 10 | 1.8 | 38.5 | 39.5 | 9.5 | 10.5 | 2.2 | 2.6 | ±0.6 | 37 | | | 80 | 15 | -5 | 7.0 | 42.9 | 175 | 3.5/2.5 | -2.5 | 30 | 2-11D1B |
| | TIM4450-12UL | 10 | 2.6 | 40.5 | 41.5 | 9.5 | 10.5 | 3.2 | 3.8 | ±0.6 | 40 | | | 80 | 15 | -5 | 10.0 | 62.5 | 175 | 2.4/2.0 | -2.5 | 40 | 2-16G1B |
| | TIM4450-16UL | 10 | 3.6 | 41.5 | 42.5 | 9.0 | 10.0 | 4.4 | 5.0 | ±0.6 | 36 | | | 80 | 15 | -5 | 14.0 | 83.3 | 175 | 1.8/1.5 | -2.5 | 60 | 2-16G1B |
| | TIM4450-25UL | 10 | 5.2 | 43.5 | 44.5 | 9.0 | 10.0 | 6.8 | 7.6 | ±0.6 | 37 | | | 80 | 15 | -5 | 20.0 | 100.0 | 175 | 1.5/1.2 | -2.5 | 80 | 2-16G1B |
| | TIM4450-35SL | 10 | 8.0 | 45.0 | 45.5 | 8.5 | 9.5 | 8.0 | 9.0 | ±0.8 | 39 | | | 100 | 15 | -5 | 20.0 | 115.4 | 175 | 1.3/1.0 | -2.5 | 140 | 2-16G1B |
| | TIM4450-45SL | 10 | 9.0 | 46.0 | 46.5 | 8.5 | 9.5 | 9.6 | 10.8 | ±0.8 | 41 | | | 100 | 15 | -5 | 20.0 | 125.0 | 175 | 1.2/0.8 | -2.5 | 170 | 2-16G1B |
| | TIM4450-60SL | 10 | 9.5 | 47.0 | 48.0 | 8.5 | 9.5 | 13.2 | 15.0 | ±0.8 | 42 | | | 100 | 15 | -5 | 20.0 | 187.5 | 175 | 0.8/0.6 | -1.8 | 200 | 2-16G1B |
| 5.3-5.9 | TIM5359-4UL | 10 | 0.9 | 35.5 | 36.5 | 9.5 | 10.5 | 1.1 | 1.3 | ±0.6 | 37 | | | 80 | 15 | -5 | 3.5 | 25.0 | 175 | 6.0/4.5 | -2.5 | 15 | 2-11D1B |
| | TIM5359-8UL | 10 | 1.8 | 38.5 | 39.5 | 9.0 | 10.0 | 2.2 | 2.6 | ±0.6 | 36 | | | 80 | 15 | -5 | 7.0 | 42.9 | 175 | 3.5/2.5 | -2.5 | 30 | 2-11D1B |
| | TIM5359-16UL | 10 | 3.6 | 41.5 | 42.5 | 9.0 | 10.0 | 4.4 | 5.0 | ±0.6 | 36 | | | 80 | 15 | -5 | 14.0 | 83.3 | 175 | 1.8/1.05 | -2.5 | 60 | 2-16G1B |
| | TIM5359-35SL | 10 | 8.0 | 45.0 | 45.5 | 7.5 | 8.5 | 8.0 | 9.0 | ±0.8 | 38 | | | 100 | 15 | -5 | 20.0 | 115.4 | 175 | 1.3/1.0 | -2.5 | 140 | 2-16G1B |
| | TIM5359-45SL | 10 | 9.0 | 46.0 | 46.5 | 8.0 | 9.0 | 9.6 | 10.8 | ±0.8 | 41 | | | 100 | 15 | -5 | 20.0 | 125.0 | 175 | 1.2/0.8 | -2.5 | 170 | 2-16G1B |
| 5.9-6.4 | TIM5964-4UL | 10 | 0.9 | 35.5 | 36.5 | 9.0 | 10.0 | 1.1 | 1.3 | ±0.6 | 37 | | | 80 | 15 | -5 | 3.5 | 25.0 | 175 | 6.0/4.5 | -2.5 | 15 | 2-11D1B |
| | TIM5964-8UL | 10 | 1.8 | 38.5 | 39.5 | 9.0 | 10.0 | 2.2 | 2.6 | ±0.6 | 36 | | | 80 | 15 | -5 | 7.0 | 42.9 | 175 | 3.5/2.5 | -2.5 | 30 | 2-11D1B |
| | TIM5964-12UL | 10 | 2.6 | 40.5 | 41.5 | 9.0 | 10.0 | 3.2 | 3.8 | ±0.6 | 40 | | | 80 | 15 | -5 | 10.0 | 62.5 | 175 | 2.4/2.0 | -2.5 | 40 | 2-16G1B |
| | TIM5964-16UL | 10 | 3.6 | 41.5 | 42.5 | 9.0 | 10.0 | 4.4 | 5.0 | ±0.6 | 36 | | | 80 | 15 | -5 | 14.0 | 83.3 | 175 | 1.8/1.5 | -2.5 | 60 | 2-16G1B |
| | TIM5964-25UL | 10 | 5.2 | 43.5 | 44.5 | 9.0 | 10.0 | 6.8 | 7.6 | ±0.6 | 37 | | | 80 | 15 | -5 | 20.0 | 100.0 | 175 | 1.5/1.2 | -2.5 | 80 | 2-16G1B |
| | TIM5964-30UL | 10 | 6.4 | 44.0 | 45.0 | 9.0 | 10.0 | 7.0 | 8.0 | ±0.6 | 41 | | | 100 | 15 | -5 | 18.0 | 100.0 | 175 | 1.5/1.0 | -2.0 | 80 | 7-AA05A |
| | TIM5964-35SLA | 10 | 8.0 | 45.0 | 45.5 | 8.0 | 9.0 | 8.0 | 9.0 | ±0.8 | 39 | | | 100 | 15 | -5 | 20.0 | 115.4 | 175 | 1.3/1.0 | -2.5 | 140 | 2-16G1B |
| | TIM5964-45SL | 10 | 9.0 | 46.0 | 46.5 | 8.0 | 9.0 | 9.6 | 10.8 | ±0.8 | 41 | | | 100 | 15 | -5 | 20.0 | 125.0 | 175 | 1.2/0.8 | -2.5 | 170 | 2-16G1B |
| 5.85-6.75 | TIM5964-60SL | 10 | 9.5 | 47.0 | 48.0 | 7.5 | 8.5 | 13.2 | 15.0 | ±0.8 | 41 | | | 100 | 15 | -5 | 20.0 | 187.5 | 175 | 0.8/0.6 | -1.8 | 200 | 2-16G1B |
| | TIM5964-4SL-422 | 10 | 1.1 | 35.5 | 36.5 | 8.0 | 9.0 | 1.1 | 1.3 | ±0.6 | 35 | | | 80 | 15 | -5 | 3.5 | 23.1 | 175 | 6.5/4.5 | -2.5 | 15 | 2-11D1B |
| | TIM5867-8UL | 10 | 1.8 | 38.5 | 39.5 | 9.0 | 10.0 | 2.2 | 2.6 | ±0.8 | 36 | | | 80 | 15 | -5 | 7.0 | 42.9 | 175 | 3.5/2.5 | -2.5 | 30 | 2-11D1B |
| | TIM5867-15UL | 10 | 3.2 | 41.0 | 42.0 | 9.0 | 10.0 | 3.5 | 4.0 | ±0.8 | 41 | | | 80 | 15 | -5 | 12.0 | 62.5 | 175 | 2.4/2.0 | -2.0 | 40 | 2-16G1B |
| | TIM5964-16SL-422 | 10 | 4.4 | 41.5 | 42.5 | 8.0 | 9.0 | 4.4 | 5.0 | ±0.8 | 35 | | | 80 | 15 | -5 | 14.0 | 75.0 | 175 | 2.0/1.5 | -2.5 | 60 | 2-16G1B |
| | TIM5867-30UL | 10 | 6.4 | 44.0 | 45.0 | 9.0 | 10.0 | 7.0 | 8.0 | ±0.8 | 41 | | | 100 | 15 | -5 | 18.0 | 100.0 | 175 | 1.5/1.0 | -2.0 | 80 | 7-AA05A |
| | TIM5964-35SLA-422 | 10 | 8.0 | 45.0 | 45.5 | 8.0 | 9.0 | 8.0 | 9.0 | ±0.8 | 39 | | | 100 | 15 | -5 | 20.0 | 115.4 | 175 | 1.3/1.0 | -2.5 | 140 | 2-16G1B |
| TIM5964-60SL-422 | 10 | 9.5 | 47.0 | 48.0 | 7.0 | 8.0 | 13.2 | 15.0 | ±0.8 | 40 | | | 100 | 15 | -5 | 20.0 | 187.5 | 175 | 0.8/0.6 | -1.8 | 200 | 2-16G1B | |

*: ΔTch = Channel Temperature Rise, Formula: ΔTch = (V_{DS} × I_{DS} + P_{in} - P_{1dB}) × R_{th(C-C)}, **: Gain Flatness

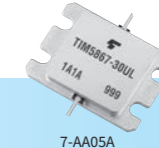
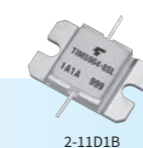


C-band Internally Matched Power GaAs FETs (2/2)

(Ta = 25 °C)

| FREQUENCY BAND (GHz) | MODEL No. | BIAS CONDITIONS | | RF PERFORMANCE SPECIFICATIONS | | | | | | | | | | ABSOLUTE MAXIMUM RATINGS | | | | | ELECTRICAL CHARACTERISTICS (TYP.) | | | PACKAGE CODE | | | |
|----------------------|--------------|---------------------|------------------------|-------------------------------|------|-----------------------|------|---------------------|------|------------|------------------------|-----------------------|------|---|------------|---------------------|---------------------|---------------------|-----------------------------------|----------|---------------------------------------|--------------|------------------------|---|---------|
| | | V _{DS} (V) | I _{DSset} (A) | P _{1dB} (dBm) | | G _{1dB} (dB) | | I _{DS} (A) | | ΔG*** (dB) | η _{add} (%)/η | IM ₃ (dBc) | | P _{o@single carrier level} (dBm) | ΔTch* (°C) | V _{DS} (V) | V _{GS} (V) | I _{DS} (A) | P _T (W) (Tc = 25 °C) | Tch (°C) | R _{th(C-C)} MAX./TYP. (°C/W) | | V _{GSoff} (V) | I _{DS} (mA) @V _{DS} = 3 V | |
| | | | | MIN. | TYP. | MIN. | TYP. | TYP. | MAX. | | | MAX. | TYP. | | | | | | | | | | | | MIN. |
| 6.4-7.2 | TIM6472-4UL | 10 | 0.9 | 35.5 | 36.5 | 8.5 | 9.5 | 1.1 | 1.3 | ±0.6 | 36 | | -44 | -47 | 25.5 | 80 | 15 | -5 | 3.5 | 25.0 | 175 | 6.0/4.5 | -2.5 | 15 | 2-11D1B |
| | TIM6472-8UL | 10 | 1.8 | 38.5 | 39.5 | 8.5 | 9.5 | 2.2 | 2.6 | ±0.6 | 36 | | -44 | -47 | 28.5 | 80 | 15 | -5 | 7.0 | 42.9 | 175 | 3.5/2.5 | -2.5 | 30 | 2-11D1B |
| | TIM6472-12UL | 10 | 2.6 | 40.5 | 41.5 | 8.5 | 9.5 | 3.2 | 3.8 | ±0.6 | 39 | | -44 | -47 | 30.5 | 80 | 15 | -5 | 10.0 | 62.5 | 175 | 2.4/2.0 | -2.5 | 40 | 2-16G1B |
| | TIM6472-16UL | 10 | 3.6 | 41.5 | 42.5 | 8.5 | 9.5 | 4.4 | 5.0 | ±0.6 | 36 | | -44 | -47 | 31.5 | 80 | 15 | -5 | 14.0 | 83.3 | 175 | 1.8/1.5 | -2.5 | 60 | 2-16G1B |
| | TIM6472-25UL | 10 | 5.2 | 43.5 | 44.5 | 8.5 | 9.5 | 6.8 | 7.6 | ±0.6 | 37 | | -44 | -47 | 33.5 | 80 | 15 | -5 | 20.0 | 100.0 | 175 | 1.5/1.2 | -2.5 | 80 | 2-16G1B |
| | TIM6472-30UL | 10 | 6.4 | 44.0 | 45.0 | 8.5 | 9.5 | 7.0 | 8.0 | ±0.6 | 40 | | -44 | -47 | 34.0 | 100 | 15 | -5 | 18.0 | 100.0 | 175 | 1.5/1.0 | -2.0 | 80 | 7-AA05A |
| | TIM6472-35SL | 10 | 8.0 | 45.0 | 45.5 | 7.0 | 8.0 | 8.0 | 9.0 | ±0.8 | 37 | | -42 | -45 | 35.0 | 100 | 15 | -5 | 20.0 | 115.4 | 175 | 1.3/1.0 | -2.5 | 140 | 2-16G1B |
| | TIM6472-45SL | 10 | 9.0 | 46.0 | 46.5 | 7.0 | 8.0 | 9.6 | 10.8 | ±0.8 | 37 | | -42 | -45 | 35.5 | 100 | 15 | -5 | 20.0 | 125.0 | 175 | 1.2/0.8 | -2.5 | 170 | 2-16G1B |
| | TIM6472-60SL | 10 | 9.5 | 47.0 | 48.0 | 6.5 | 7.5 | 13.2 | 15.0 | ±0.8 | 39 | | -42 | -45 | 36.5 | 100 | 15 | -5 | 20.0 | 187.5 | 175 | 0.8/0.6 | -1.8 | 200 | 2-16G1B |
| 7.1-7.9 | TIM7179-4UL | 10 | 0.9 | 35.5 | 36.5 | 8.0 | 9.0 | 1.1 | 1.3 | ±0.6 | 35 | | -44 | -47 | 25.5 | 80 | 15 | -5 | 3.5 | 25.0 | 175 | 6.0/4.5 | -2.5 | 15 | 2-11D1B |
| | TIM7179-6UL | 10 | 1.3 | 37.5 | 38.5 | 8.0 | 9.0 | 1.6 | 1.9 | ±0.6 | 39 | | -44 | -47 | 27.5 | 80 | 15 | -5 | 5.0 | 32.6 | 175 | 4.6/3.8 | -2.5 | 20 | 2-11D1B |
| | TIM7179-8UL | 10 | 1.8 | 38.5 | 39.5 | 8.0 | 9.0 | 2.2 | 2.6 | ±0.6 | 35 | | -44 | -47 | 28.5 | 80 | 15 | -5 | 7.0 | 42.9 | 175 | 3.5/2.5 | -2.5 | 30 | 2-11D1B |
| | TIM7179-12UL | 10 | 2.6 | 40.5 | 41.5 | 8.0 | 9.0 | 3.2 | 3.8 | ±0.6 | 39 | | -44 | -47 | 30.5 | 80 | 15 | -5 | 10.0 | 62.5 | 175 | 2.4/2.0 | -2.5 | 40 | 2-16G1B |
| | TIM7179-16UL | 10 | 3.6 | 41.5 | 42.5 | 7.5 | 8.5 | 4.4 | 5.0 | ±0.6 | 35 | | -44 | -47 | 31.5 | 80 | 15 | -5 | 14.0 | 83.3 | 175 | 1.8/1.5 | -2.5 | 60 | 2-16G1B |
| | TIM7179-25UL | 10 | 5.2 | 43.5 | 44.5 | 7.5 | 8.5 | 6.8 | 7.6 | ±0.6 | 36 | | -44 | -47 | 33.5 | 80 | 15 | -5 | 20.0 | 100.0 | 175 | 1.5/1.2 | -2.5 | 80 | 2-16G1B |
| | TIM7179-30UL | 10 | 6.4 | 44.0 | 45.0 | 7.5 | 8.5 | 7.0 | 8.0 | ±0.6 | 39 | | -44 | -47 | 34.0 | 100 | 15 | -5 | 18.0 | 100.0 | 175 | 1.5/1.0 | -2.0 | 80 | 7-AA05A |
| | TIM7179-45SL | 10 | 9.0 | 46.0 | 46.5 | 5.5 | 6.5 | 9.6 | 10.8 | ±0.8 | 36 | | -42 | -45 | 35.5 | 100 | 15 | -5 | 20.0 | 125.0 | 175 | 1.2/0.8 | -2.5 | 170 | 2-16G1B |
| | TIM7179-60SL | 10 | 9.5 | 47.0 | 48.0 | 5.5 | 6.5 | 13.2 | 15.0 | ±0.8 | 37 | | -42 | -45 | 36.5 | 100 | 15 | -5 | 20.0 | 187.5 | 175 | 0.8/0.6 | -1.8 | 200 | 2-16G1B |
| 7.7-8.5 | TIM7785-4UL | 10 | 0.9 | 35.5 | 36.5 | 7.5 | 8.5 | 1.1 | 1.3 | ±0.6 | 35 | | -44 | -47 | 25.5 | 80 | 15 | -5 | 3.5 | 25.0 | 175 | 6.0/4.5 | -2.5 | 15 | 2-11D1B |
| | TIM7785-6UL | 10 | 1.3 | 37.5 | 38.5 | 7.5 | 8.5 | 1.6 | 1.9 | ±0.6 | 38 | | -44 | -47 | 27.5 | 80 | 15 | -5 | 5.0 | 32.6 | 175 | 4.6/3.8 | -2.5 | 20 | 2-11D1B |
| | TIM7785-8UL | 10 | 1.8 | 38.5 | 39.5 | 7.5 | 8.5 | 2.2 | 2.6 | ±0.6 | 35 | | -44 | -47 | 28.5 | 80 | 15 | -5 | 7.0 | 42.9 | 175 | 3.5/2.5 | -2.5 | 30 | 2-11D1B |
| | TIM7785-12UL | 10 | 2.6 | 40.5 | 41.5 | 7.5 | 8.5 | 3.2 | 3.8 | ±0.6 | 38 | | -44 | -47 | 30.5 | 80 | 15 | -5 | 10.0 | 62.5 | 175 | 2.4/2.0 | -2.5 | 40 | 2-16G1B |
| | TIM7785-16UL | 10 | 3.6 | 41.5 | 42.5 | 7.5 | 8.5 | 4.4 | 5.0 | ±0.6 | 35 | | -44 | -47 | 31.5 | 80 | 15 | -5 | 14.0 | 83.3 | 175 | 1.8/1.5 | -2.5 | 60 | 2-16G1B |
| | TIM7785-25UL | 10 | 5.2 | 43.5 | 44.5 | 7.5 | 8.5 | 6.8 | 7.6 | ±0.6 | 36 | | -44 | -47 | 33.5 | 80 | 15 | -5 | 20.0 | 100.0 | 175 | 1.5/1.2 | -2.5 | 80 | 2-16G1B |
| | TIM7785-30UL | 10 | 6.4 | 44.0 | 45.0 | 7.5 | 8.5 | 7.0 | 8.0 | ±0.6 | 39 | | -44 | -47 | 34.0 | 100 | 15 | -5 | 18.0 | 100.0 | 175 | 1.5/1.0 | -2.0 | 80 | 7-AA05A |
| | TIM7785-35SL | 10 | 8.0 | 45.0 | 45.5 | 5.0 | 6.0 | 8.0 | 9.0 | ±0.8 | 33 | | -42 | -45 | 35.0 | 100 | 15 | -5 | 20.0 | 115.4 | 175 | 1.3/1.0 | -2.5 | 140 | 2-16G1B |
| | TIM7785-45SL | 10 | 9.0 | 46.0 | 46.5 | 5.0 | 6.0 | 9.6 | 10.8 | ±0.8 | 35 | | -42 | -45 | 35.5 | 100 | 15 | -5 | 20.0 | 125.0 | 175 | 1.2/0.8 | -2.5 | 170 | 2-16G1B |
| TIM7785-60SL | 10 | 9.5 | 47.0 | 48.0 | 5.0 | 6.0 | 13.2 | 15.0 | ±0.8 | 36 | | -42 | -45 | 36.5 | 100 | 15 | -5 | 20.0 | 187.5 | 175 | 0.8/0.6 | -1.8 | 200 | 2-16G1B | |
| TIM7785-60ULA | 10 | 9.5 | 47.0 | 48.0 | 6.5 | 7.5 | 14.5 | 16.0 | ±0.8 | 36 | | -25 | -30 | 41.0 | 100 | 15 | -5 | 20.0 | 150.0 | 175 | 1.0/0.8 | -1.8 | 120 | 7-AA09A | |

* : ΔTch = Channel Temperature Rise, Formula: : ΔTch = (V_{DS} × I_{DS} + P_{in} - P_{1dB}) × R_{th(C-C)}, ** : Gain Flatness



X and Ku-band Internally Matched Power GaAs FETs (1/2)

(Ta = 25 °C)

| FREQUENCY BAND (GHz) | MODEL No. | BIAS CONDITIONS | | RF PERFORMANCE SPECIFICATIONS | | | | | | | | | | ABSOLUTE MAXIMUM RATINGS | | | | | ELECTRICAL CHARACTERISTICS (TYP.) | | | PACKAGE CODE | | |
|----------------------|--------------|---------------------|------------------------|-------------------------------|------|-----------------------|------|---------------------|------|------------|----------------------|-----------------------|------|--------------------------|---------------------|---------------------|---------------------|---------------------------------|-----------------------------------|---------------------------------------|------------------------|--------------|--|---------|
| | | V _{DS} (V) | I _{DSset} (A) | P _{1dB} (dBm) | | G _{1dB} (dB) | | I _{DS} (A) | | ΔG*** (dB) | η _{add} (%) | IM ₃ (dBc) | | ΔTch* (°C) | V _{DS} (V) | V _{GS} (V) | I _{DS} (A) | P _T (W) (Tc = 25 °C) | Tch (°C) | R _{th(C-C)} MAX./TYP. (°C/W) | V _{GSoff} (V) | | I _{DS} (mA) @V _{DS} = 3V | |
| | | | | MIN. | TYP. | MIN. | TYP. | TYP. | MAX. | | | MAX. | TYP. | | | | | | | | | | | MIN. |
| 8.5-9.6 | TIM8596-2 | 9 | 1.0 | 32.5 | 33.5 | 6.5 | 7.5 | 0.85 | 1.1 | — | 24 | — | — | — | 60 | 15 | -5 | 2.6 | 25.0 | 175 | 6.0/5.0 | -3.5 | 30 | 2-9D1B |
| | TIM8596-4 | 9 | 2.0 | 35.5 | 36.5 | 6.5 | 7.5 | 1.7 | 2.2 | — | 24 | — | — | — | 70 | 15 | -5 | 5.2 | 42.8 | 175 | 3.5/2.9 | -3.5 | 60 | 2-9D1B |
| | TIM8596-8 | 9 | 4.0 | 38.5 | 39.5 | 5.0 | 6.0 | 3.4 | 4.4 | — | 22 | — | — | — | 80 | 15 | -5 | 10.4 | 60.0 | 175 | 2.5/1.6 | -3.5 | 120 | 2-11C1B |
| | TIM8596-15 | 9 | 4.0 | 41.0 | 42.0 | 6.0 | 7.0 | 4.5 | 5.5 | — | 31 | — | — | — | 100 | 15 | -5 | 11.5 | 60.0 | 175 | 2.5/2.0 | -3.0 | 145 | 2-11C1B |
| 8.9-9.6 | TIM8996-30 | 10 | 7.0 | 44.0 | 45.0 | 6.0 | 7.0 | 10.0 | 11.5 | — | 25 | — | — | — | 100 | 15 | -5 | 20.0 | 136.0 | 175 | 1.1/1.0 | -2.0 | 290 | 7-AA03B |
| 9.5-10.5 | TIM0910-2 | 9 | 1.0 | 32.5 | 33.5 | 6.5 | 7.5 | 0.85 | 1.1 | — | 24 | — | — | — | 60 | 15 | -5 | 2.6 | 25.0 | 175 | 6.0/5.0 | -3.5 | 30 | 2-9D1B |
| | TIM0910-4 | 9 | 2.0 | 35.5 | 36.5 | 6.5 | 7.5 | 1.7 | 2.2 | — | 24 | — | — | — | 70 | 15 | -5 | 5.2 | 42.8 | 175 | 3.5/2.9 | -3.5 | 60 | 2-9D1B |
| | TIM0910-5 | 9 | 2.0 | 37.0 | 37.5 | 6.0 | 7.0 | 2.0 | 2.5 | — | 25 | — | — | — | 80 | 15 | -5 | 5.7 | 40.5 | 175 | 3.7/3.0 | -3.0 | 72 | 2-9D1B |
| | TIM0910-8 | 9 | 4.0 | 38.5 | 39.5 | 5.0 | 6.0 | 3.4 | 4.4 | — | 22 | — | — | — | 80 | 15 | -5 | 10.4 | 60.0 | 175 | 2.5/1.6 | -3.5 | 120 | 2-11C1B |
| | TIM0910-15L | 9 | 4.0 | 41.0 | 42.0 | 6.0 | 7.0 | 4.5 | 5.5 | ±0.8 | 31 | -42 | -45 | 30.0 | 100 | 15 | -5 | 11.5 | 60.0 | 175 | 2.5/2.0 | -3.0 | 145 | 2-11C1B |
| | TIM0910-30L | 10 | 7.0 | 44.0 | 45.0 | 6.0 | 7.0 | 10.0 | 11.5 | ±0.8 | 25 | -25 | — | 38.0 | 100 | 15 | -5 | 20.0 | 136.0 | 175 | 1.1/1.0 | -2.0 | 290 | 7-AA03B |
| 10.7-11.7 | TIM1011-4UL | 10 | 1.0 | 35.5 | 36.5 | 8.5 | 9.5 | 1.1 | 1.6 | ±0.8 | 36 | -42 | -45 | 24.0 | 60 | 15 | -5 | 3.3 | 34.1 | 175 | 4.4/3.8 | -2.0 | 40 | 2-9D1B |
| | TIM1011-5L | 9 | 2.0 | 37.0 | 37.5 | 6.0 | 7.0 | 2.0 | 2.5 | ±0.8 | 25 | -42 | -45 | 26.0 | 80 | 15 | -5 | 5.7 | 40.5 | 175 | 3.7/3.0 | -3.0 | 72 | 2-9D1B |
| | TIM1011-8UL | 10 | 2.0 | 38.5 | 39.5 | 8.0 | 9.0 | 2.0 | 2.5 | ±0.8 | 39 | -42 | -45 | 27.0 | 80 | 15 | -5 | 5.7 | 40.5 | 175 | 3.7/3.0 | -2.0 | 72 | 2-9D1B |
| | TIM1011-8ULA | 10 | 2.0 | 38.5 | 39.5 | 8.0 | 9.0 | 2.0 | 2.5 | ±0.8 | 39 | -42 | -45 | 27.0 | 80 | 15 | -5 | 5.7 | 40.5 | 175 | 3.7/3.0 | -2.0 | 72 | 2-11C1B |
| | TIM1011-15L | 9 | 4.0 | 41.0 | 42.0 | 6.0 | 7.0 | 4.5 | 5.5 | ±0.8 | 31 | -42 | -45 | 30.0 | 100 | 15 | -5 | 11.5 | 60.0 | 175 | 2.5/2.0 | -3.0 | 145 | 2-11C1B |
| 11.7-12.7 | TIM1112-4UL | 10 | 1.0 | 35.5 | 36.5 | 8.5 | 9.5 | 1.1 | 1.6 | ±0.8 | 36 | -42 | -45 | 24.0 | 60 | 15 | -5 | 3.3 | 34.1 | 175 | 4.4/3.8 | -2.0 | 40 | 2-9D1B |
| | TIM1112-8 | 9 | 4.0 | 38.5 | 39.5 | 4.0 | 5.0 | 3.4 | 4.4 | — | 20 | — | — | — | 80 | 15 | -5 | 10.4 | 60.0 | 175 | 2.5/1.6 | -3.5 | 120 | 2-11C1B |
| | TIM1112-15L | 9 | 4.0 | 41.0 | 42.0 | 5.0 | 6.0 | 4.5 | 5.5 | ±0.8 | 29 | -42 | -45 | 30.0 | 100 | 15 | -5 | 11.5 | 60.0 | 175 | 2.5/2.0 | -3.0 | 145 | 2-11C1B |
| 12.7-13.2 | TIM1213-2L | 9 | 1.0 | 32.5 | 33.5 | 6.5 | 7.5 | 0.85 | 1.1 | ±0.8 | 24 | -42 | -45 | 22.0 | 60 | 15 | -5 | 2.6 | 25.0 | 175 | 6.0/5.0 | -3.5 | 30 | 2-9D1B |
| | TIM1213-4L | 9 | 2.0 | 35.5 | 36.5 | 6.5 | 7.5 | 1.7 | 2.2 | ±0.8 | 24 | -42 | -45 | 25.0 | 70 | 15 | -5 | 3.3 | 42.8 | 175 | 3.5/2.9 | -3.5 | 60 | 2-9D1B |
| | TIM1213-8UL | 10 | 2.0 | 38.5 | 39.0 | 7.0 | 8.0 | 2.0 | 2.5 | ±0.8 | 33 | -42 | -45 | 27.0 | 80 | 15 | -5 | 5.7 | 40.5 | 175 | 3.7/3.0 | -2.0 | 72 | 2-9D1B |
| | TIM1213-8ULA | 10 | 2.0 | 38.5 | 39.0 | 7.0 | 8.0 | 2.0 | 2.5 | ±0.8 | 33 | -42 | -45 | 27.0 | 80 | 15 | -5 | 5.7 | 40.5 | 175 | 3.7/3.0 | -2.0 | 72 | 2-11C1B |
| | TIM1213-10L | 9 | 4.0 | 40.0 | 40.5 | 5.0 | 6.0 | 4.0 | 5.0 | ±0.8 | 23 | -42 | -45 | 29.0 | 90 | 15 | -5 | 11.5 | 60.0 | 175 | 2.5/2.0 | -3.0 | 145 | 2-11C1B |
| | TIM1213-15L | 9 | 4.0 | 41.0 | 42.0 | 5.0 | 6.0 | 4.5 | 5.5 | ±0.8 | 29 | -42 | -45 | 30.0 | 100 | 15 | -5 | 11.5 | 60.0 | 175 | 2.5/2.0 | -3.0 | 145 | 2-11C1B |
| | TIM1213-18L | 10 | 4.4 | 42.0 | 42.5 | 5.0 | 6.0 | 5.5 | 6.0 | ±0.8 | 28 | -25 | -28 | 36.0 | 100 | 15 | -5 | 11.5 | 65.0 | 175 | 2.3/1.8 | -2.8 | 145 | 2-11C1B |
| TIM1213-30L | 10 | 7.0 | 44.0 | 45.0 | 4.5 | 5.5 | 10.0 | 11.0 | ±0.8 | 23 | -25 | -28 | 38.0 | 100 | 15 | -5 | 20.0 | 136.0 | 175 | 1.1/1.0 | -2.0 | 290 | 7-AA03B | |

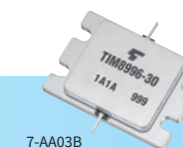
* : ΔTch = Channel Temperature Rise, Formula: ΔTch = (V_{DS} × I_{DS} + P_{in} - P_{1dB}) × R_{th(C-C)}, ** : Gain Flatness



2-9D1B



2-11C1B



7-AA03B

X and Ku-band Internally Matched Power GaAs FETs (2/2)

(Ta = 25 °C)

| FREQUENCY BAND (GHz) | MODEL No. | BIAS CONDITIONS | | RF PERFORMANCE SPECIFICATIONS | | | | | | | | | | ABSOLUTE MAXIMUM RATINGS | | | | | ELECTRICAL CHARACTERISTICS (TYP.) | | | PACKAGE CODE | | | | |
|----------------------|------------------------|---------------------|-------------------------|-------------------------------|------|-----------------------|------|---------------------|------|------------|----------------------|-----------------------|------|--------------------------|---------------------|---------------------|---------------------|---------------------------------|-----------------------------------|--|------------------------|--------------|--|------|------|---|
| | | V _{DS} (V) | I _{DS} set (A) | P _{1dB} (dBm) | | G _{1dB} (dB) | | I _{DS} (A) | | ΔG*** (dB) | η _{add} (%) | IM ₃ (dBc) | | ΔTch* (°C) | V _{DS} (V) | V _{GS} (V) | I _{DS} (A) | P _T (W) (Tc = 25 °C) | Tch (°C) | R _{th} (C-C) MAX./TYP. (°C/W) | V _{GSoff} (V) | | I _{DS} (mA) @V _{DS} = 3V | | | |
| | | | | MIN. | TYP. | MIN. | TYP. | TYP. | MAX. | | | MAX. | TYP. | | | | | | | | | | | MIN. | TYP. | P _{o@single carrier level} (dBm) |
| 14.0-14.5 | TIM1414-2L | 9 | 1.0 | 32.5 | 33.5 | 5.5 | 6.5 | 0.85 | 1.1 | ±0.8 | 23 | | | -42 | -45 | 22.0 | 60 | 15 | -5 | 2.6 | 25.0 | 175 | 6.0/5.0 | -3.5 | 30 | 2-9D1B |
| | TIM1414-5L | 9 | 2.0 | 37.0 | 37.5 | 5.0 | 6.0 | 2.0 | 2.5 | ±0.8 | 23 | | | -42 | -45 | 26.0 | 80 | 15 | -5 | 5.7 | 40.5 | 175 | 3.7/3.0 | -3.0 | 72 | 2-9D1B |
| | TIM1414-7 | 9 | 2.0 | 37.5 | 38.5 | 5.5 | 6.5 | 2.25 | 2.75 | — | 27 | | | — | — | — | 80 | 15 | -5 | 5.7 | 40.5 | 175 | 3.7/3.0 | -3.0 | 72 | 2-9D1B |
| | TIM1414-15L | 9 | 4.0 | 41.0 | 42.0 | 5.0 | 6.0 | 4.5 | 5.5 | ±0.8 | 29 | | | -42 | -45 | 30.0 | 100 | 15 | -5 | 11.5 | 60.0 | 175 | 2.5/2.0 | -3.0 | 145 | 2-11C1B |
| | TIM1414-18L | 9 | 4.4 | 42.0 | 42.5 | 5.0 | 6.0 | 5.5 | 6.0 | ±0.8 | 28 | | | -25 | — | 36.0 | 100 | 15 | -5 | 11.5 | 65.0 | 175 | 2.3/1.8 | -2.8 | 145 | 2-11C1B |
| 13.75-14.5 | TIM1314-4UL | 10 | 1.0 | 35.5 | 36.5 | 7.0 | 8.0 | 1.1 | 1.6 | — | 34 | | | -42 | -45 | 23.0 | 60 | 15 | -5 | 3.3 | 34.1 | 175 | 4.4/3.8 | -2.0 | 40 | 2-9D1B |
| | TIM1414-7-252 | 9 | 2.0 | 37.0 | 38.0 | 5.0 | 6.0 | 2.25 | 2.75 | — | 23 | | | — | — | — | 80 | 15 | -5 | 5.7 | 40.5 | 175 | 3.7/3.0 | -3.0 | 72 | 2-9D1B |
| | TIM1314-8UL | 10 | 2.0 | 38.5 | 39.0 | 6.0 | 7.0 | 2.0 | 2.5 | ±0.8 | 32 | | | -42 | -45 | 27.0 | 80 | 15 | -5 | 5.7 | 40.5 | 175 | 3.7/3.0 | -2.0 | 72 | 2-9D1B |
| | TIM1314-9L | 9 | 2.2 | 39.0 | 39.5 | 5.0 | 6.0 | 2.8 | 3.0 | — | 26 | | | -25 | — | 33.0 | 80 | 15 | -5 | 5.7 | 30.0 | 175 | 3.7/3.0 | -2.0 | 72 | 2-9D1B |
| | TIM1314-15UL | 10 | 4.0 | 41.0 | 42.0 | 6.0 | 7.0 | 4.0 | 5.0 | ±0.8 | 32 | | | -42 | -45 | 30.0 | 80 | 15 | -5 | 12.5 | 60.0 | 175 | 2.5/2.0 | -2.0 | 160 | 2-11C1B |
| | TIM1414-18L-252 | 9 | 4.4 | 41.5 | 42.0 | 5.0 | 6.0 | 5.5 | 6.0 | — | 24 | | | -25 | — | 36.0 | 100 | 15 | -5 | 11.5 | 65.0 | 175 | 2.3/1.8 | -2.8 | 145 | 2-11C1B |
| | TIM1314-30L | 10 | 7.0 | 44.0 | 45.0 | 4.0 | 5.0 | 10.0 | 11.0 | — | 22 | | | -25 | — | 38.0 | 100 | 15 | -5 | 20.0 | 136.0 | 175 | 1.1/1.0 | -2.0 | 290 | 7-AA03B |

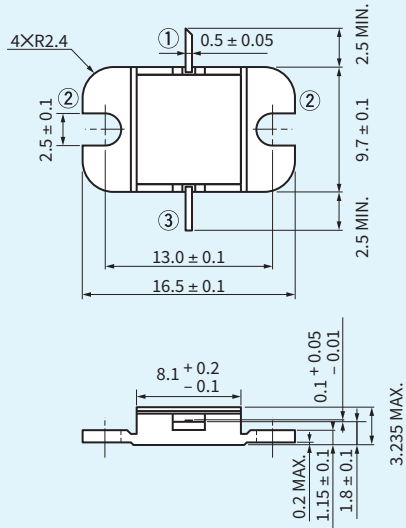
* : ΔTch = Channel Temperature Rise, Formula: ΔTch = (V_{DS} × I_{DS} + P_{in} - P_{1dB}) × R_{th(C-C)}, *** : Gain Flatness



Package Code and Outlines

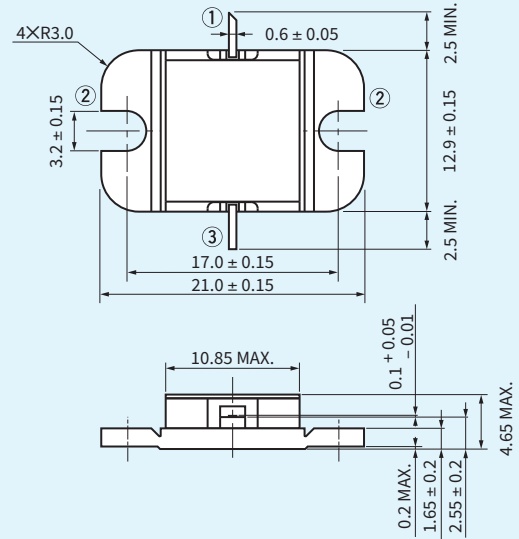
Unit in mm

2-9D1B



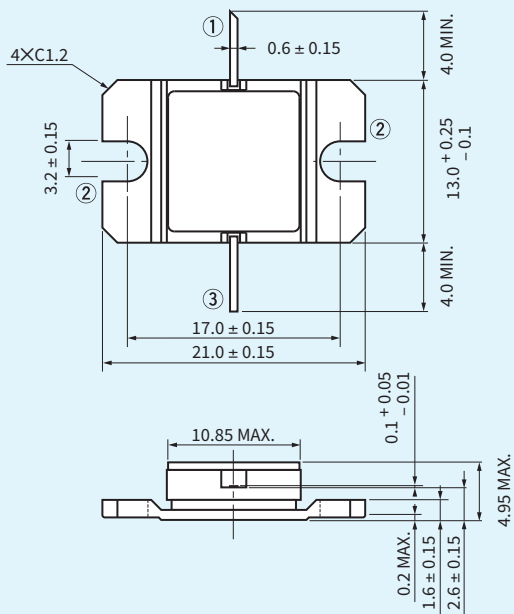
- ① Gate
- ② Source
- ③ Drain

2-11C1B



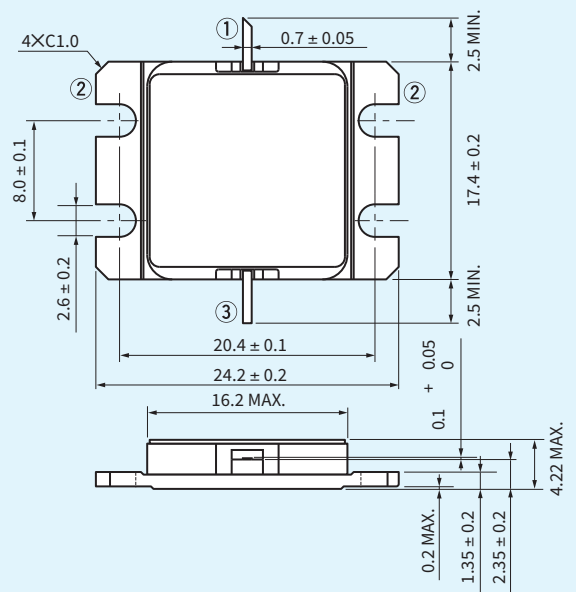
- ① Gate
- ② Source
- ③ Drain

2-11D1B



- ① Gate
- ② Source
- ③ Drain

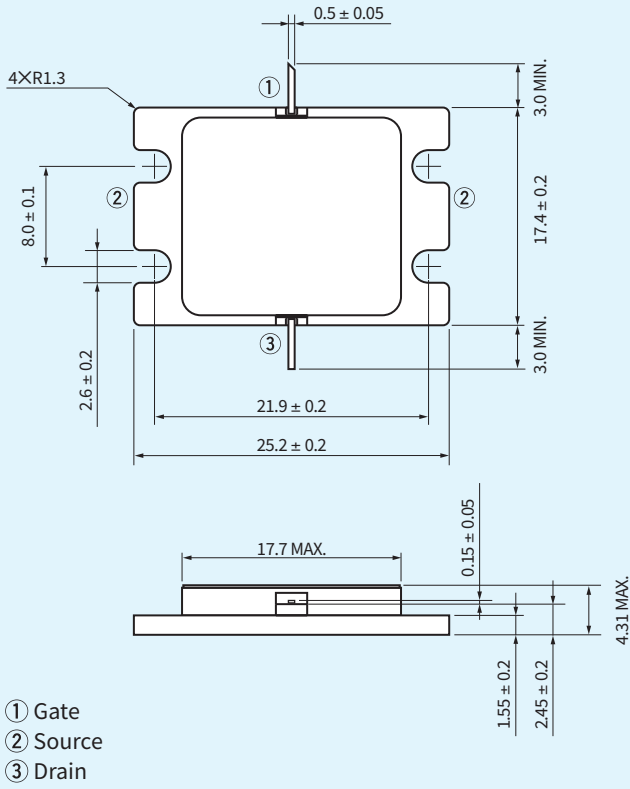
2-16G1B



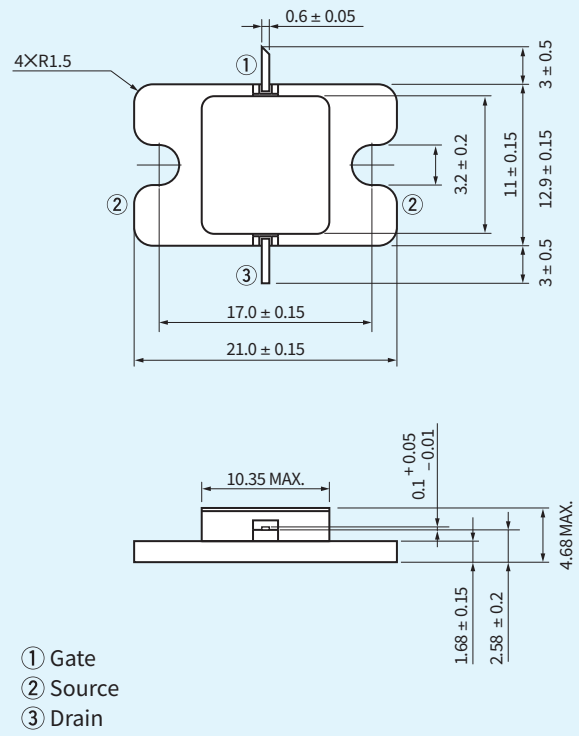
- ① Gate
- ② Source
- ③ Drain

Unit in mm

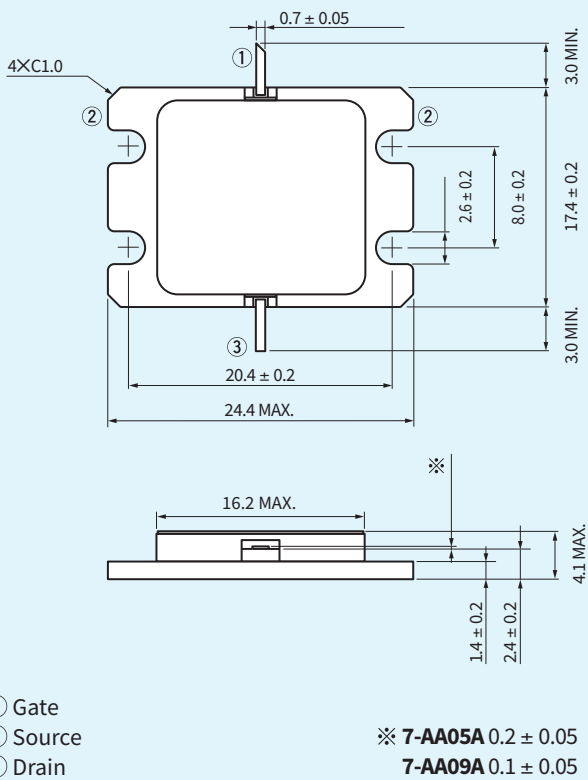
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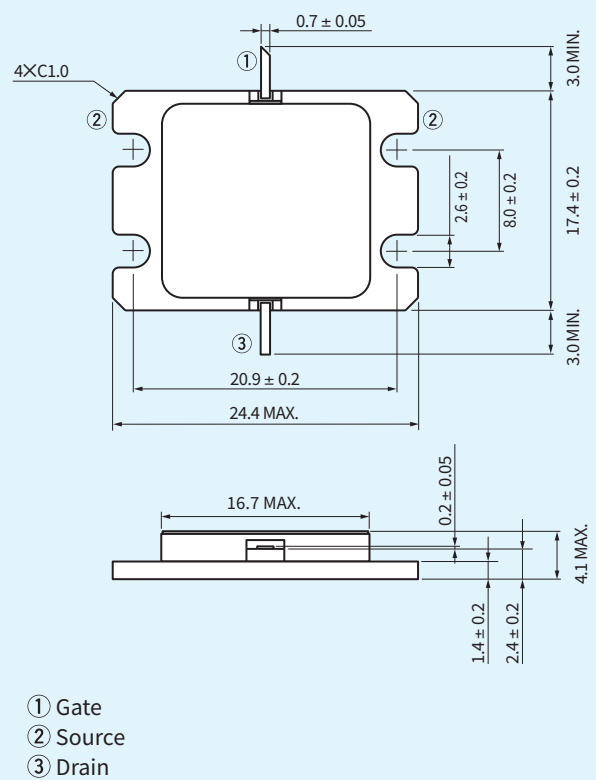
7-AA04A/7-AA07A



7-AA05A/7-AA09A



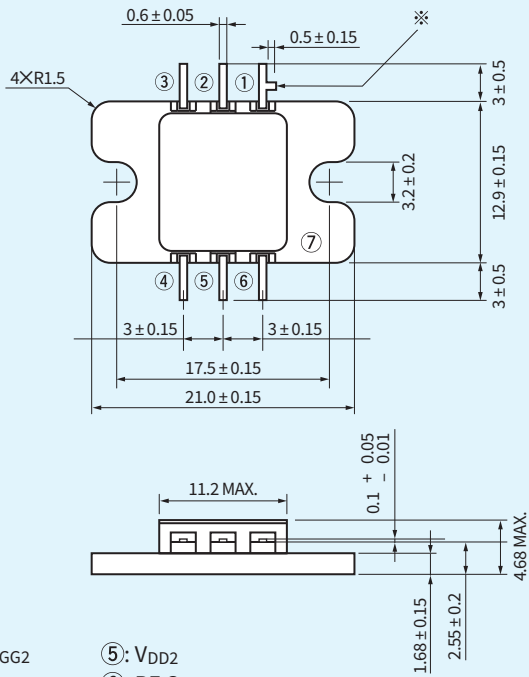
7-AA06A



Package Code and Outlines

Unit in mm

7-BA42B



- ①: V_{GG2}
- ②: V_{DD1}
- ③: RF Input
- ④: V_{GG1}
- ⑤: V_{DD2}
- ⑥: RF Output
- ⑦: GND
- ※: Orientation Tab

**Toshiba America
Electronic Components, Inc.**

- Irvine, Headquarters
Tel: +1 949-509-4200

Toshiba Electronics Europe GmbH

- Düsseldorf Head Office
Tel: +49 (0) 211 5296 137

**Toshiba Electronics Asia
(Singapore) Pte. Ltd.**

Tel: +65 62785252

Toshiba Electronics Korea Corporation

Tel: +82 2 3484-4334

Toshiba Devices & Storage (Shanghai) Co., Ltd.

- Shanghai Head Office
Tel: +86 (21) 6090-0610 Ext. 6823
- Shenzhen Branch
Tel: +86 (755) 3661-5889 Ext. 8861

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