

Features

Frequency Range: 13~15.5GHz

Typ. P_{out}: 47dBm@28V ($t_w=100\mu s$, $D=40\%$)

46.5dBm@28V (CW)

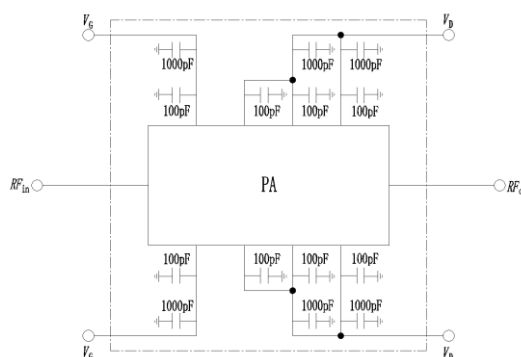
Typ. PAE: 38% ($t_w=100\mu s$, $D=40\%$)

35% (CW)

Bias: $V_D=28V$, $V_G=-2.2V\sim-1.8V$

Chip Size: 15.25mm×15.25mm×2.75mm

Functional Block Diagram



Overview

The HXNM41001-F1 is a high-performance power amplifier module. It operates using positive and negative power supplies, with a drain voltage of 28V and a gate voltage between -2.2V and -1.8V. The module delivers an output power of 47 dBm within the 13–15.5 GHz frequency range, achieving a power gain of 22 dB and a PAE of 38%. It is housed in a 15.25 mm × 15.25 mm × 2.75 mm metal-ceramic package featuring Kovar leads with nickel-gold plating, making it suitable for high-temperature soldering processes.

Absolute Maximum Ratings (T_A=25°C)¹

Symbol	Parameter	Rating	Remarks
V_D	Drain Voltage	32V	
V_G	Gate Voltage	-5V~-1V	
P_{in}	Input Signal Power	28dBm	
T_{ch}	Channel Operating Temp.	225°C	
T_{stg}	Storage Temp.	-55~125°C	

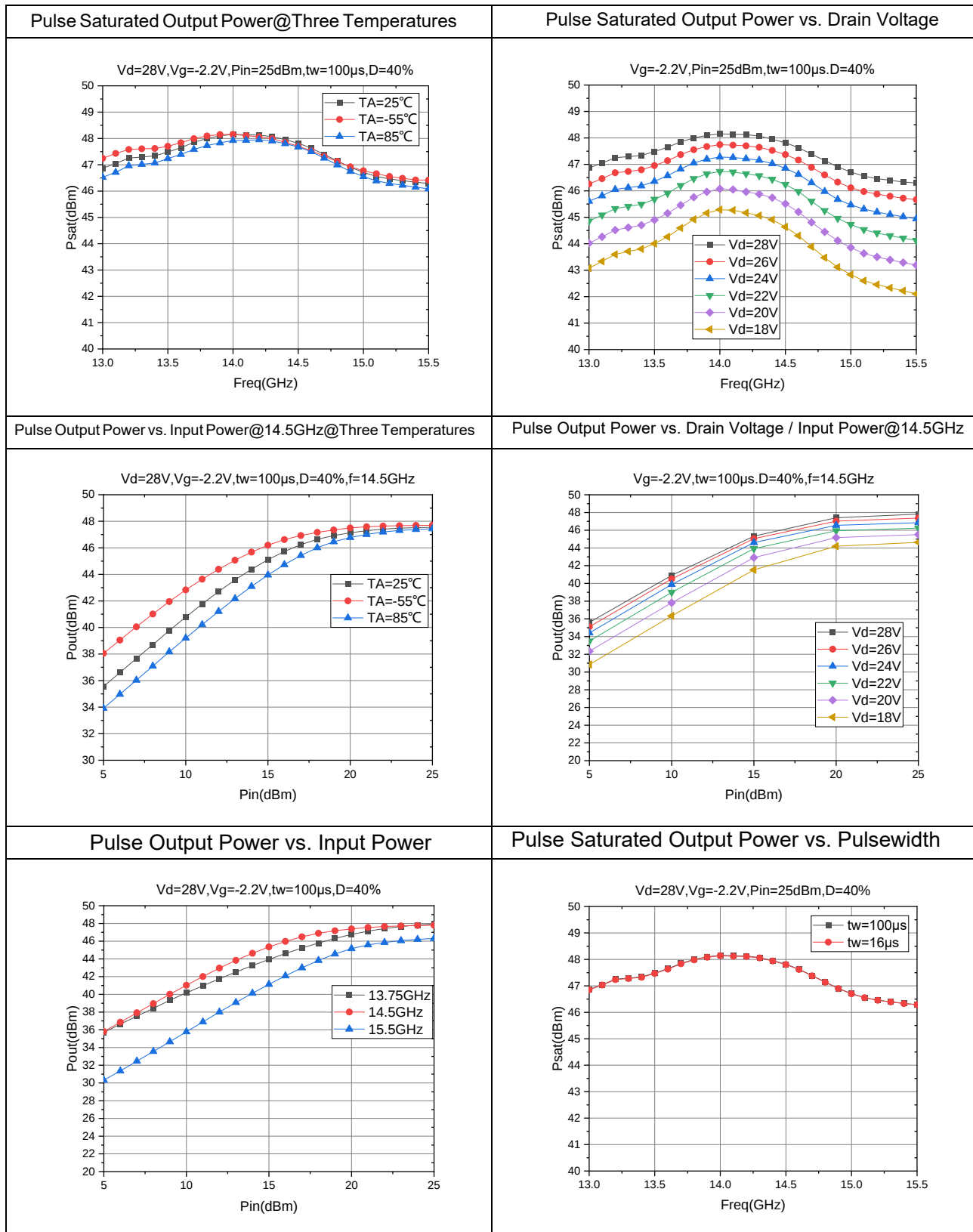
【1】 Exceeding any of the above maximum limits may result in permanent damage.

Electrical Specifications under Pulsed Mode (T_A=25°C)

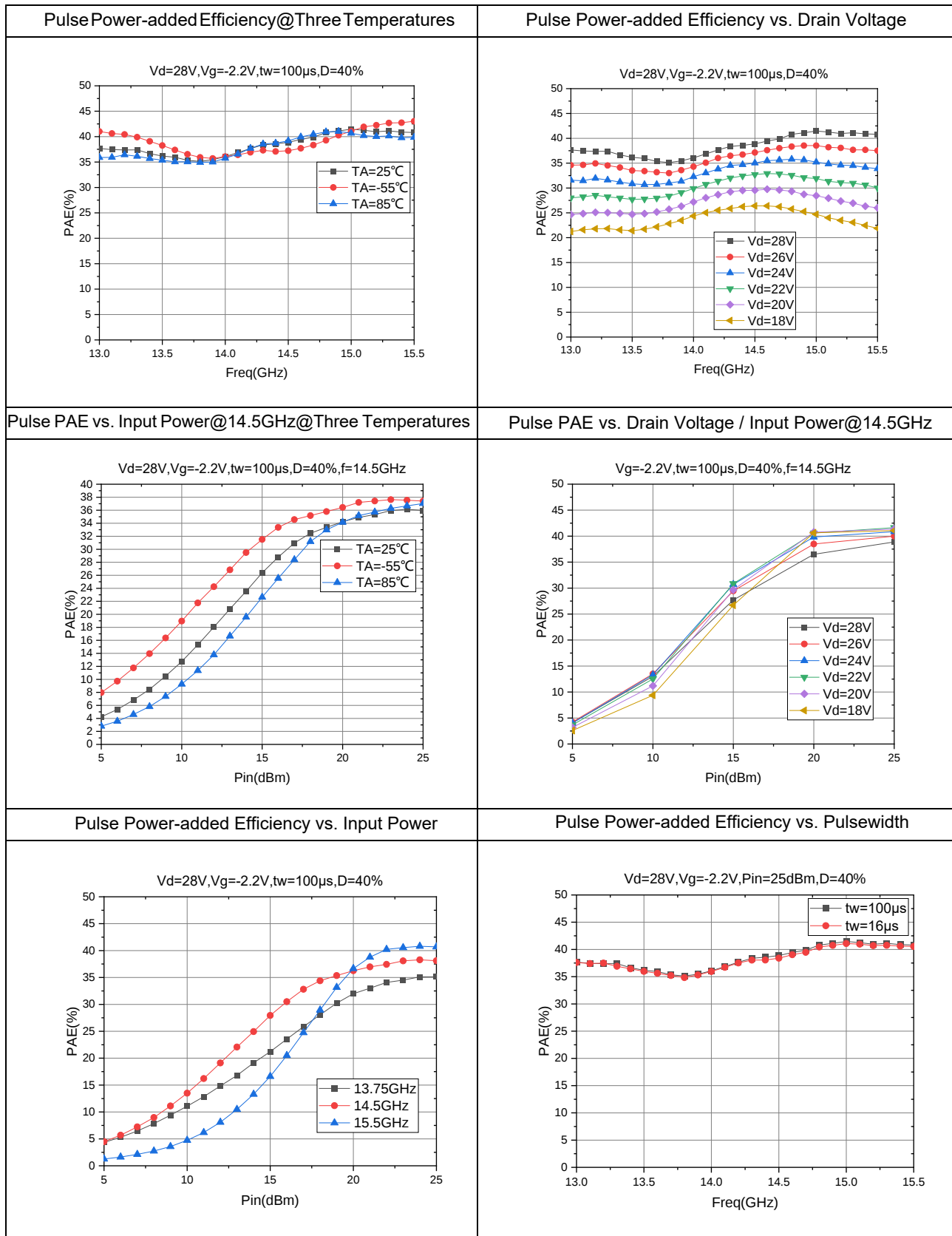
Symbol	Parameter	Test Conditions: f : 13~15.5GHz, $V_D=28V$ V_G =certain value between -2.2V~-1.8V $t_w=100\mu s$, $D=40\%$	Value			Unit
			Min	Typ	Max	
P_o	Saturated Output Power		45.5	47	—	dBm
G_p	Power Gain		21	22	—	dB
ΔG_p	Power Gain Flatness		-1.5	—	1.5	dB
I_D	Dynamic Operating Current		—	5	6	A
PAE	Power-added Efficiency		30	38	—	%

Electrical Specifications under CW Mode (T_A=25°C)

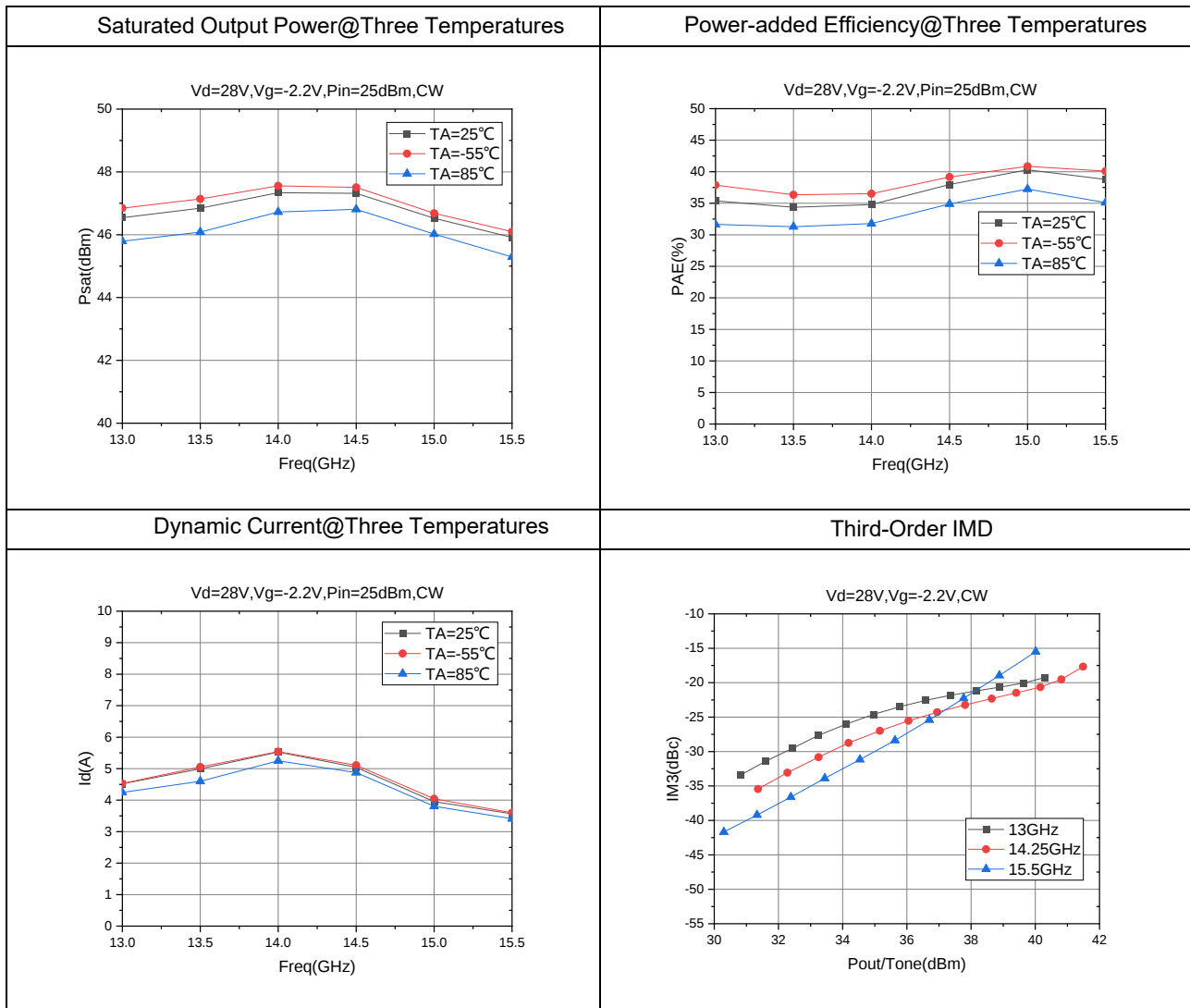
Symbol	Parameter	Test Conditions: f : 13~15.5GHz, $V_D=28V$ V_G =certain value between -2.2V~-1.8V CW	Value			Unit
			Min	Typ	Max	
P_o	Saturated Output Power		45	46.5	—	dBm
G_p	Power Gain		20	21.5	—	dB
ΔG_p	Power Gain Flatness		-1.5	—	1.5	dB
I_D	Dynamic Operating Current		—	5	6	A
PAE	Power-added Efficiency		27	35	—	%
$IM3$	Third-Order IMD ($P_{out}/T_{one}=39dBm$)		20	—	—	dBc

Performance Plots ($V_G=-2.2V, V_D=28V, t_w=100\mu s, D=40\%, T_A=25^\circ C$, unless otherwise specified)


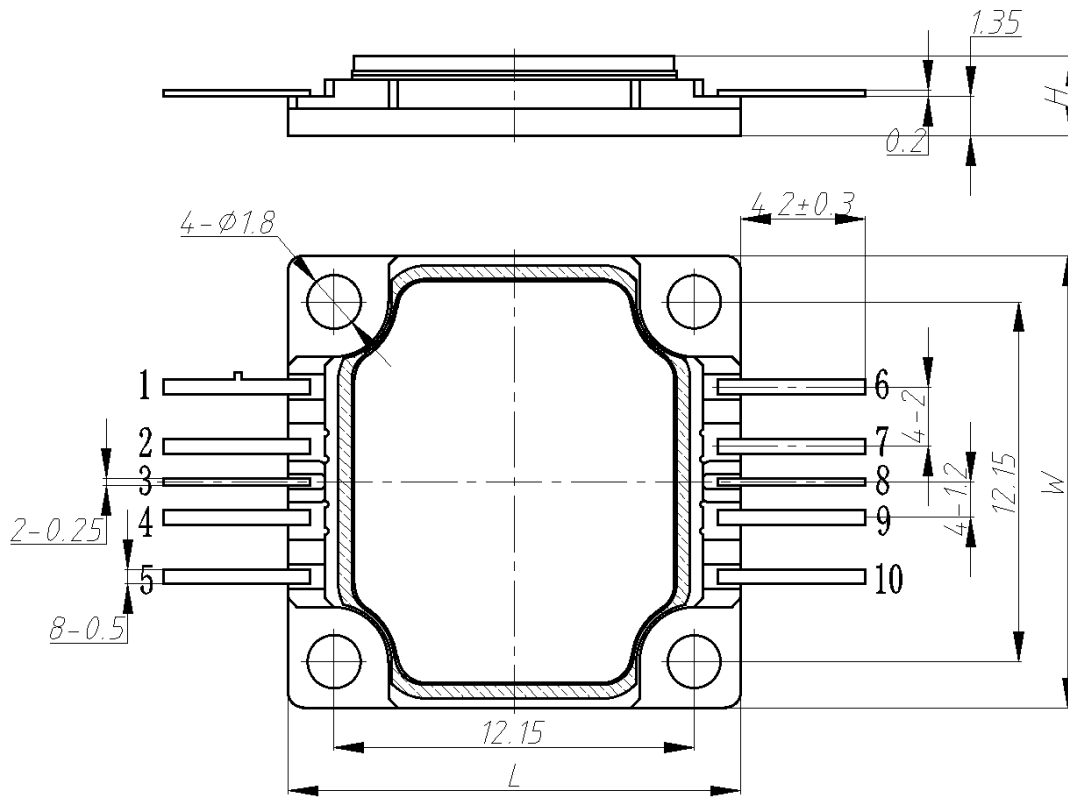
Performance Plots ($V_G=-2.2V, V_D=28V, t_w=100\mu s, D=40\%, T_A=25^\circ C$, unless otherwise specified)



Performance Plots ($V_G=-2.2V$, $V_D=28V$, $P_{in}=25dBm$, CW)



Outline Dimensions

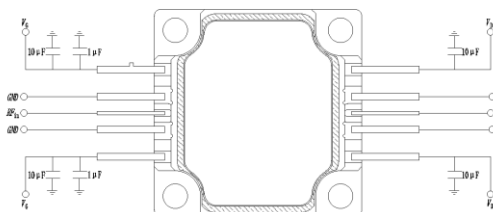


Symbol	Value(mm)		
	Min	Typ	Max
L	15.05	15.25	15.45
W	15.05	15.25	15.45
H	2.35	2.75	3.15

PIN Definition

PIN No.	Symbol	Function
1、5	V_G	Gate
3	RF_{in}	RF in
8	RF_{out}	RF out
6、10	V_D	Drain
2、4、7、9	GND	GND

Recommended Application Circuit



The recommended peripheral circuit for CW operation is shown in the figure. For pulsed operation, the 10 µF capacitor at the VD terminal must be removed.

Notes

1. When using the module, mount it onto a housing with good heat dissipation capabilities using M1.6 screws, the use of an indium foil between the module base and the housing is recommended.
2. The module operates on a dual power supply. Apply the negative voltage first, followed by the positive voltage. When powering down, disconnect the positive voltage first, followed by the negative voltage.
3. Proper grounding and adequate heat dissipation are required during operation.
4. The module is sensitive to static electricity, take appropriate anti-static precautions during use, transport, and handling, and avoid severe impacts or drops to prevent product damage.
5. It is recommended to install peripheral capacitors according to the recommended application circuit configuration.