

**Feature**

This device is Pb-Free, Halogen Free/BFR Free and RoHS compliant.

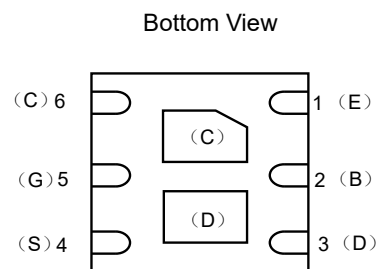
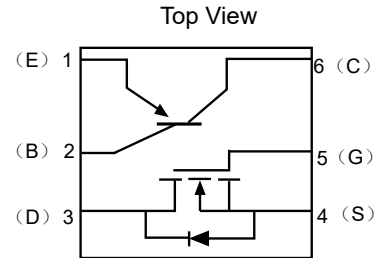
PNMT6N1-LB is composed by a transistor and a MOSFET

Transistor:

- Very low collector to emitter saturation voltage
- DC current gain <100
- 3A continuous collector current
- PNP epitaxial planar silicon transistor

MOSFET:

MOSFET Product Summary			
V <sub>DS</sub> (V)	R <sub>DS(on)</sub> (Ω)	V <sub>GS(th)</sub> (V)	I <sub>D</sub> (A)
40	4.5@ V <sub>GS</sub> =4V	0.6 to 1.5	0.18



- Transistor

**Electrical characteristics per line@25°C ( unless otherwise specified)**

Parameter	Symbol	Conditions	Value	Units
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -10mA	-30	V
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = -0.1mA	-40	V
Emitter -Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = -0.1mA	-5	V
Collector Current	I <sub>C</sub>		-3	A
Collector Peak Current	I <sub>CM</sub>		-6	A
Base Current	I <sub>B</sub>		-0.2	A
Base Peak Current	I <sub>BM</sub>		-0.5	A
Total Dissipation @25°C	P <sub>tot</sub>		1.2	W
Storage Temperature	T <sub>stg</sub>		-65~150	°C
Max. Operating Junction Temperature	T <sub>j</sub>		150	°C
Junction-to-Ambient Thermal Resistance <sup>(1)</sup>	R <sub>θJA</sub>		104	°C/ W

Note 1: Surface mounted on FR-4 Board using 1 square inch pad size, 1oz copper

## Absolute maximum rating@25°C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
DC Current Gain	$h_{FE}$	$I_C=-0.001A, V_{CE}=-5.0V$	60		120	-
		$I_C=-0.1A, V_{CE}=-5.0V$	60		105	
		$I_C=-0.5A, V_{CE}=-5.0V$	60		100	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-0.5A, I_B=-15mA$			-0.14	V
		$I_C=-1.2A, I_B=-40mA$			-0.23	
		$I_C=-2A, I_B=-220mA$			-0.30	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-1A, I_B=-0.05mA$			-1.1	V
Collector Cut-off Current ( $I_E=0$ )	$I_{CBO}$	$V_{CB}=-40V$			-0.1	$\mu A$
		$V_{CB}=-30V, T_C=125^\circ C$			-20	
Emitter Cut-off Current( $I_C=0$ )	$I_{EBO}$	$V_{EB}=-5V$			-0.1	$\mu A$

➤ MOSFET

## Electrical characteristics per line@25°C ( unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$V_{DSS}$	$I_D=10\mu A, V_{GS}=0V$	40	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=35V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 15V$	-	-	$\pm 1$	$\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.6	-	1.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=0.2A$	-	-	4	$\Omega$
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{GS}=0V, V_{DS}=25V,$ $f=1MHz$	-	-	40	pF
Output Capacitance	$C_{DSS}$		-	-	20	pF
Reverse Transfer Capacitance	$C_{RSS}$		-	-	5	pF
<b>SWITCHING PARAMETERS</b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=30V, V_{GS}=10V,$ $R_G=25\Omega, R_L=150\Omega$ $I_D=0.2A$	-	-	20	ns
Turn-Off Delay Time	$t_{d(off)}$		-	-	20	ns

Absolute maximum rating@25°C

Rating		Symbol	Value	Units
Drain-Source Voltage		$V_{DS}$	40	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Drain Current	Continuous	$I_D$	0.18	A
	Pulsed	$I_D$	0.36	A
Total Power Dissipation	$T_A=25^\circ\text{C}$	$P_D$	150	mW

Typical Characteristics

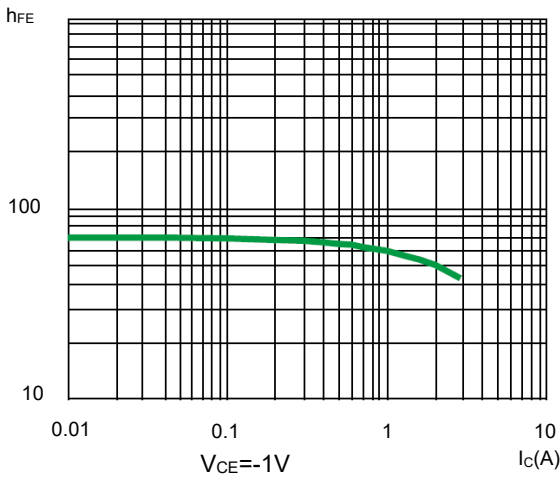


Fig1.DC Current Gain

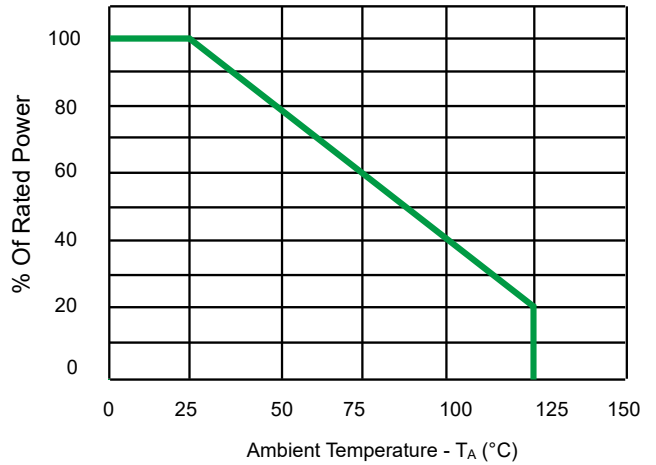


Fig2. Power Derating Curve

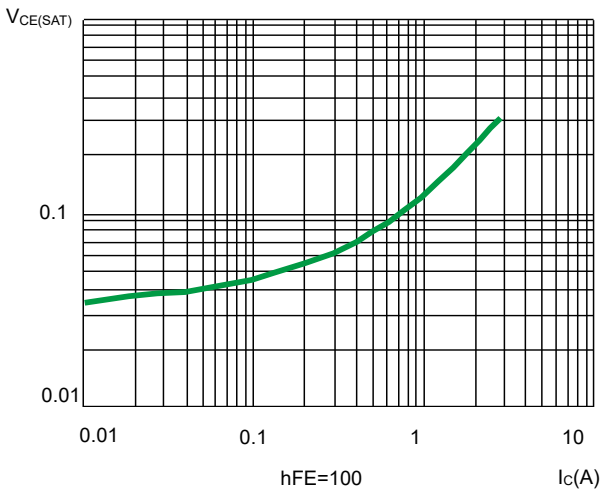


Fig 3.Collector-Emitter Saturation Voltage

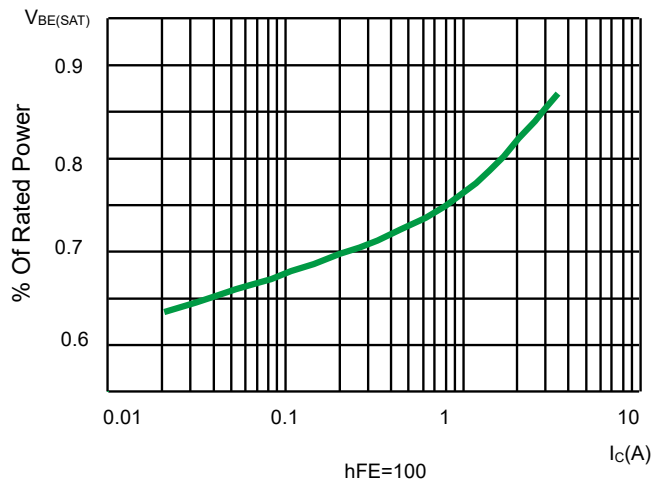


Fig4. Base-Emitter Saturation Voltage

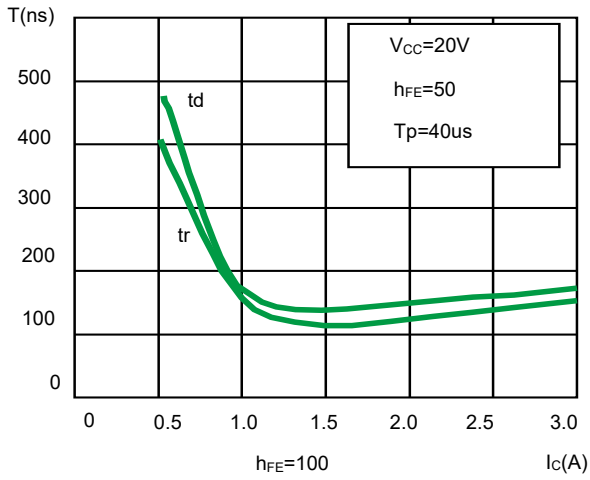


Fig 5. Switching Times Resistive Load

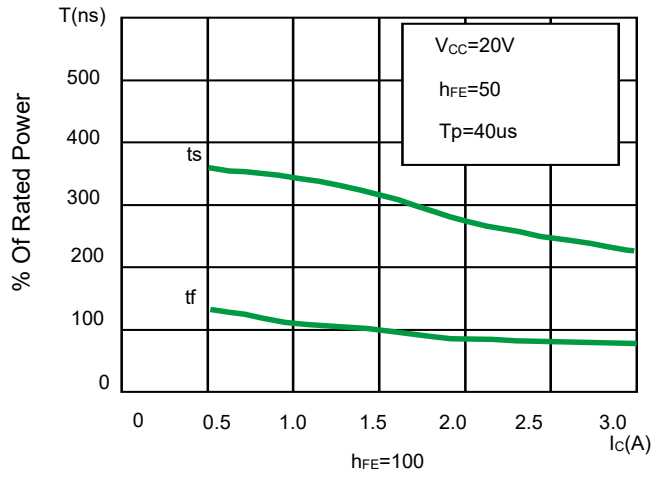


Fig 6. Switching Times Resistive Load

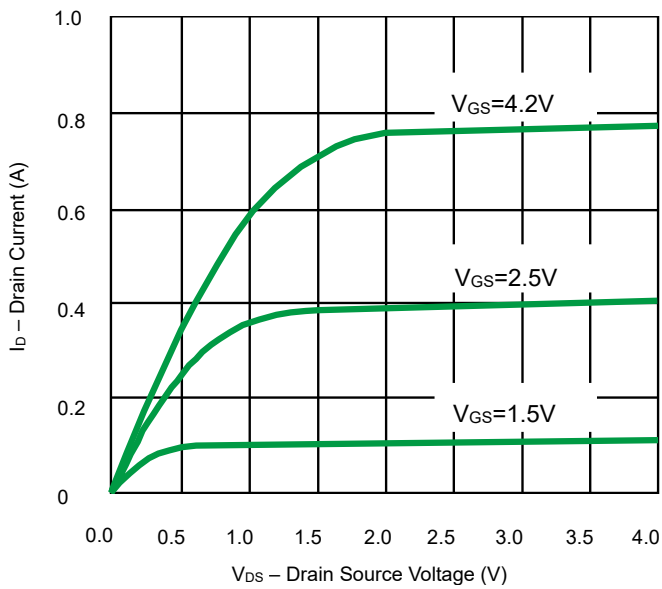


Fig 7. Output Characteristics

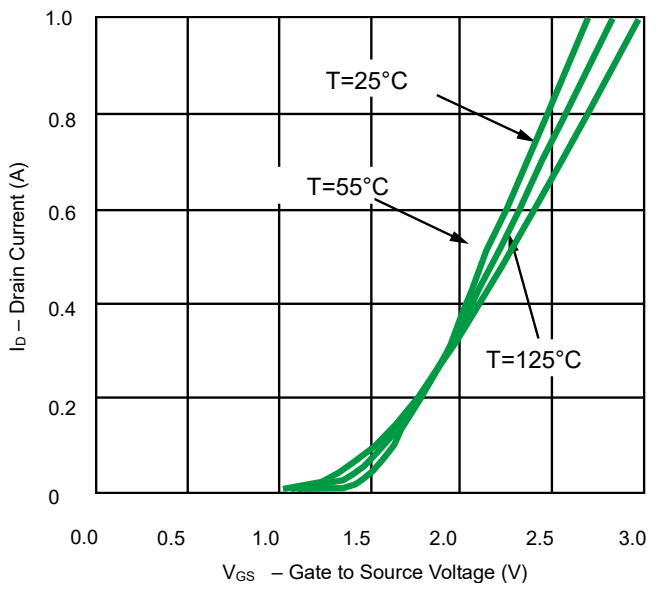


Fig 8. Transfer Characteristics

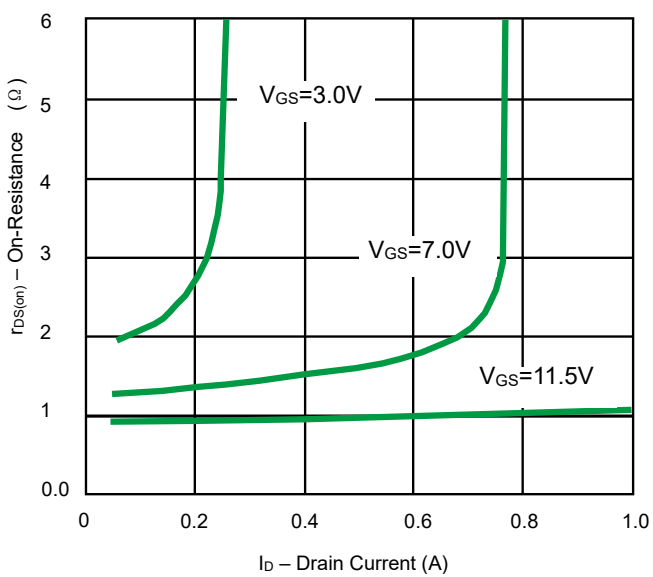


Fig 9. On-Resistance vs. Drain Current

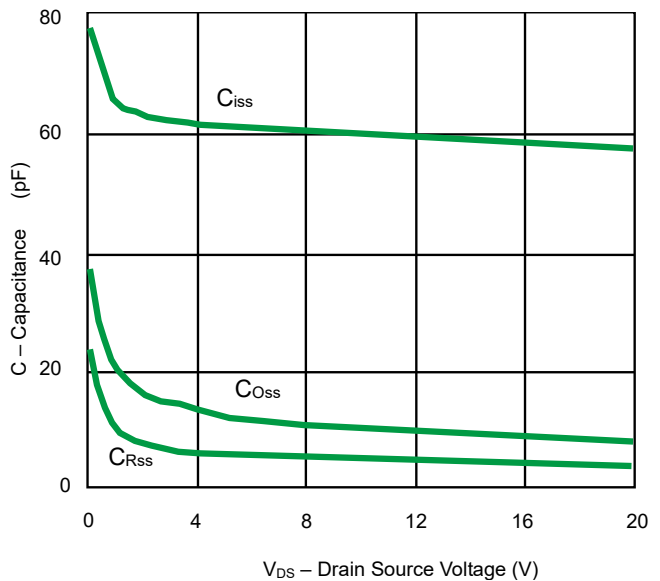
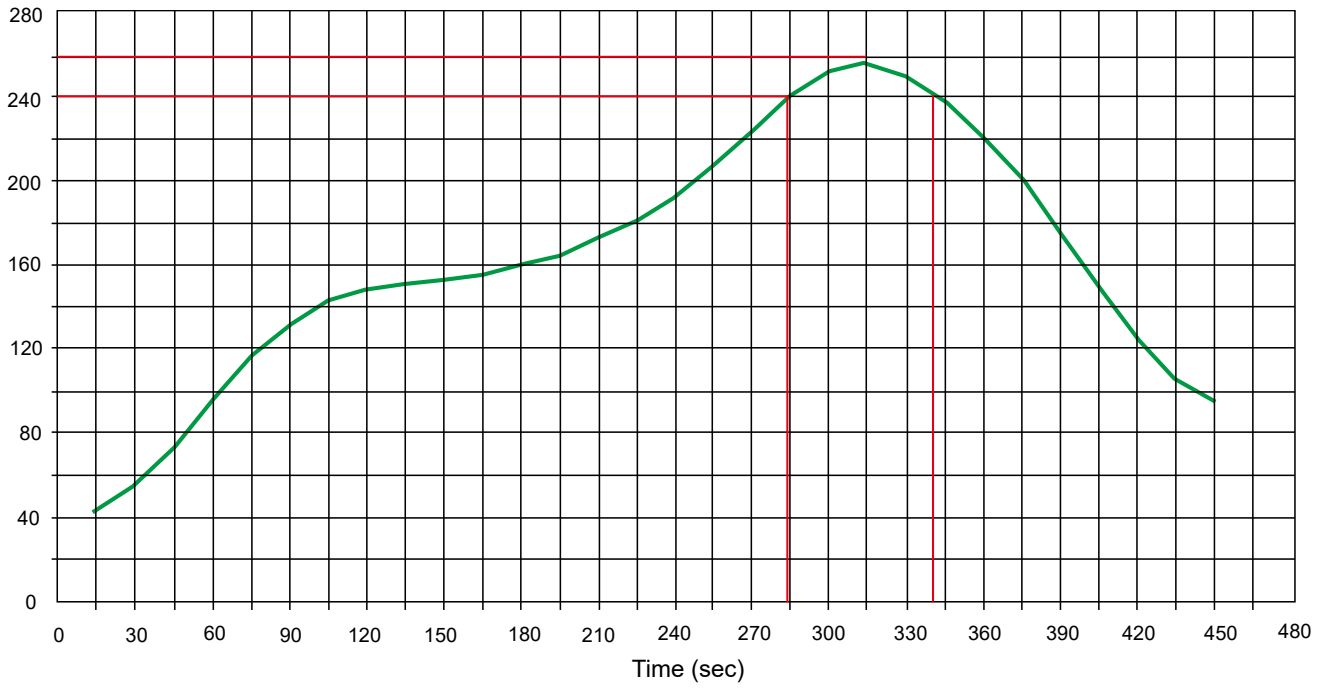


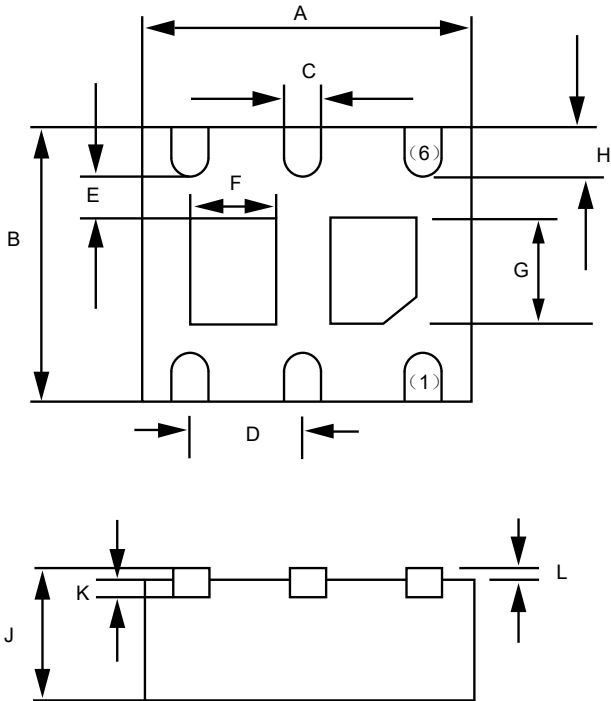
Fig 10. Capacitance

Solder Reflow Recommendation

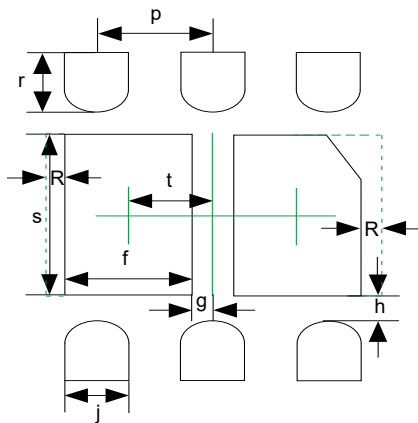
Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



Product dimension DFN-6L(2\*2)



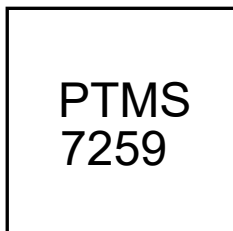
Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.924	2.076	0.076	0.082
B	1.924	2.076	0.076	0.082
C	0.250	0.350	0.010	0.014
D	0.650 (typ.)		0.026 (typ.)	
E	0.200 MIN.		0.008 MIN.	
F	0.520	0.720	0.020	0.028
G	0.900	1.100	0.035	0.043
H	0.174	0.326	0.007	0.013
J	0.550	0.650	0.021	0.027
K	0.206 REF		0.206 REF	
L	0.203 REF		0.203 REF	



If there is enough place in PCB. It can be mounted with copper along the dotted line in order to optimize thermal design.

Dim	Millimeters	
	MIN	MAX
p	0.60	0.70
r	0.40	0.50
s	1.05	1.15
t	0.42	0.52
f	0.67	0.77
g	0.06	0.16
h	0.1	0.2
j	0.35	0.45
R	0.1	0.2

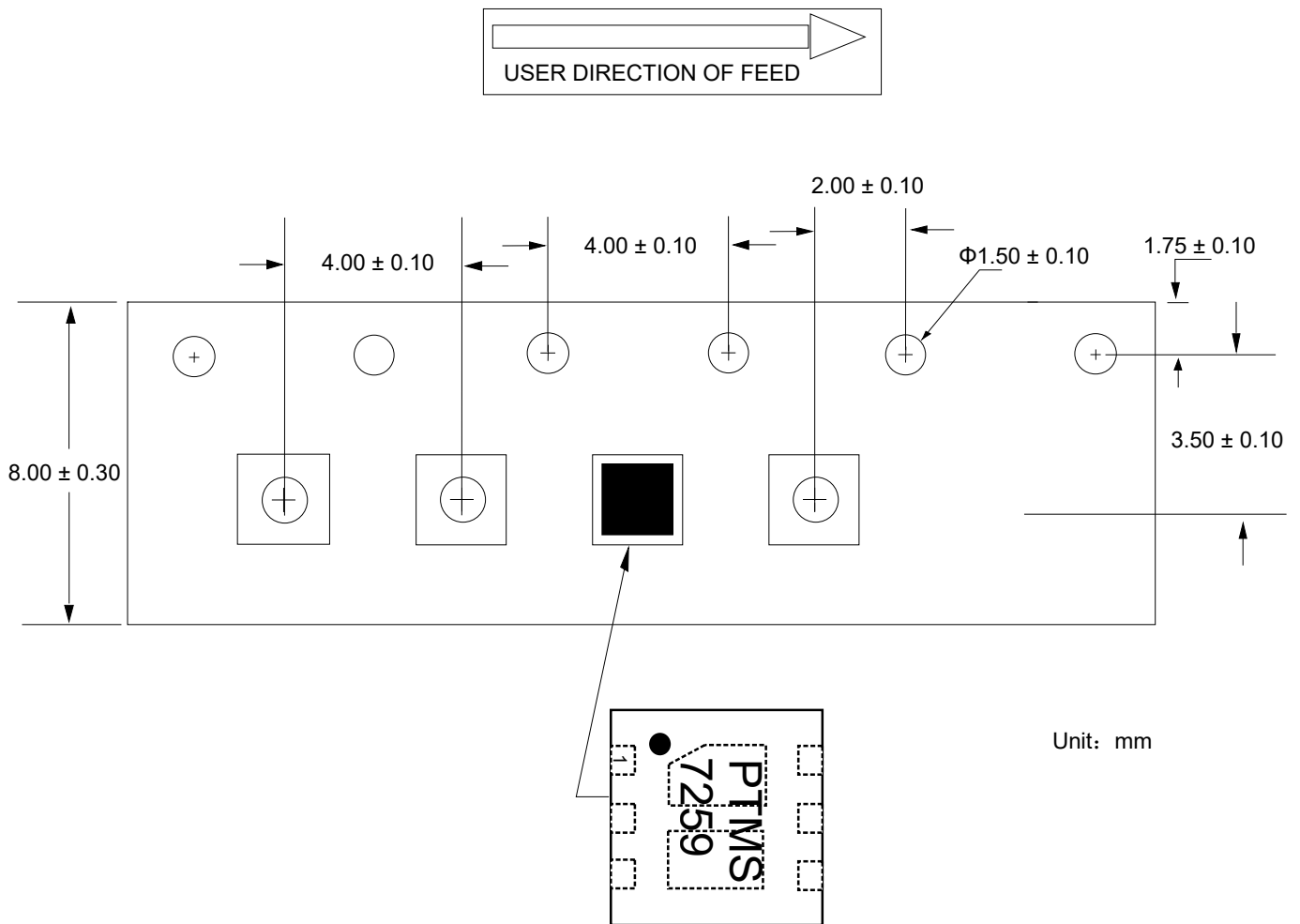
Marking information




Ordering information

Device	Package	Reel	Shipping
PNMT6N1-LB	DFN-6L (2*2)	7"	3000 / Tape & Reel

Load with information




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