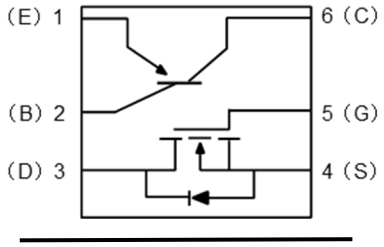
Feature

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

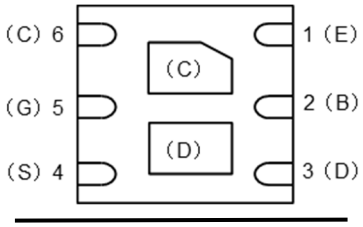
PNMT6N1C is composed by a transistor and a MOSFET



Schematic diagram

Transistor:

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



Bottom View

MOSFET:

MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(Ω)	I_D(A)
20	0.2@ V_{GS}=4.5V	1

- Transistor

Electrical characteristics per line@25℃(unless otherwise specified)

Parameter	Symbol	Conditions	Value	Units
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C =-10mA	-30	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C =-0.1mA	-40	V
Emitter -Base Breakdown Voltage	$V_{(BR)EBO}$	I_E =-0.1mA	-5	V
Collector Current	I_C		-3	A
Collector Peak Current	I_{CM}		-6	A
Base Current	I_B		-0.2	A
Base Peak Current	I_{BM}		-0.5	A
Total Dissipation @25°C	P_{tot}		1.2	W
Storage Temperature	T_{STG}		-65~150	°C
Max. Operating Junction Temperature	T_J		150	°C
Junction-to-Ambient Thermal Resistance(1)	$R_{\theta JA}$		104	°C/ W

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

Absolute maximum rating@25℃

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
DC Current Gain	h_{FE}	I_C=-1mA,V_{CE}=-5.0V	150	-	-	-
		I_C=-1A,V_{CE}=-5.0V	100	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=-0.1A,I_B=-1mA	-	-	-0.14	V
		I_C=-0.5A,I_B=-50mA	-	-	-0.17	
		I_C=-1A,I_B=-100mA	-	-	-0.31	
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	μA
		V_{CB}=-30V T_C=125°C	-	-	-20	
Emitter Cut-off Current(I_C=0)	I_{EBO}	V_{EB}=-5V	-	-	-0.1	μA

- MOSFET

Electrical characteristics per line@25℃(unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	V_{DSS}	I_D =1mA,V_{GS}=0V	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =20V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS} =0V,V_{GS}=±8V	-	-	±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =5V, I_D =1mA	0.5	-	1.1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D =650mA	-	0.2	0.45	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS} =10V, f=1MHz	-	30	-	pF
Output Capacitance	C_{DSS}		-	13	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	13	-	pF
SWITCHING PARAMETERS						
Turn-On Delay Time	$t_{d(on)}$	VDD≒10V, VGS =4.0V, RG=10Ω,RL=67Ω ID =150mA	-	7	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	23	-	ns

Absolute maximum rating@25℃

Rating		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	V
Drain Current	Continuous	I_D	1	A
	Pulsed	I_D	4	A
Total Power Dissipation	T_A=25℃	P_D	140	mW

Typical Characteristics

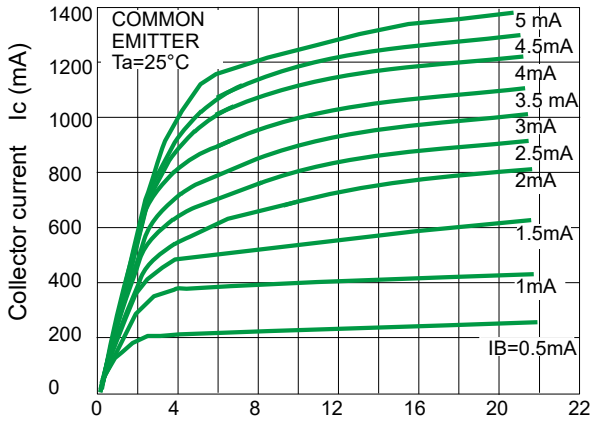


Fig1.Collector-emitter voltage V_{CE} (V)

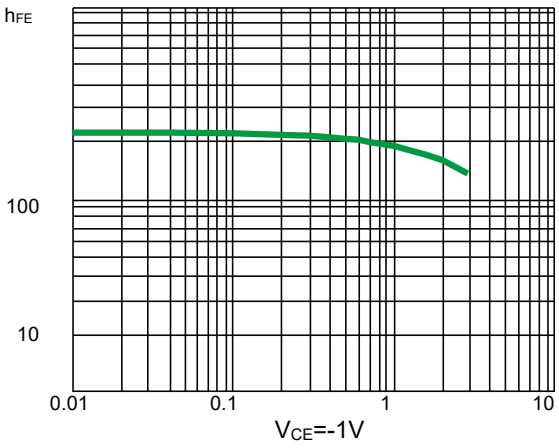


Fig2.DC Current Gain

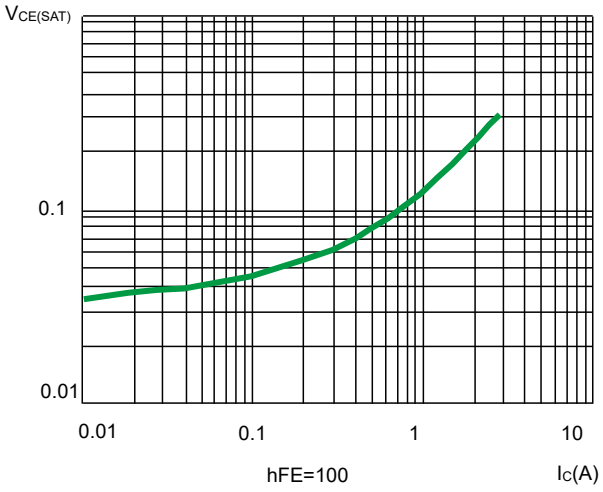


Fig 3.Collector-Emitter Saturation Voltage

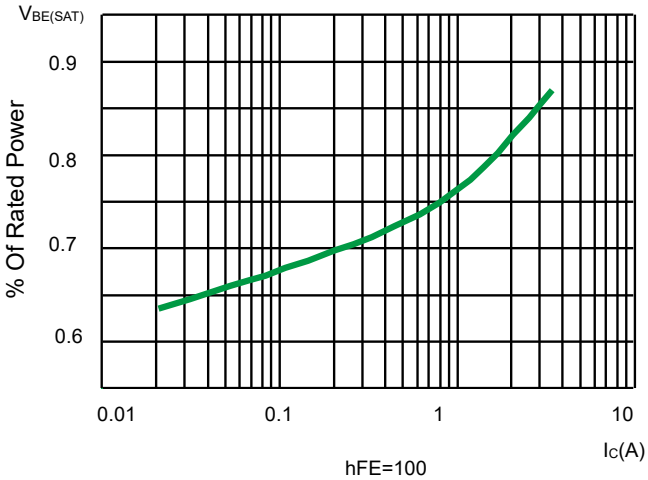


Fig4. Base-Emitter Saturation Voltage

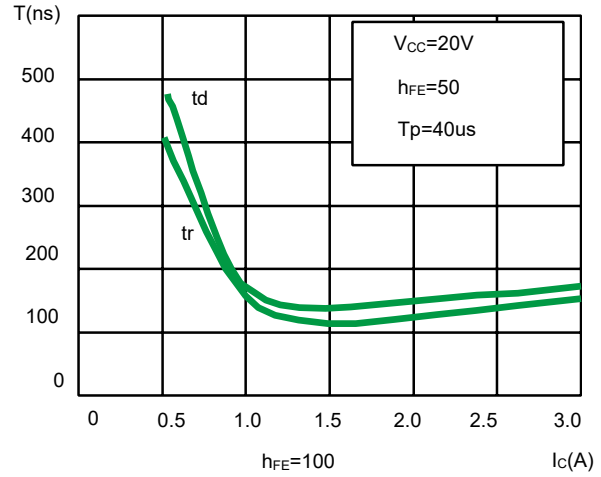


Fig 5.Switching Times Resistive Load

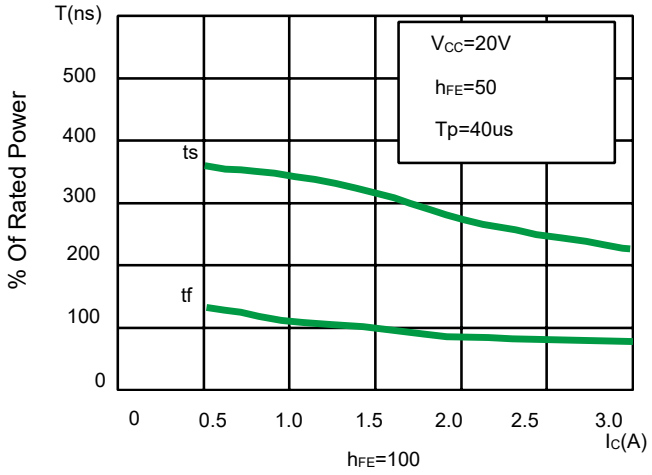


Fig6. Switching Times Resistive Load

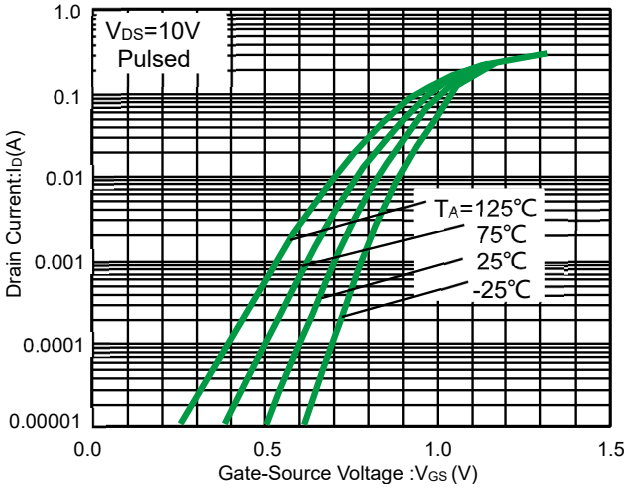


Fig 7. Typical transfer Characteristics

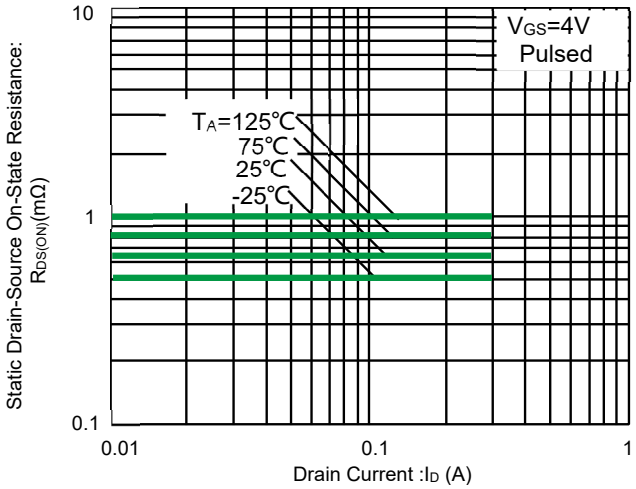


Fig 8. Static drain-source on-state resistance Vs. drain current(1)

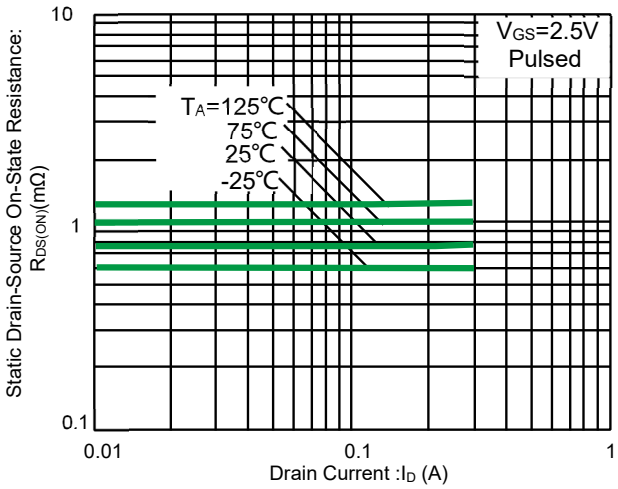


Fig 9. Static drain-source on-state resistance Vs. drain current(2)

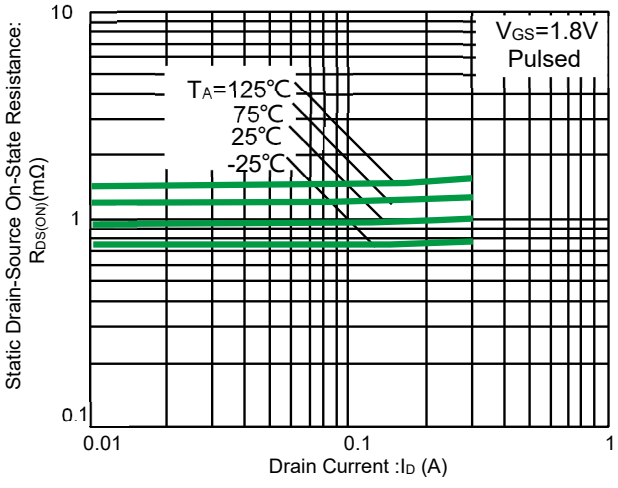


Fig 10. Static drain-source on-state resistance Vs. drain current(3)

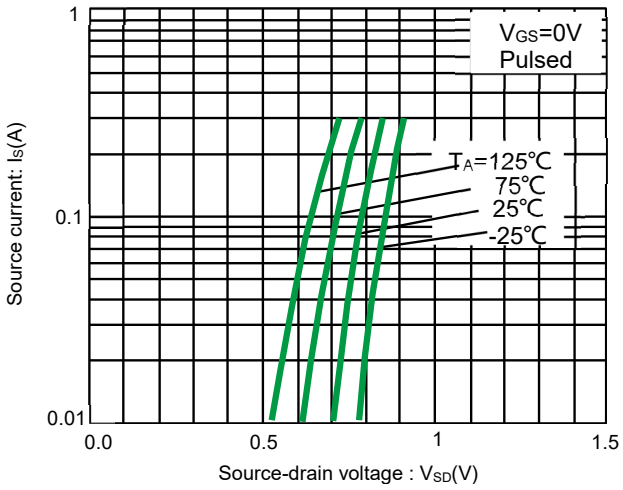


Fig 11. Source current vs. source-drain voltage

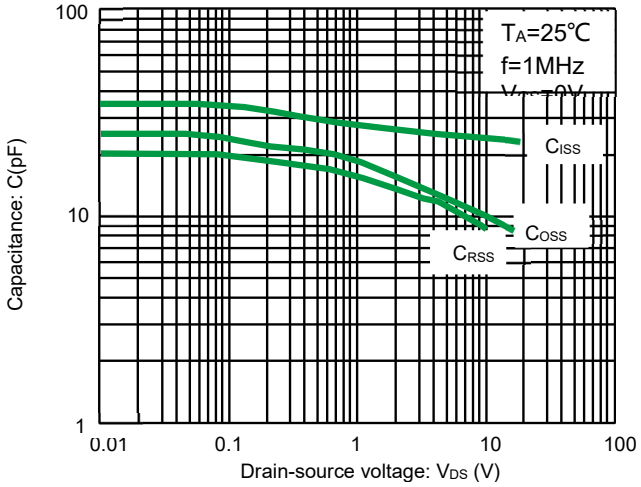


Fig 12. Typical capacitance vs. drain-source voltage

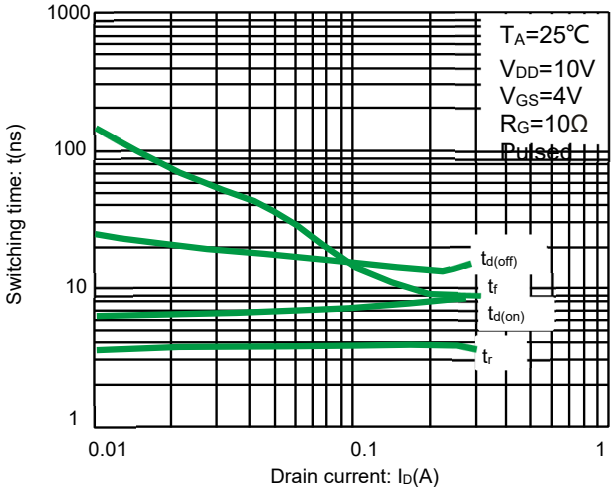
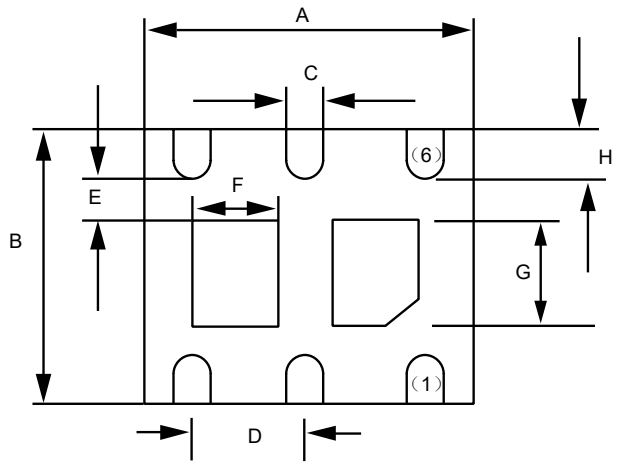
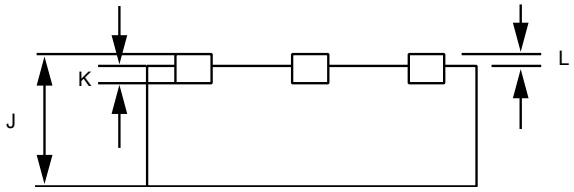


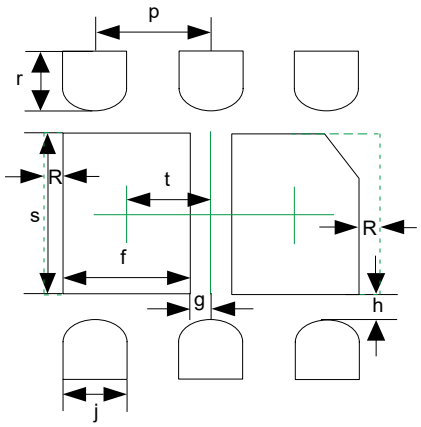
Fig 13. Switching characteristics

Product dimension DFN2020-6L





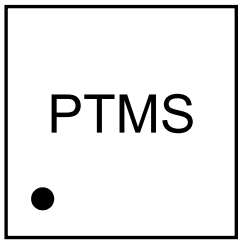
Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.924	2.076	0.076	0.082
B	1.924	2.076	0.076	0.082
C	0.250	0.350	0.010	0.014
D	0.650（typ.）		0.026（typ.）	
E	0.200 MIN.		0.008 MIN.	
F	0.520	0.720	0.020	0.028
G	0.900	1.100	0.035	0.043
H	0.174	0.326	0.007	0.013
J	0.550	0.650	0.021	0.027
K	0.206 REF		0.206 REF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



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

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

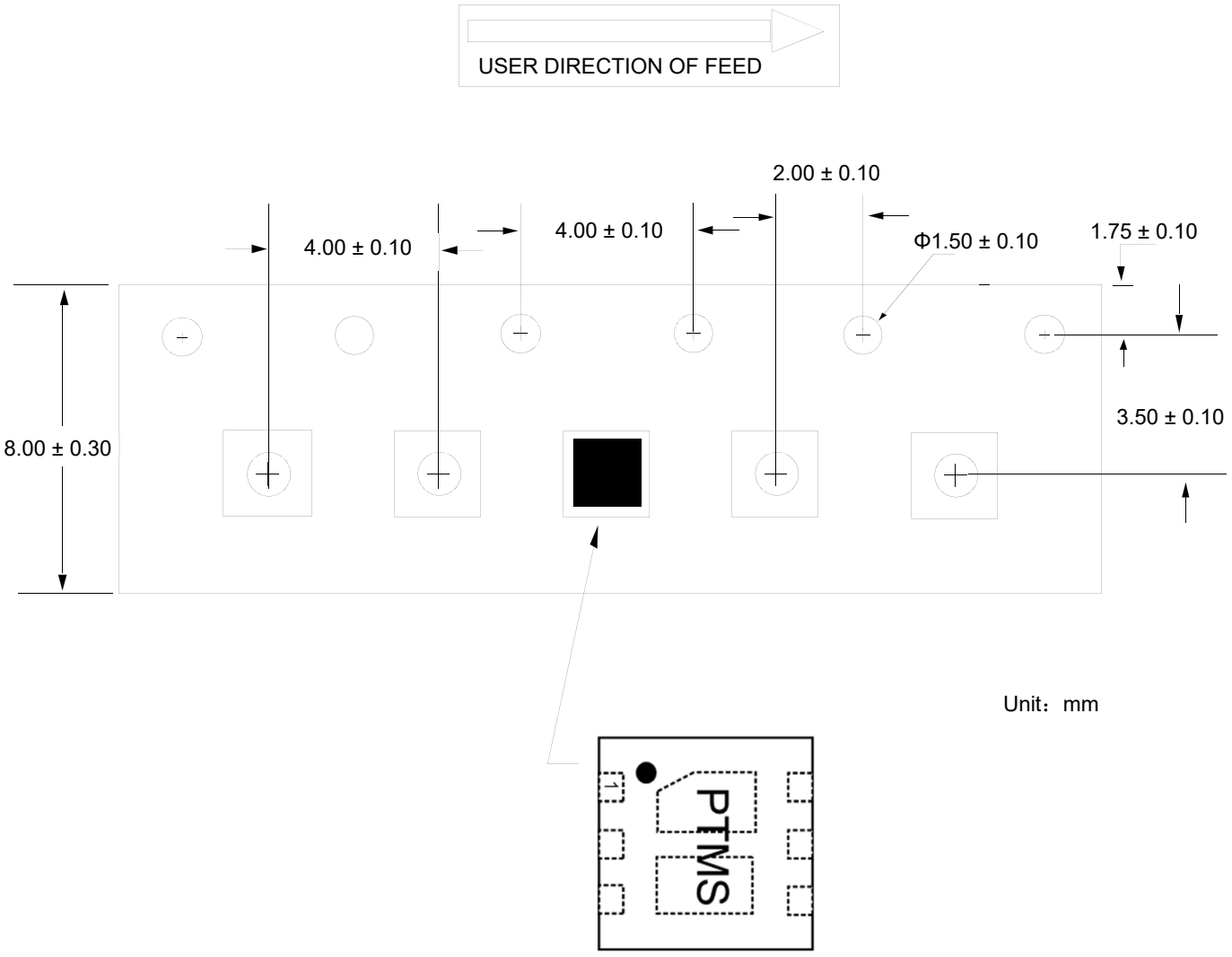
Marking information



Ordering information

Device	Package	Reel	Shipping
PNMT6N1C	DFN2020-6L	7"	3000 / Tape & Reel

Load with information



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