Description
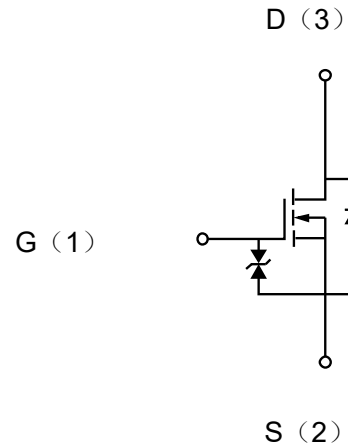
The MOSFET provide the best combination of fast switching, low on-resistance and cost-effectiveness.

MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(Ω)	I_D(A)
20	0.2@ V_{GS}=4.5V	1
	0.25@ V_{GS}=2.5V	
	0.31@ V_{GS}=1.8V	

D（3）

G（1）

S（2）

Absolute maximum rating@25℃

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Curren(T_J=150℃)	Continuous	I_D	1	A
	Pulsed	I_{DP}	4	
Total power dissipation		P_D	140	mW
Channel temperature		T_{CH}	150	℃
Range of storage temperature		T_{STG}	-55 to 150	℃

Thermal resistance

Parameter	Symbol	Limits	Units
Channel to ambient	Rth(ch-a)	800	℃/W

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

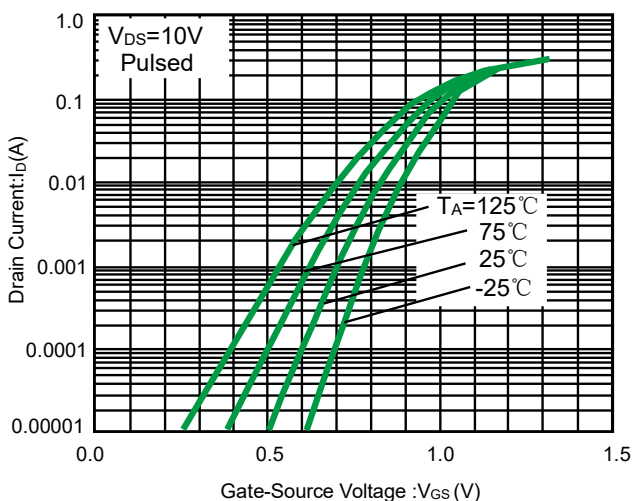| Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV$_{DSS}$	I$_D$ =1mA,V$_{GS}$=0V	20		-	V
Zero Gate Voltage Drain Current	I$_{DSS}$	V$_{DS}$ =20V,V$_{GS}$=0V	-	-	1	μA
Gate-Body Leakage Current	I$_{GSS}$	V$_{DS}$ =0V,V$_{GS}$=±8V	-	-	10	μA
Gate Threshold Voltage	V$_{GS(th)}$	V$_{DS}$ =10V, 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	0.25	Ω
		V$_{GS}$=2.5V, I$_D$ =450mA	-	0.25	0.3	Ω
		V$_{GS}$=1.8V, I$_D$ =250mA		0.31	0.45	Ω
Forward transfer admittance	｜Yfs｜	V$_{DS}$=10V, I$_D$ =300mA	395			ms
Input Capacitance	C$_{ISS}$	V$_{GS}$=0V, V$_{DS}$ =10V, f=1MHz	-	30		pF
Output Capacitance	C$_{OSS}$		-	13		pF
Reverse Transfer Capacitance	C$_{RSS}$		-	3		pF
Turn-On Delay Time	t$_{d(on)}$	V$_{DD}$ ≒ 10V, V$_{GS}$ =4.0V, R$_G$=10Ω,R$_L$=67Ω I$_D$ =150mA	-	7		ns
Turn-Off Delay Time	t$_{d(off)}$		-	23		ns
Turn-On Rise Time	t$_r$		-	15		ns
Turn-On Fall Time	t$_f$		-	15		ns
Drain-Source Diode Forward Voltage	V$_{SD}$	V$_{GS}$=0V,I$_S$=100mA		-	1.2	V

Typical Characteristics
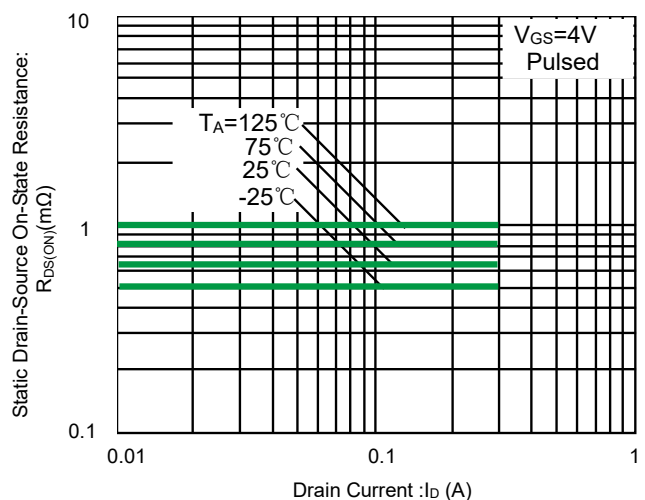

Fig 1. Typical transfer Characteristics

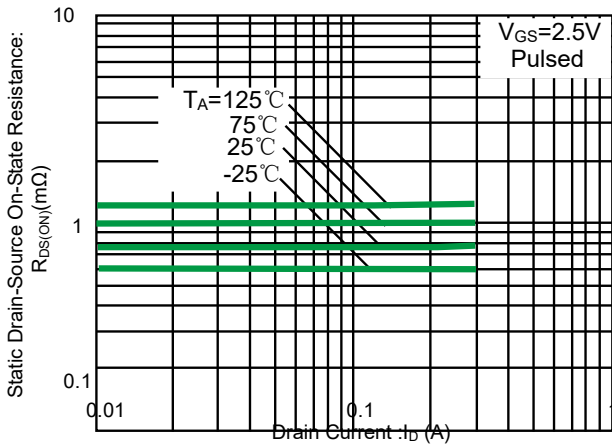Fig 2. Static drain-source on-state resistance vs. drain current(Ⅰ)

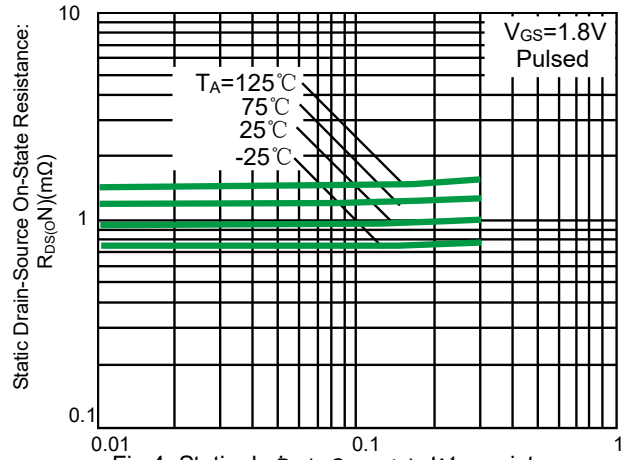Fig 3. Static drain-source on-state resistance
Vs. drain current（Ⅱ）

Fig 4. Static drain-source on-state resistance vs.
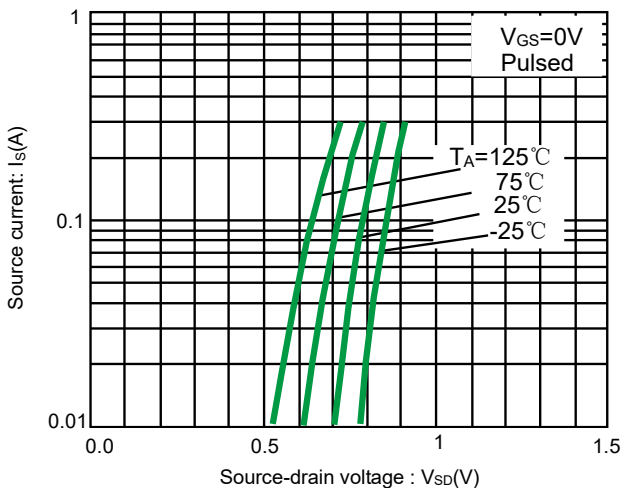drain current（Ⅲ）
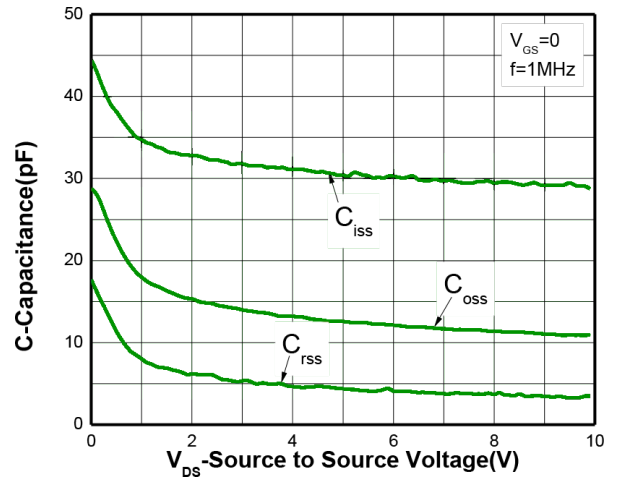
Fig 5. Source current vs. source-drain voltage

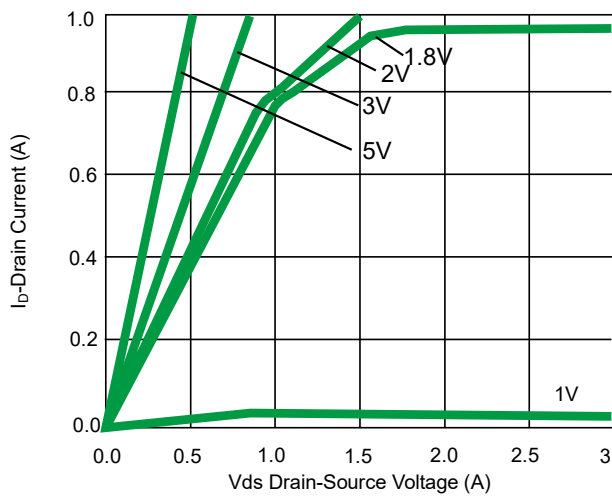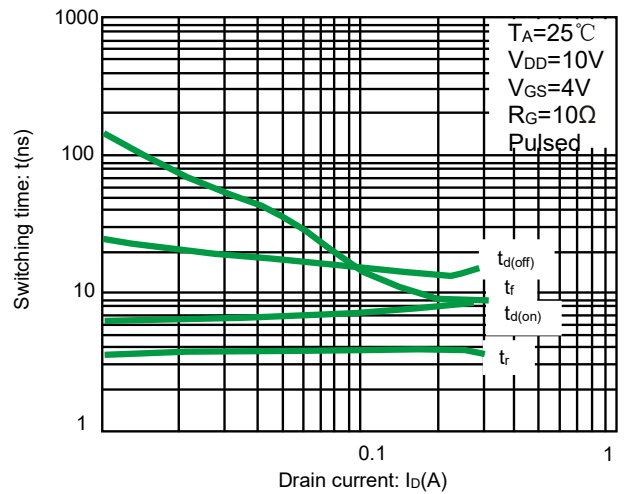Fig 6. Typical capacitance vs. drain-source voltage

Fig 7. Output Characteristics
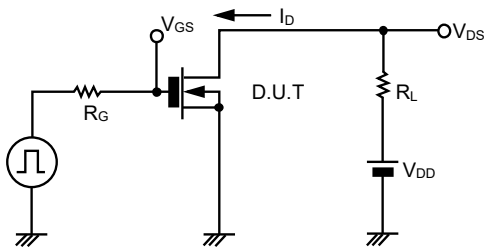
Fig 8. Switching characteristics
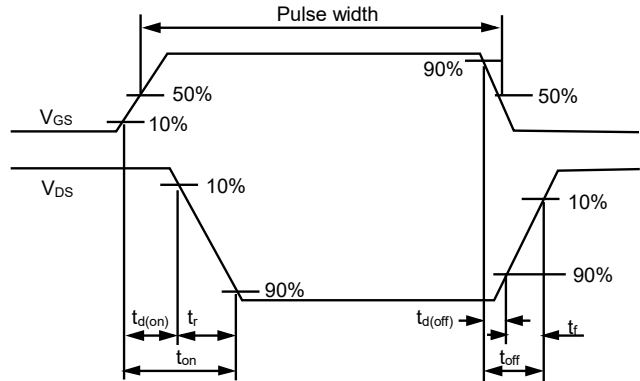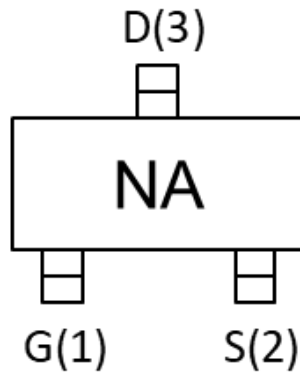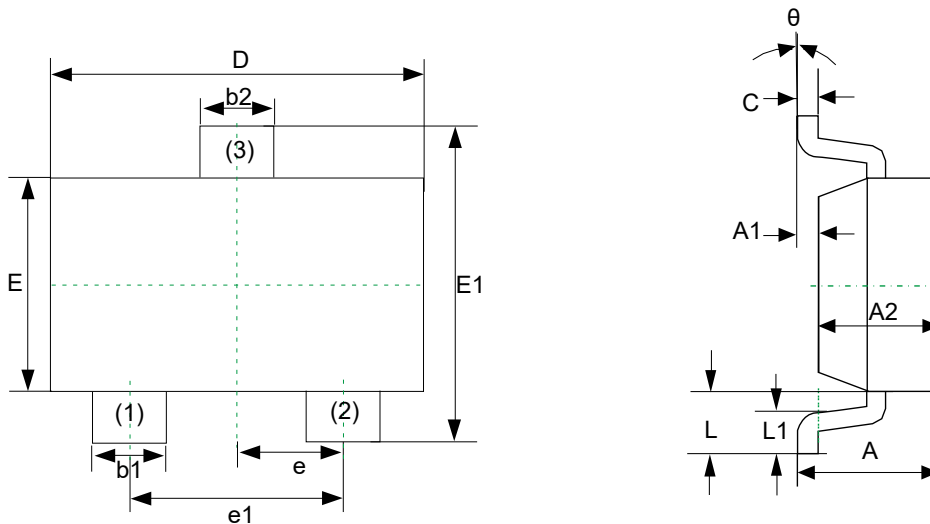
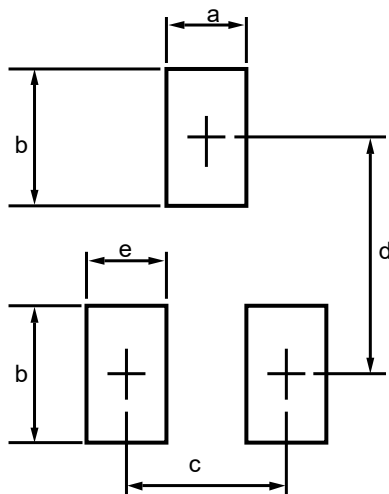Fig.8 Switching time measurement circuit

Fig.9 Switching time waveforms

Marking information

Product dimension（SOT-523）

Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500TYP		0.020TYP	
e1	0.900	1.100	0.035	0.043
L	0.400REF		0.016REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Dim	Millimeters	
	MIN	MAX
a	--	0.5
b	--	0.6
c	--	1.0
d	--	1.24
e	--	0.4

Ordering information

Device	Package	Shipping
PNM523T201E0	SOT-523 (Pb-Free)	3000 / Tape & Reel

USER DIRECTION OF FEED

Ø1.5±0.1

4.0±0.1   2.0±0.1

1.75±0.1

8.0±0.3

4.0±0.1

3.5±0.1

Pin 1

Unit:mm

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