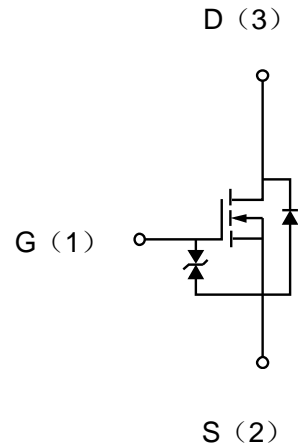


### Description

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

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



### Absolute maximum rating@25°C

Parameter		Symbol	Value	Units
Drain-Source Voltage		$V_{DS}$	20	V
Gate-Source Voltage		$V_{GS}$	±8	V
Continuous Drain Current ( $T_J=150^\circ C$ )	Continuous	$I_D$	±1	A
	Pulsed	$I_{DP}$	±4	
Total power dissipation		$P_D$	140	mW
Channel temperature		$T_{CH}$	150	°C
Range of storage temperature		$T_{STG}$	-55 to +150	°C

### Thermal resistance

Parameter	Symbol	Limits	Units
Channel to ambient	$R_{th}(ch-a)$	800	°C/W

Electrical characteristics per line @25°C ( 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	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 8V$	-	-	$\pm 10$	$\mu A$
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	$\Omega$
		$V_{GS}=2.5V, I_D=450mA$	-	0.25	0.3	$\Omega$
		$V_{GS}=1.8V, I_D=250mA$		0.31	0.45	$\Omega$
Forward transfer admittance	$ Y_{fs} $	$V_{DS}=10V, I_D=300mA$	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	$C_{RSS}$		-	13		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V, V_{GS}=4.0V,$ $R_G=10\Omega, R_L=67\Omega$ $I_D=150mA$	-	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

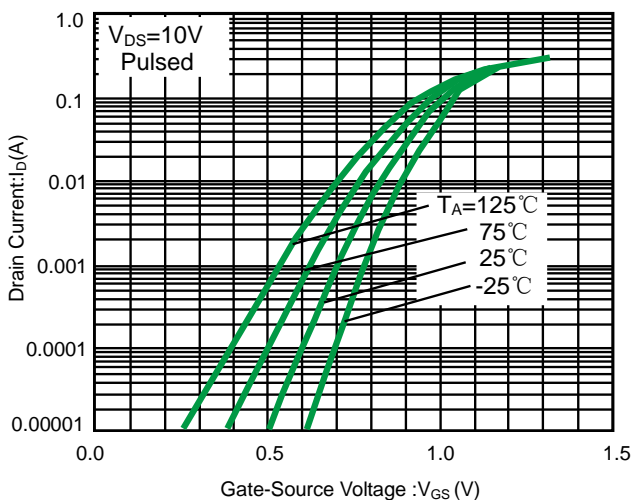


Fig 1. Typical transfer Characteristics

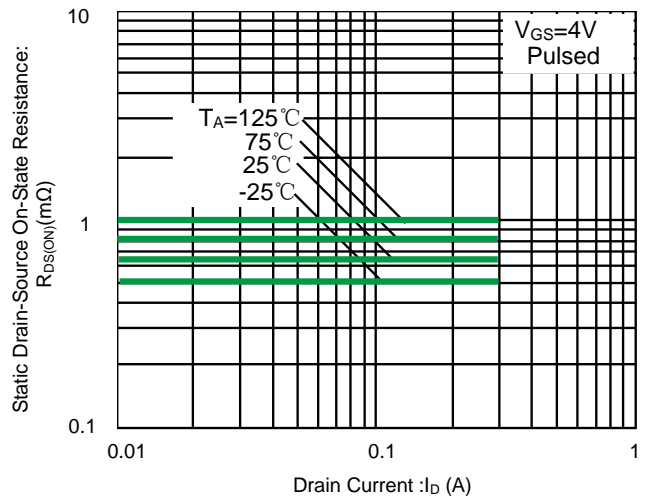


Fig 2. Static drain-source on-state resistance vs. drain current( I )

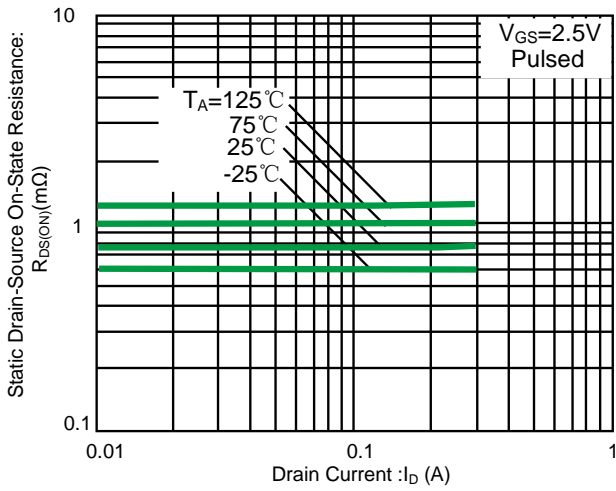


Fig 3. Static drain-source on-state resistance vs. drain current (II)

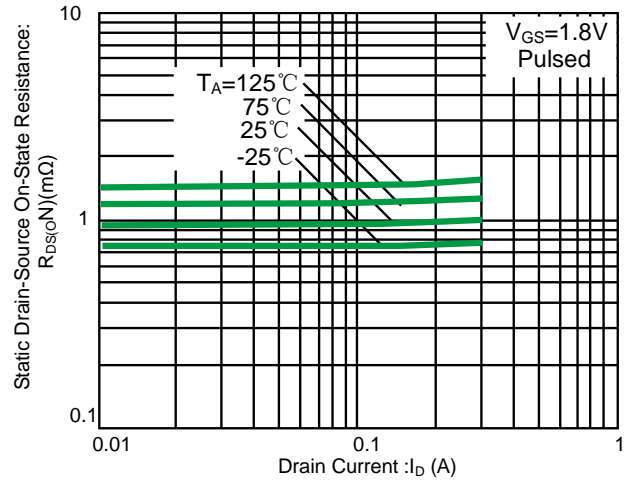


Fig 4. Static drain-source on-state resistance vs. drain current (III)

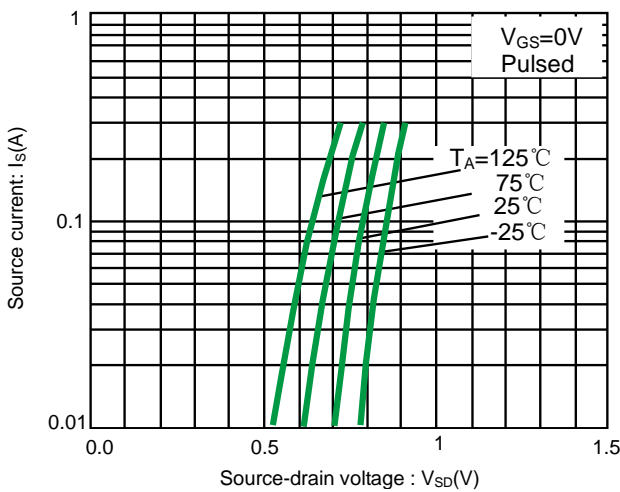


Fig 5. Source current vs. source-drain voltage

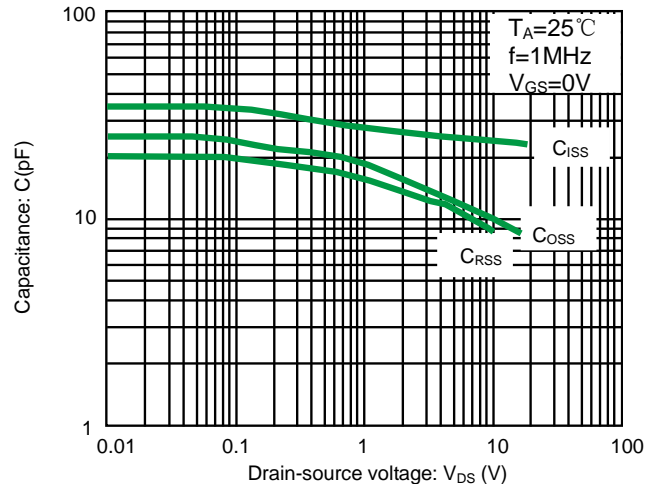


Fig 6. Typical capacitance vs. drain-source voltage

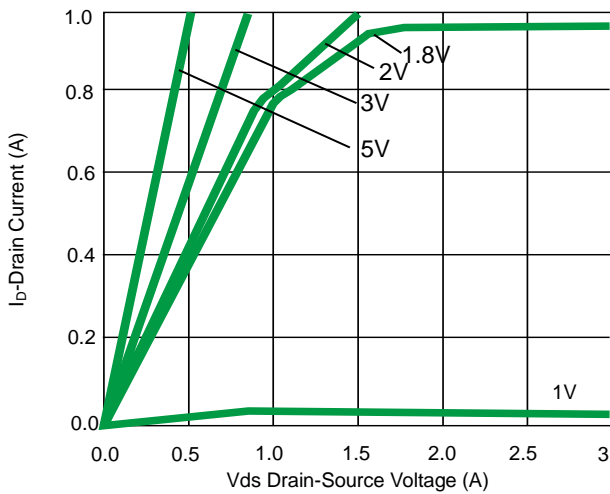


Fig 7. Output Characteristics

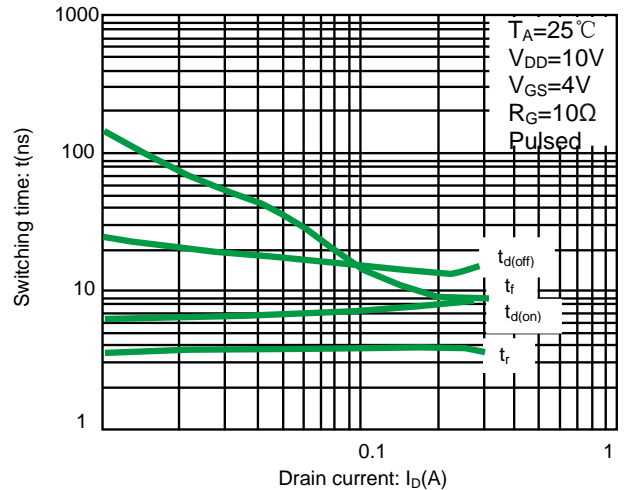


Fig 8. Switching characteristics

Switching characteristics measurement circuit

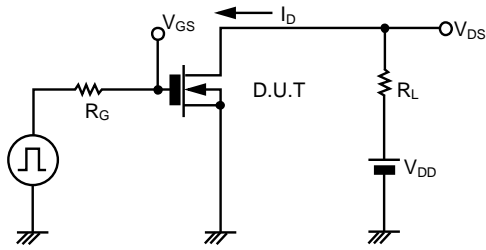


Fig.8 Switching time measurement circuit

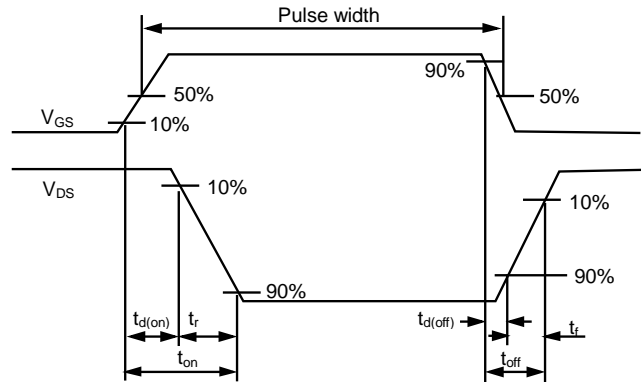
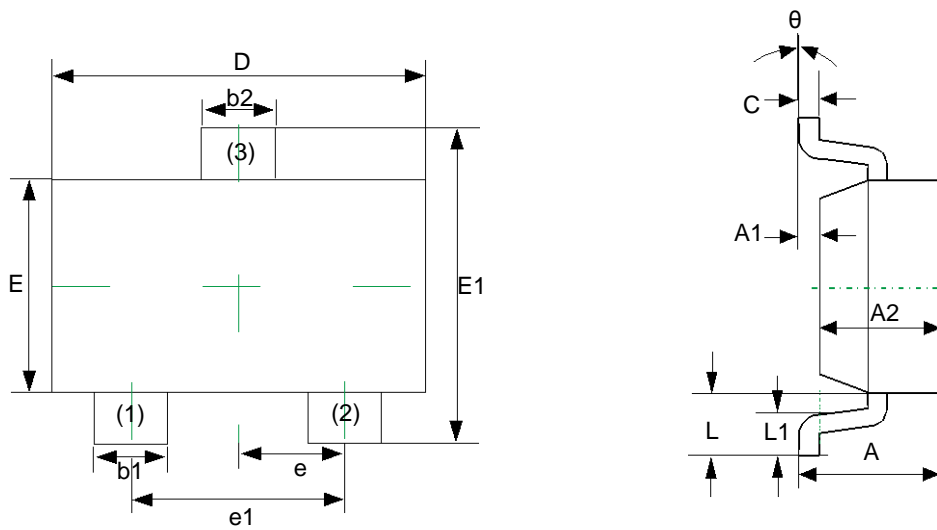
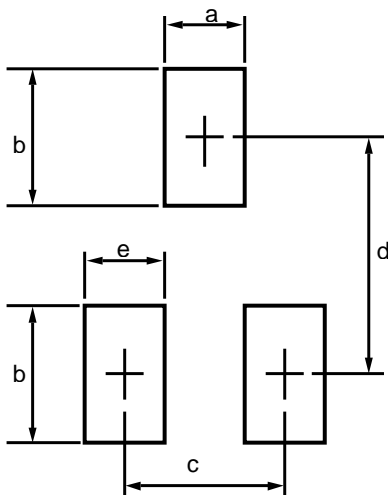


Fig.9 Switching time waveforms

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
$\theta$	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


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