TECH PUBLIC
台舟电子

TPM20V6NLS3

N-Channel MOSFET

www.sot23.com.tw

General Features

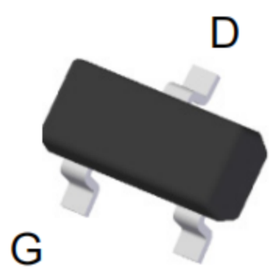
- V_{DS} = 20V,I_D = 6A
  $R_{DS(ON)}$ <23mΩ @ V_{GS}=2.5V
  $R_{DS(ON)}$ <35mΩ @ V_{GS}=4.5V

Application

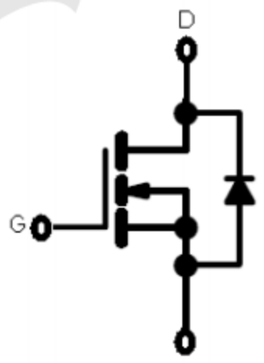
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable
- Logic Level Shift

Package and Pin Configuration

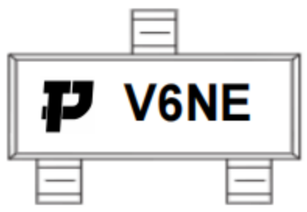
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Circuit diagram



Marking:



"P" is TECHPUBLIC LOGO
" V6NE" Marking ID

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

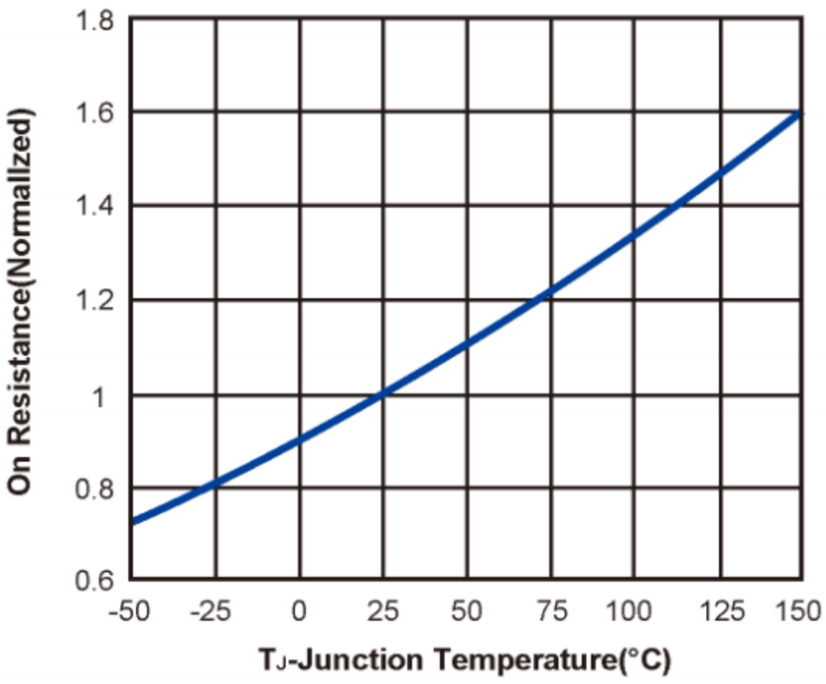
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	
Continuous Drain Current	I_D	6	A
Continuous Source-Drain Current(Diode Conduction)	I_S	0.6	
Power Dissipation	P_D	1.25	W
Thermal Resistance from Junction to Ambient (t≤5s)	$R_{\theta JA}$	312.5	℃/W
Operating Junction	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~+150	

Electrical Characteristics (T_A=25℃unless otherwise noted)

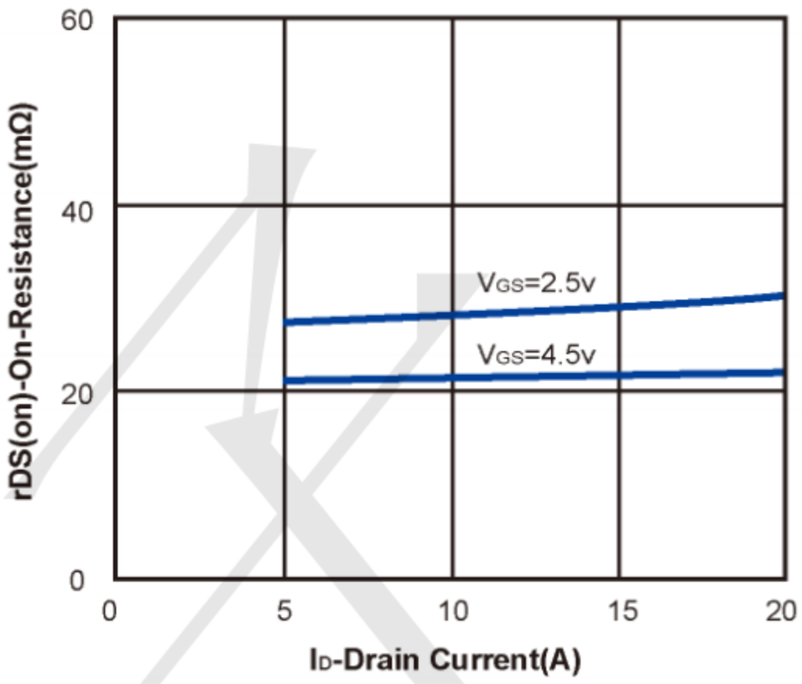
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =10μA	20			V
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =50μA	0.40		1	
Gate-body leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±8V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V, V_{GS} =0V			1	μA
Drain-source on-resistance[a]	$r_{DS(on)}$	V_{GS} =4.5V, I_D= 6A		0.021	0.023	Ω
		V_{GS} =2.5V, I_D =5.2A		0.028	0.035	
Forward transconductance[a]	g_{fs}	V_{DS} =5V, I_D =3.6A		8		S
Diode forward voltage	V_{SD}	I_S=0.94A,V_{GS}=0V		0.74	1.2	V
Dynamic						
Total gate charge	Q_g	V_{DS} =10V,V_{GS} =4.5V,I_D =3.6A		7.7	10	nC
Gate-source charge	Q_{gs}			0.32		
Gate-drain charge	Q_{gd}			2.1		
Input capacitance [b]	C_{iss}	V_{DS} =10V,V_{GS} =0V,f=1MHz		574		pF
Output capacitance [b]	C_{oss}			70		
Reverse transfer capacitance[b]	C_{rss}			60		
Switching[b]						
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V, R_L=5.5Ω, I_D ≈3.6A, V_{GEN}=4.5V,Rg=6Ω		78.7		ns
Rise time	t_r			128		
Turn-off delay time	$t_{d(off)}$			453		
Fall time	t_f			80.9		

Typical Electrical and Thermal Characteristics

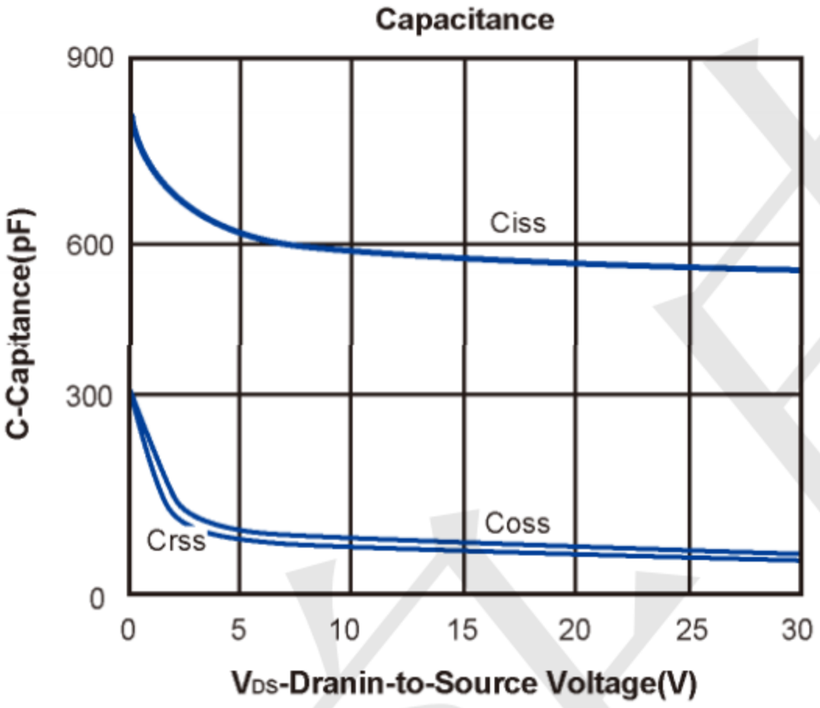
On Resistance vs. Junction Temperature



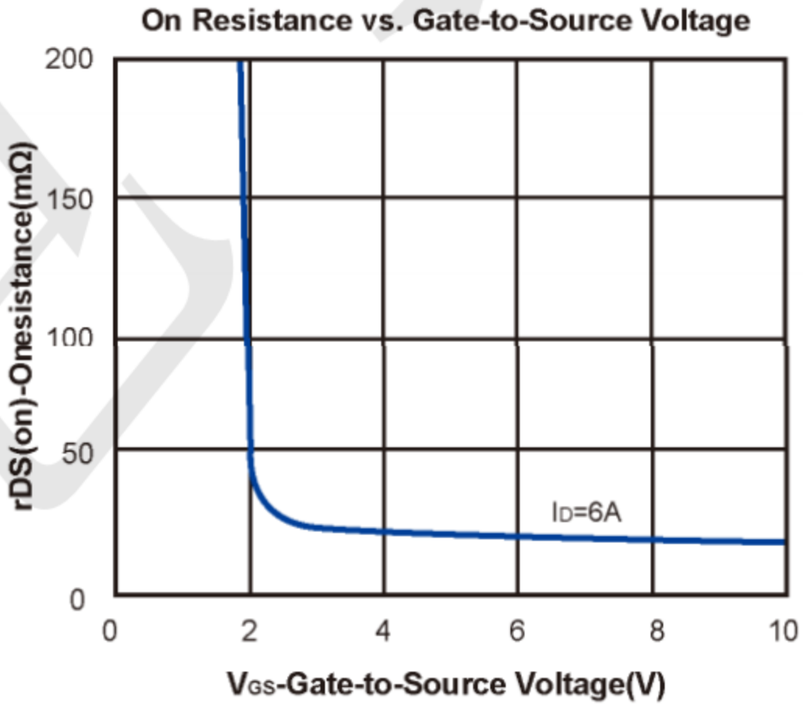
On Resistance vs. Drain Current



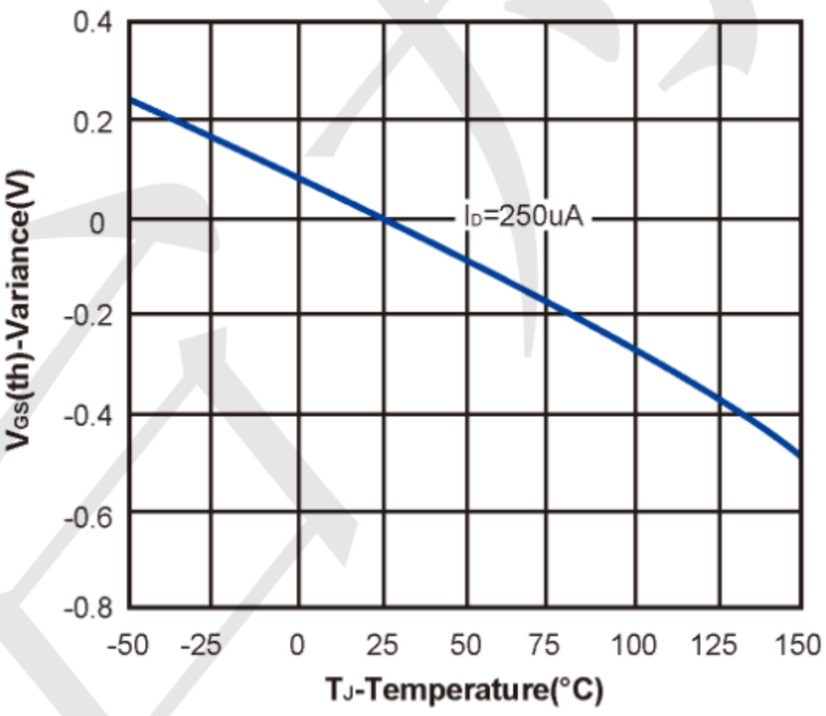
Capacitance



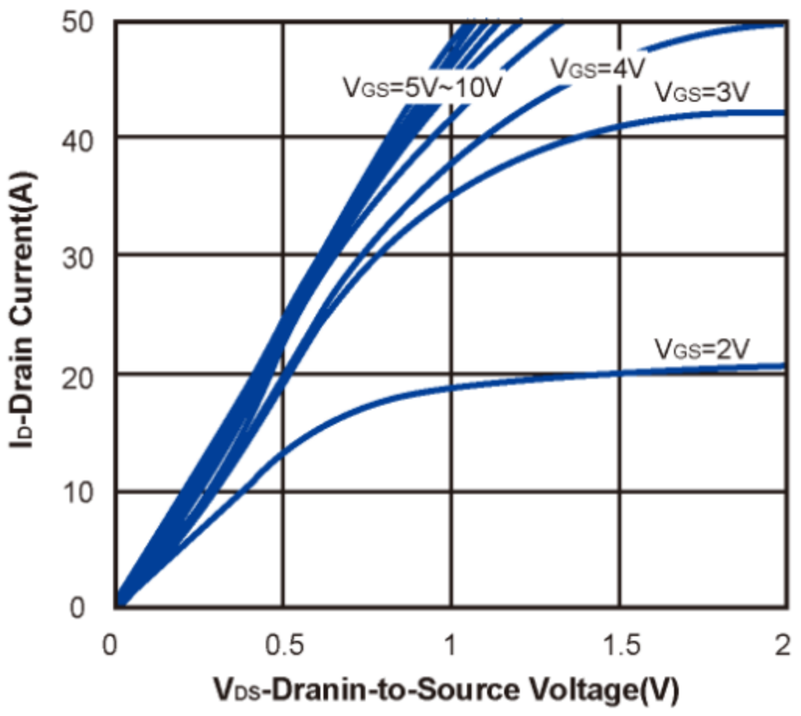
On Resistance vs. Gate-to-Source Voltage



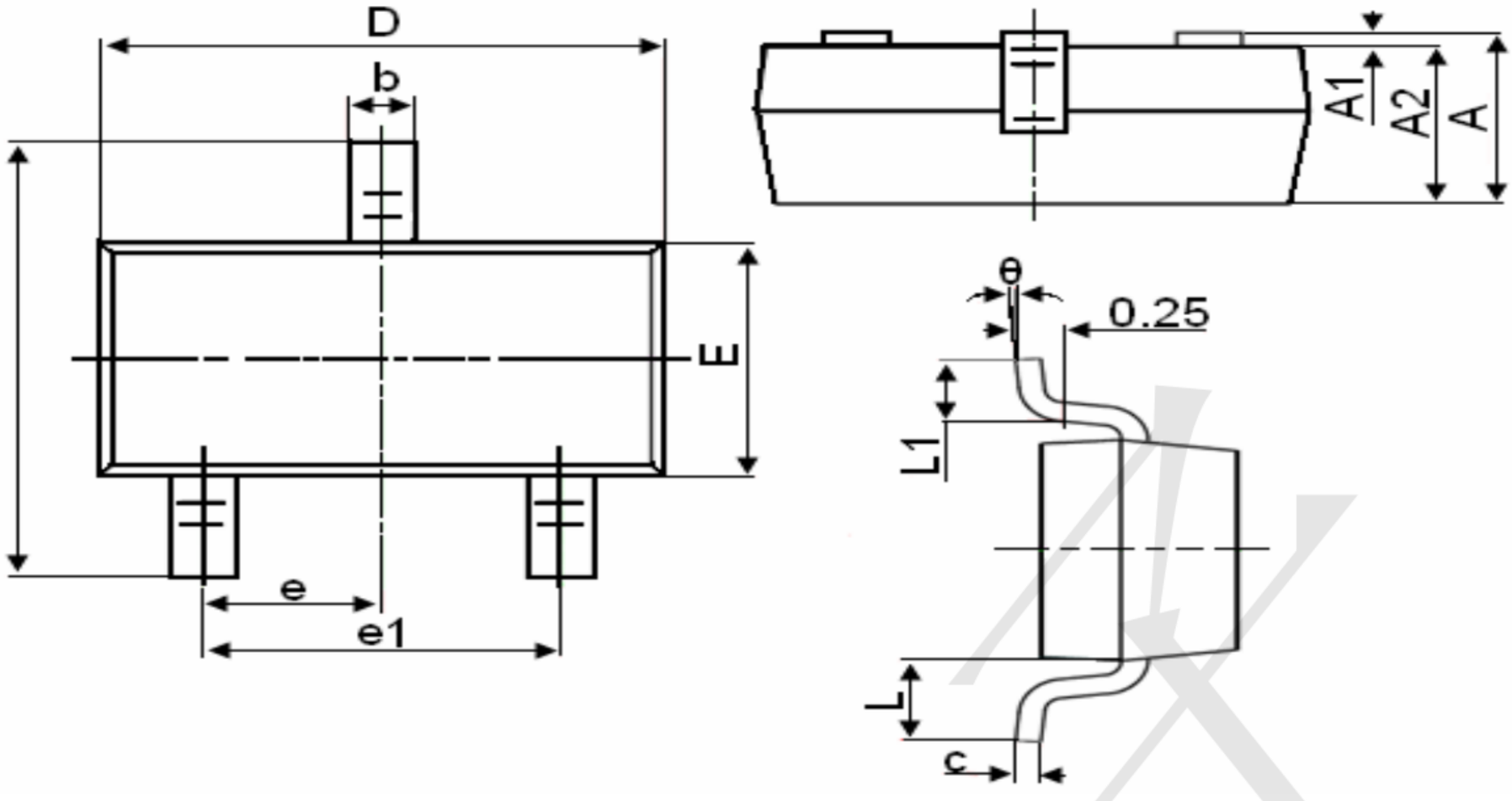
Threshold Voltage



On-Region Characteristics



Package Outline Dimensions (SOT-23)



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°