

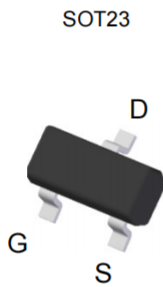
**General Features**

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

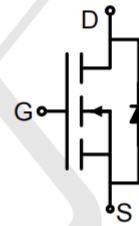
**Application**

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

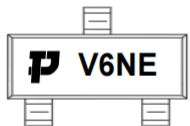
**Package and Pin Configuration**



**Circuit diagram**



**Marking:**



“P” is TECHPUBLIC LOGO  
“V6NE” Marking ID

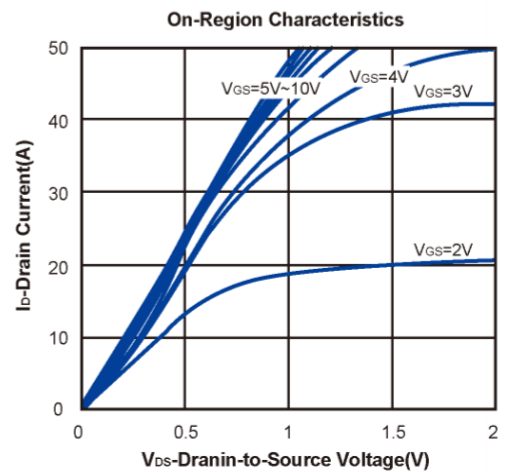
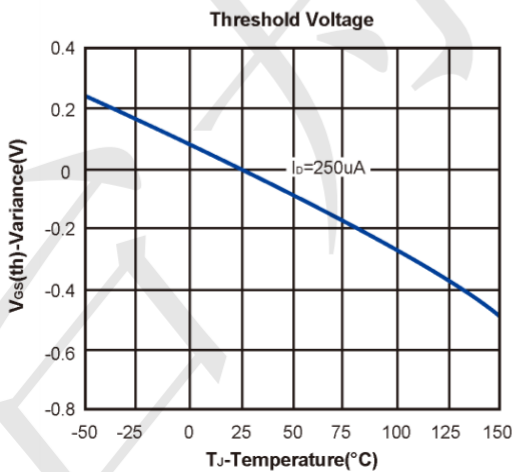
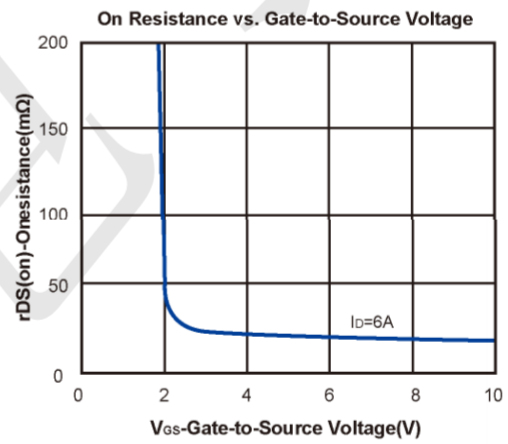
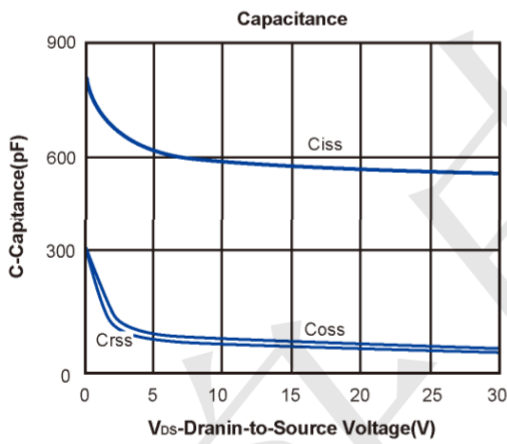
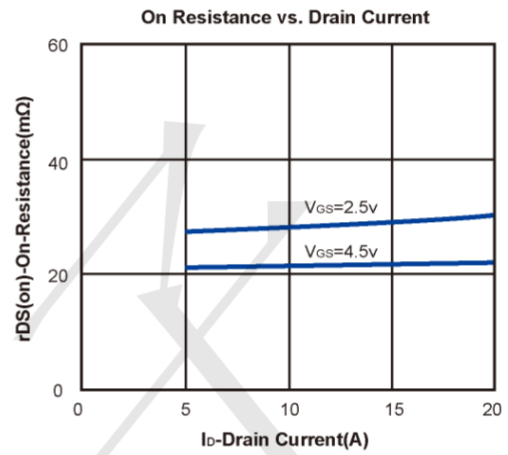
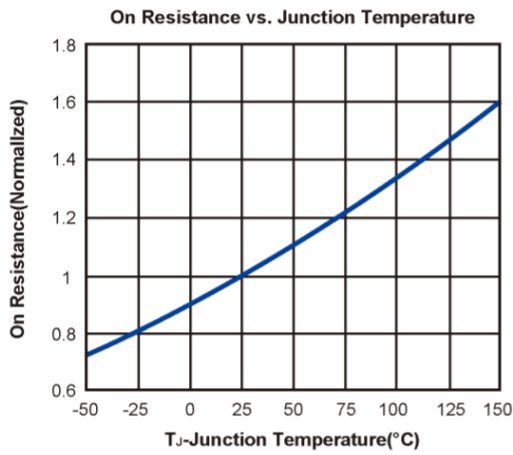
**Absolute Maximum Ratings ( $T_A=25^\circ C$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	
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 ( $t \leq 5s$ )	$R_{\theta JA}$	312.5	$^\circ C/W$
Operating Junction	$T_J$	150	$^\circ C$
Storage Temperature	$T_{STG}$	-55 ~ +150	

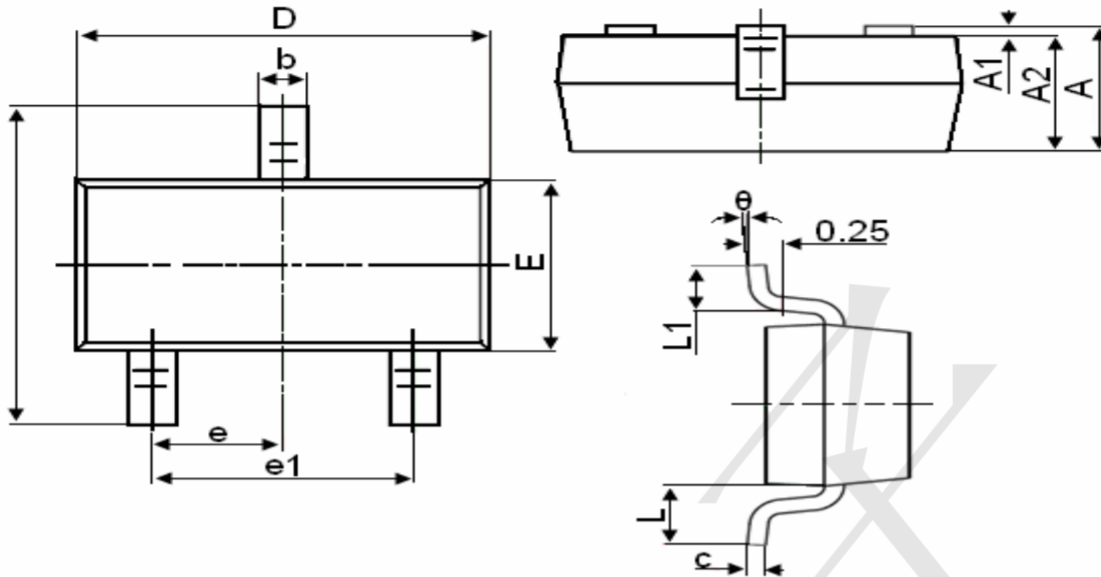
**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Static</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 10μA	20			V
Gate-threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 50μA	0.40		1	
Gate-body leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V			±100	nA
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V			1	μA
Drain-source on-resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 6A		0.021	0.023	Ω
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 5.2A		0.028	0.035	
Forward transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 3.6A		8		S
Diode forward voltage	V <sub>SD</sub>	I <sub>S</sub> = 0.94A, V <sub>GS</sub> = 0V		0.74	1.2	V
<b>Dynamic</b>						
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3.6A		7.7	10	nC
Gate-source charge	Q <sub>gs</sub>			0.32		
Gate-drain charge	Q <sub>gd</sub>			2.1		
Input capacitance <sup>b</sup>	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, f = 1MHz		574		pF
Output capacitance <sup>b</sup>	C <sub>oss</sub>			70		
Reverse transfer capacitance <sup>b</sup>	C <sub>rss</sub>			60		
<b>Switching<sup>b</sup></b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = 10V, R <sub>L</sub> = 5.5Ω, I <sub>D</sub> ≈ 3.6A, V <sub>GEN</sub> = 4.5V, R <sub>g</sub> = 6Ω		78.7		ns
Rise time	t <sub>r</sub>			128		
Turn-off delay time	t <sub>d(off)</sub>			453		
Fall time	t <sub>f</sub>			80.9		

**Typical Electrical and Thermal 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°

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