

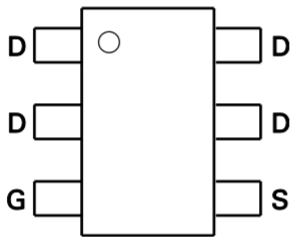
**General Features**

- $V_{DS} = 20V, I_D = 7A$
- $R_{DS(ON)} = 23m\Omega \text{ typ @ } V_{GS}=2.5V$
- $R_{DS(ON)} = 28m\Omega \text{ typ @ } V_{GS}=4.5V$

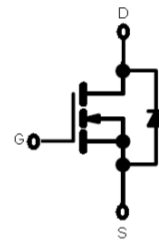
**Application**

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

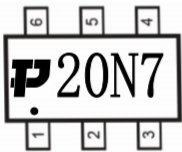
**Package and Pin Configuration**



**Circuit diagram**



**Marking:**



“P” is TECHPUBLIC LOGO  
“20N7” Marking ID

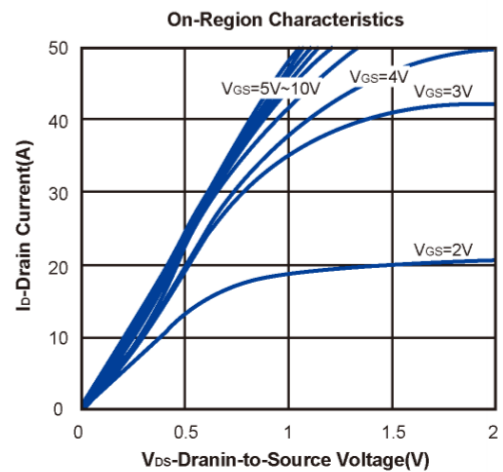
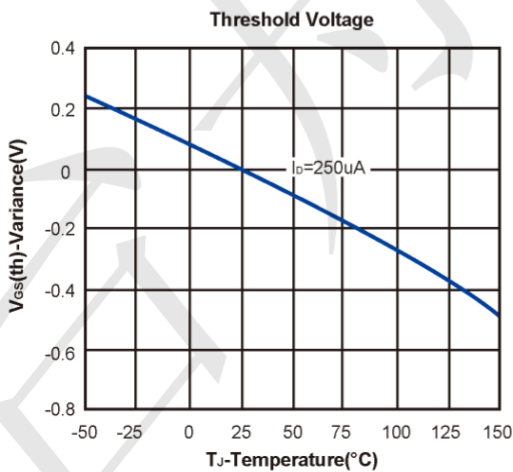
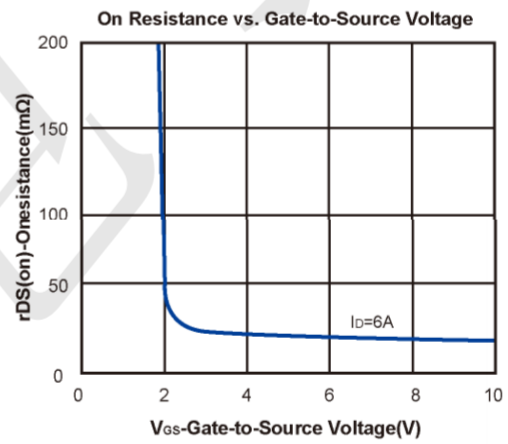
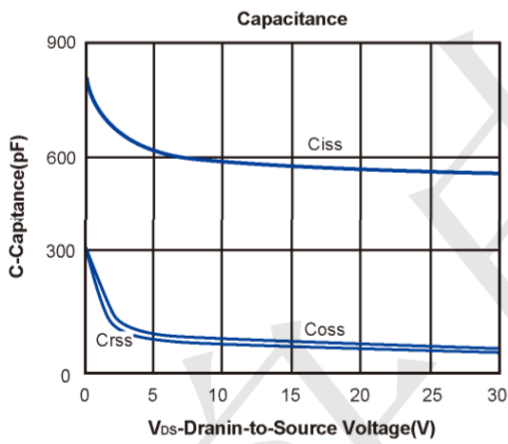
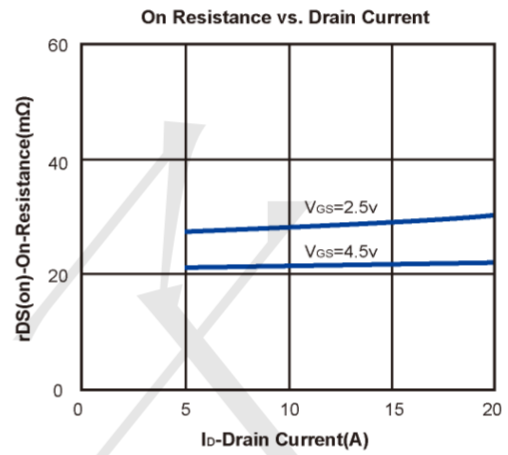
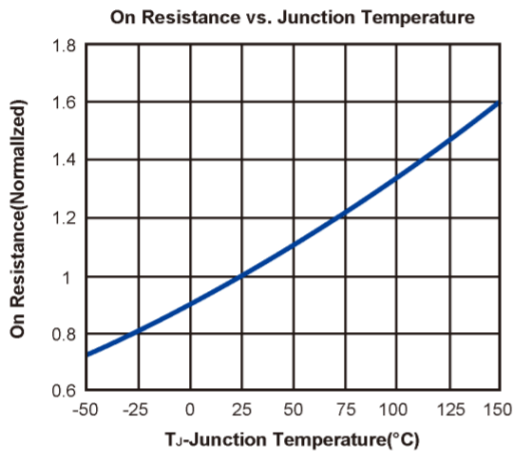
**Absolute Maximum Ratings ( $T_A=25^\circ C$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	
Continuous Drain Current	$I_D$	7	A
Pulsed Drain Current	$I_{DM}$	20	
Power Dissipation	$P_D$	2.0	W
Thermal Resistance from Junction to Ambient ( $t \leq 5s$ )	$R_{\theta JA}$	62.5	$^\circ C/W$
Operating Junction	$T_J$	150	$^\circ C$
Storage Temperature	$T_{STG}$	-55 ~ +150	

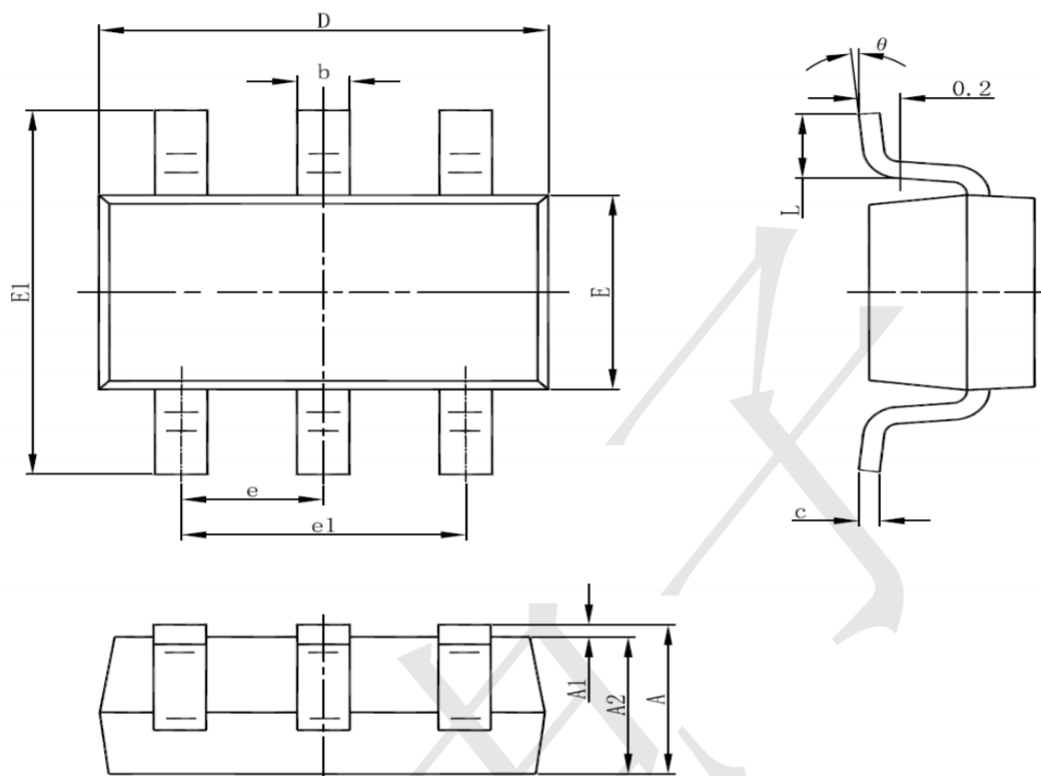
**Electrical Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Static</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 10\mu A$	20			V
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 50\mu A$	0.40		1	
Gate-body leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 8V$			$\pm 100$	nA
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			1	$\mu A$
Drain-source on-resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 4.5V, I_D = 6A$		0.023	0.028	$\Omega$
		$V_{GS} = 2.5V, I_D = 5.2A$		0.028	0.035	
Forward transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 3.6A$		8		S
Diode forward voltage	$V_{SD}$	$I_S = 0.94A, V_{GS} = 0V$		0.74	1.2	V
<b>Dynamic</b>						
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 <sup>b</sup>	$C_{iss}$	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		1310		pF
Output capacitance <sup>b</sup>	$C_{oss}$			140		
Reverse transfer capacitance <sup>b</sup>	$C_{rss}$			60		
<b>Switching<sup>b</sup></b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V,$ $R_L = 5.5\Omega, I_D \approx 3.6A,$ $V_{GEN} = 4.5V, R_g = 6\Omega$		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**



**SOT23-6 Package Information**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°