

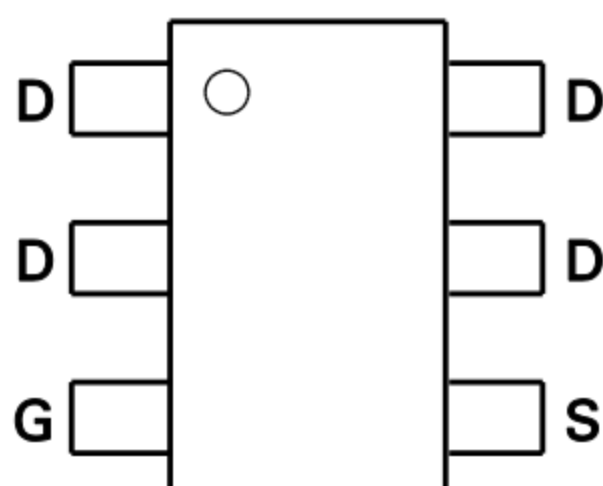
General Features

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

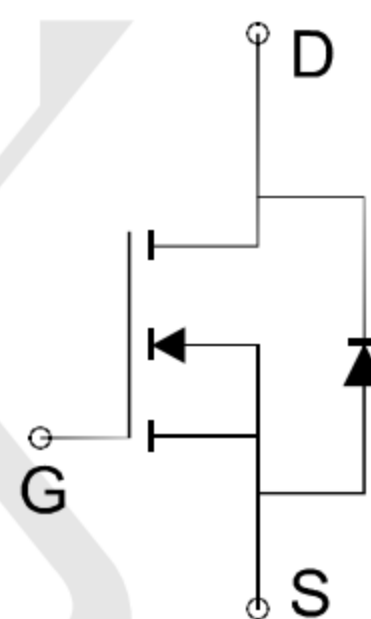
Application

- 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

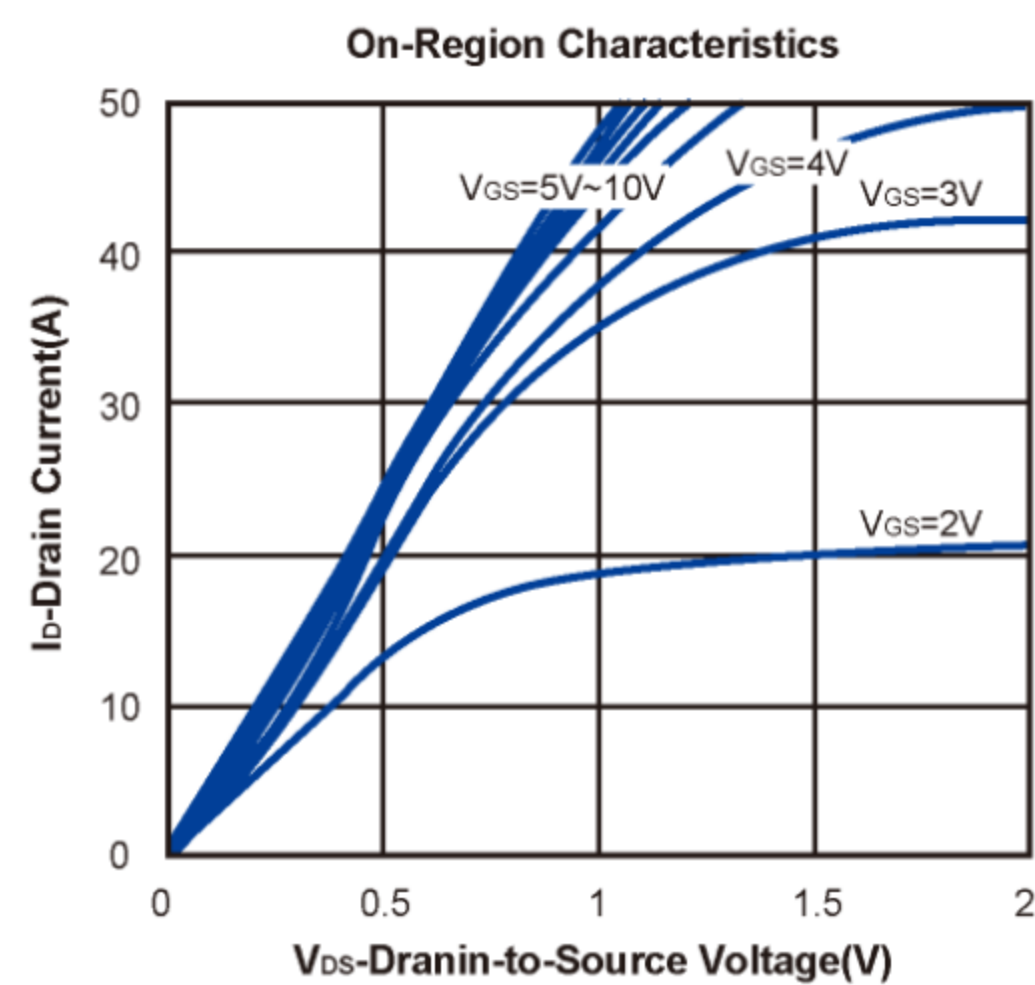
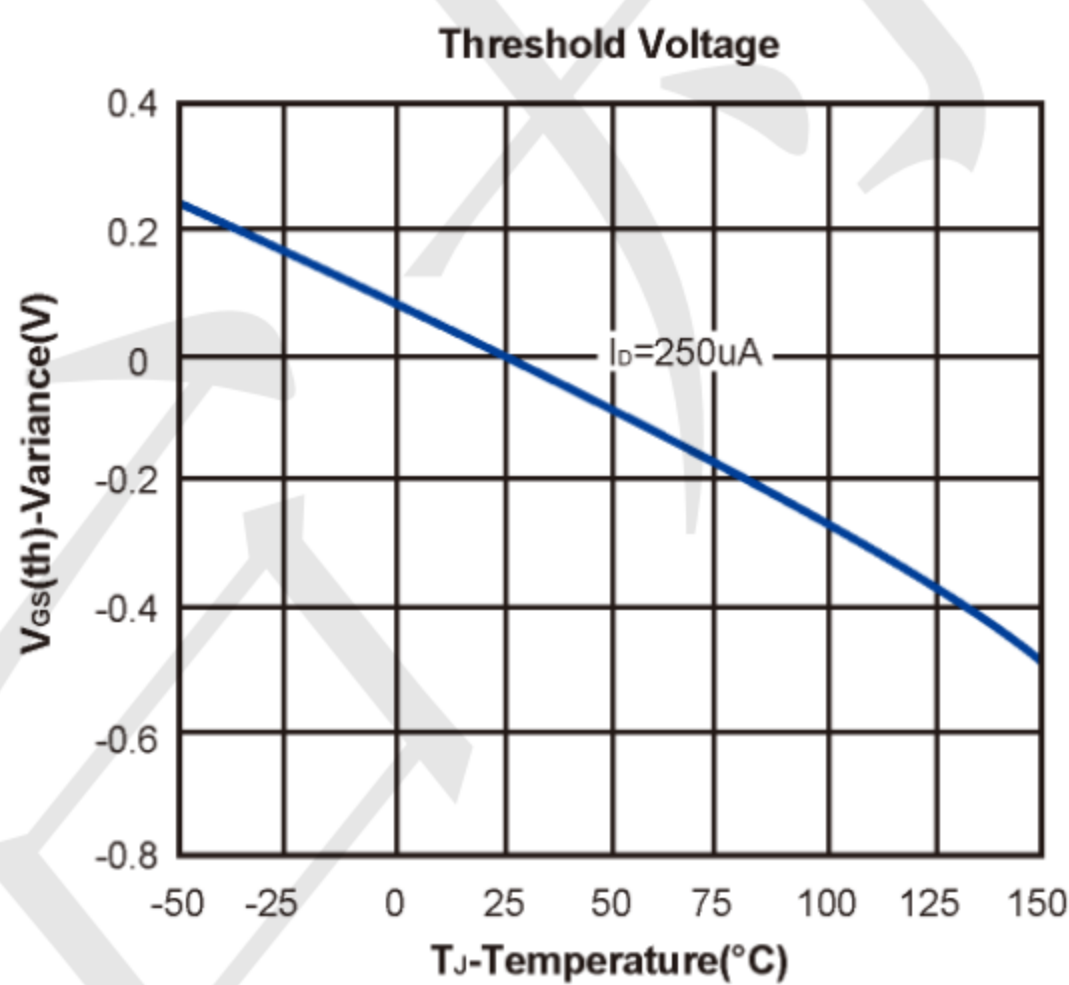
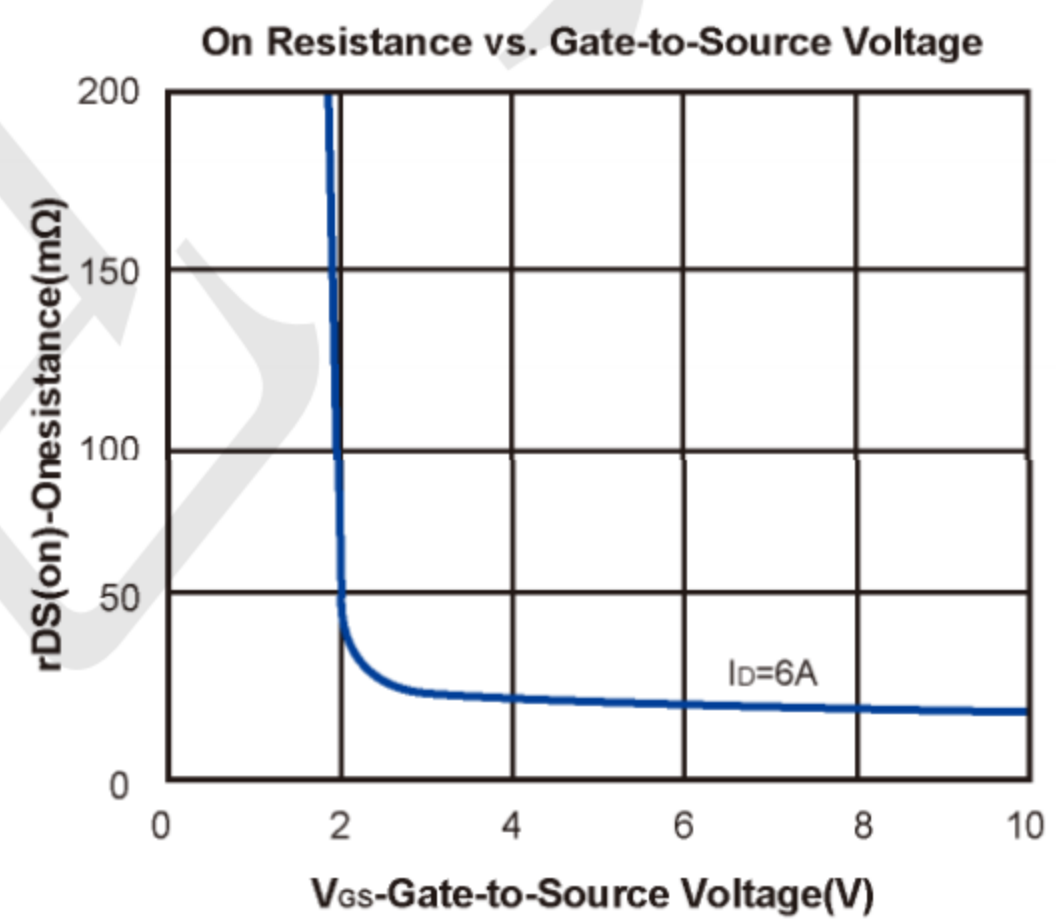
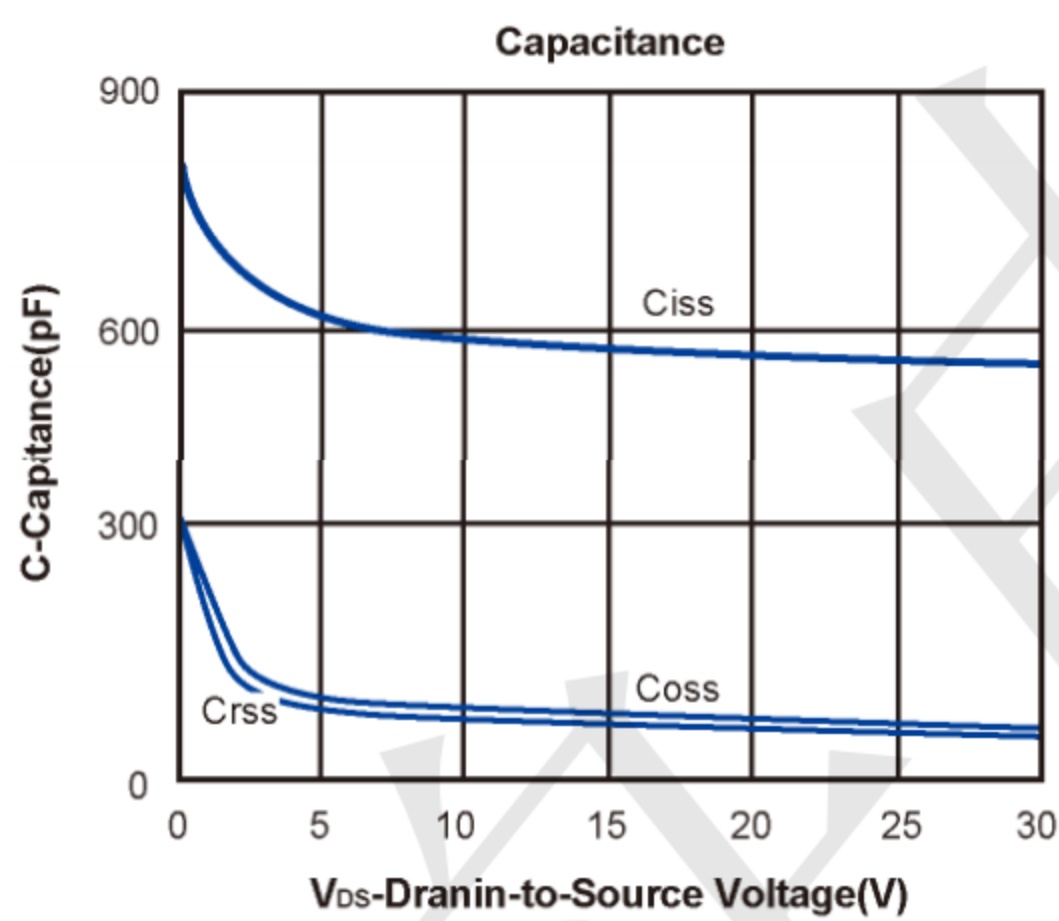
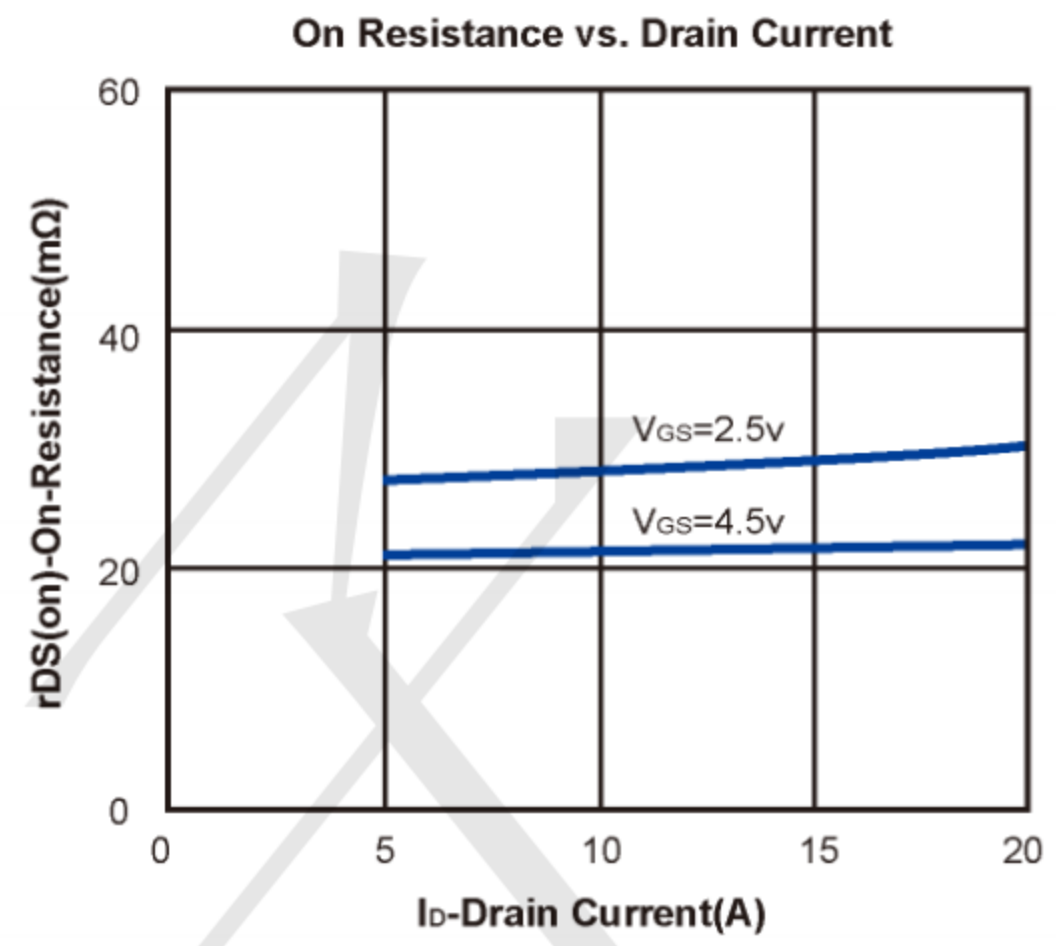
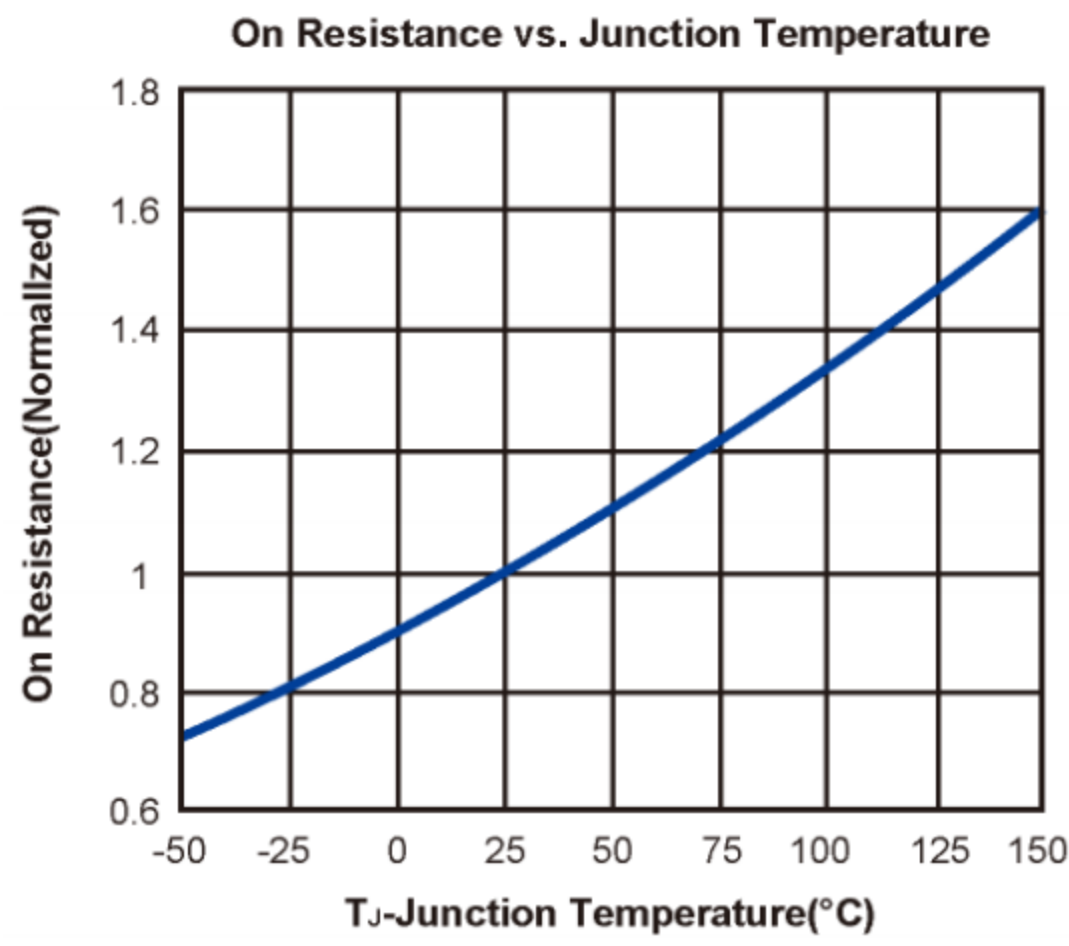
Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current	I_D	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	$^\circ\text{C/W}$
Operating Junction	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	

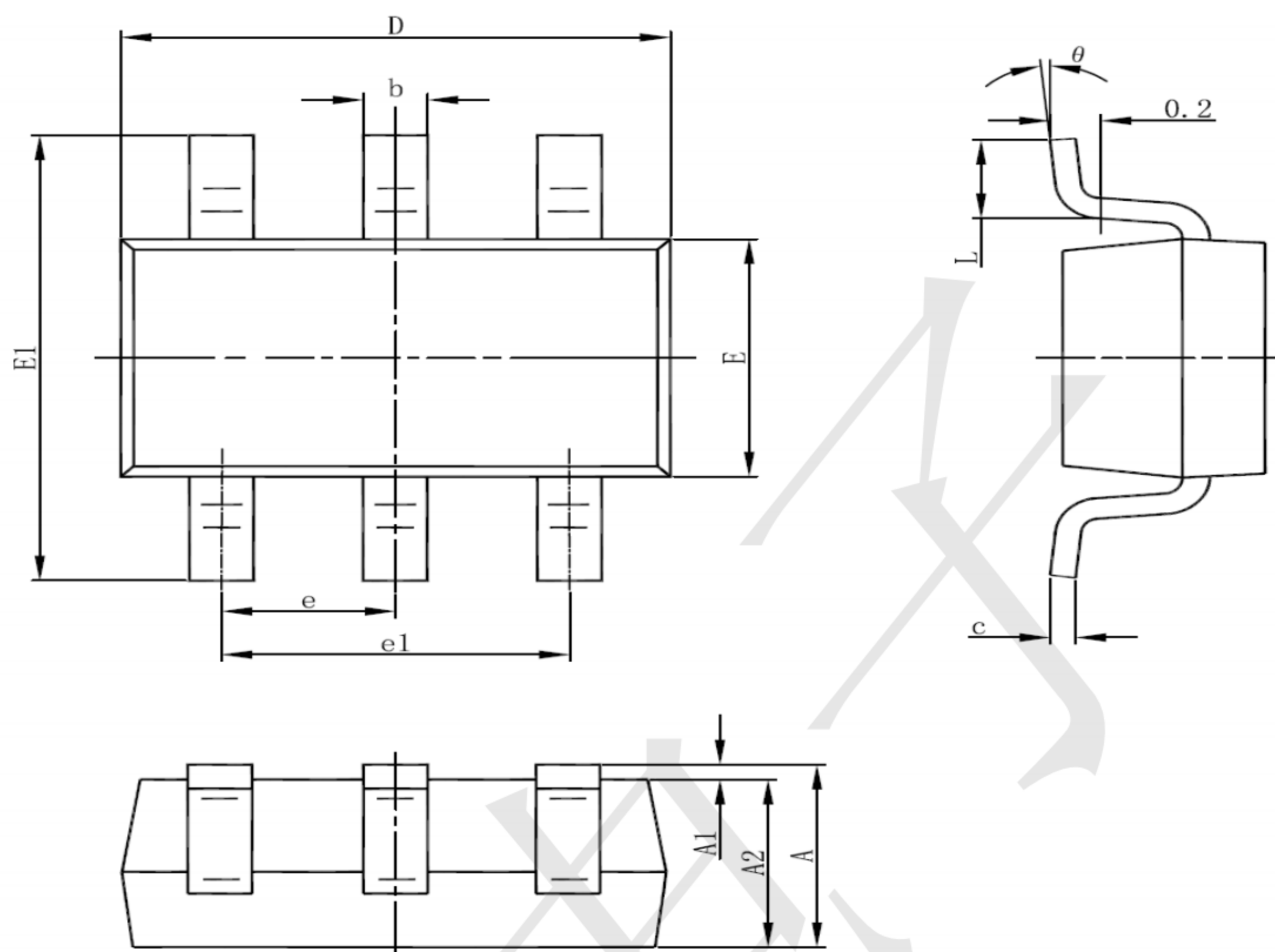
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
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}	$V_{DS} = 0V, V_{GS} = \pm 8V$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Drain-source on-resistance ^a	$r_{DS(on)}$	$V_{GS} = 4.5V, I_D = 6A$		0.023	0.028	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}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		1310		pF
Output capacitance ^b	C_{oss}			140		
Reverse transfer capacitance ^b	C_{rss}			60		
Switching ^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°