

## PW3420

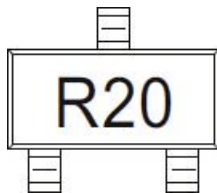
### 20V N-Channel MOSFET

$6.0A\ 20V$ ;  $R_{DS(ON)typ}=17m\Omega@10V$ ,  $R_{DS(ON)typ}=18m\Omega@4.5V$ ,  
 $R_{DS(ON)typ}=22m\Omega@2.5V$ ,  $R_{DS(ON)typ}=30m\Omega@1.8V$

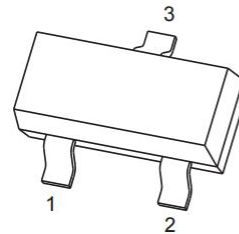
#### DESCRIPTION

The PW3420 uses advanced trench technology to provide excellent  $R_{DS(on)}$ . This device is suitable for use as a uni-directional or bi-directional load switch.

#### MARKING:

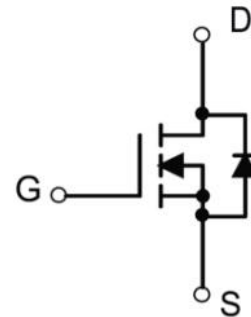


#### SOT-23



1. GATE
2. SOURCE
3. DRAIN

#### Schematic diagram



#### 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	$V_{GS}$	$\pm 12$	V
Continuous Drain Current <sup>1,5</sup>	$I_D$	6	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	25	A
Power Dissipation <sup>4,5</sup>	$P_D$	1.5	W
Thermal Resistance from Junction to Ambient <sup>5</sup>	$R_{\theta JA}$	83.3	$^\circ C/W$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	$^\circ C$

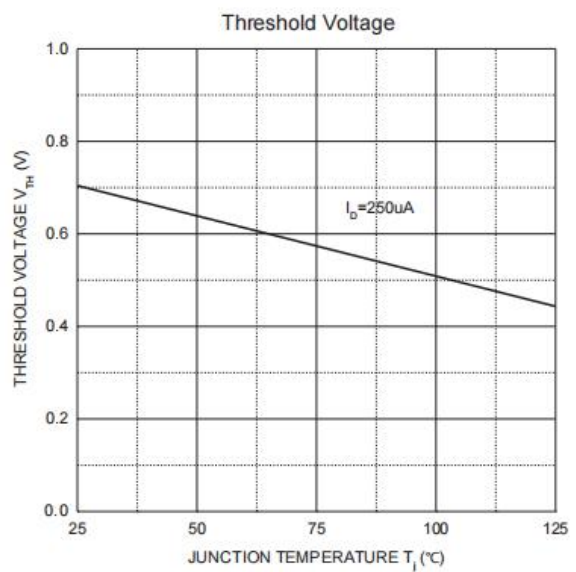
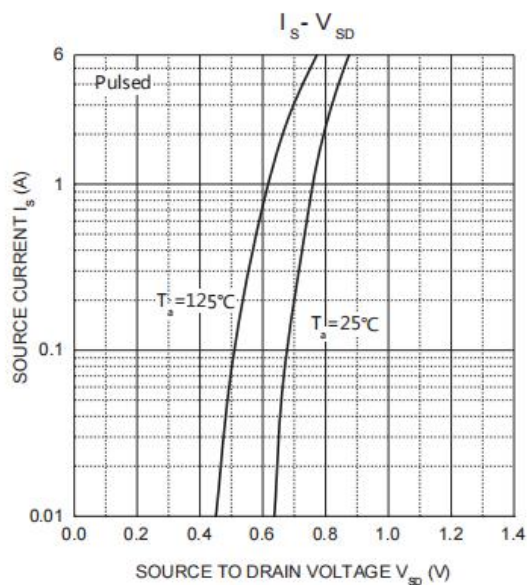
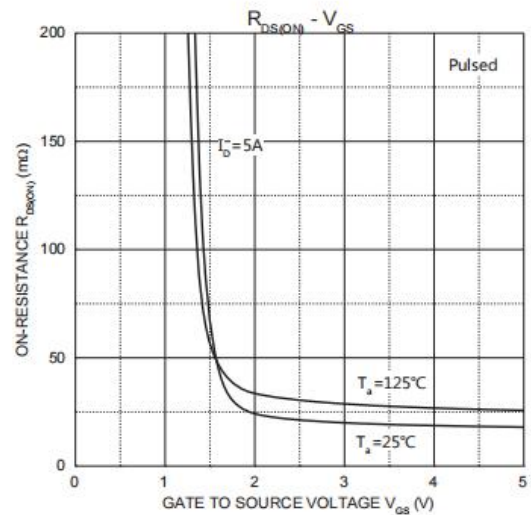
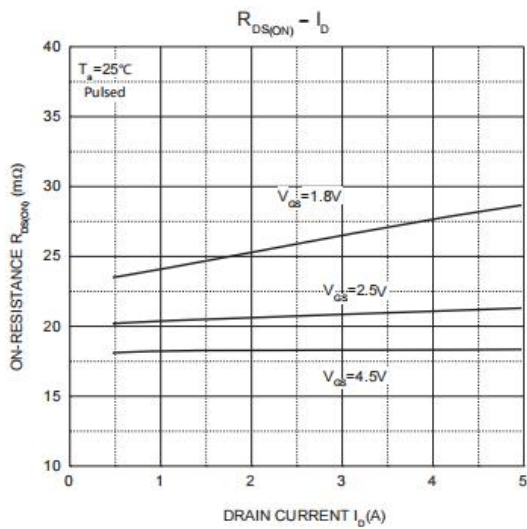
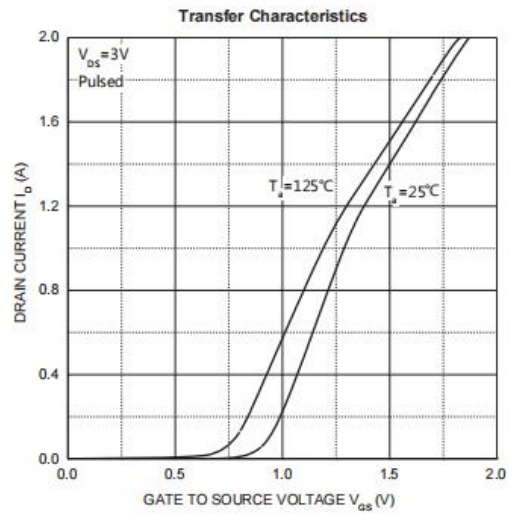
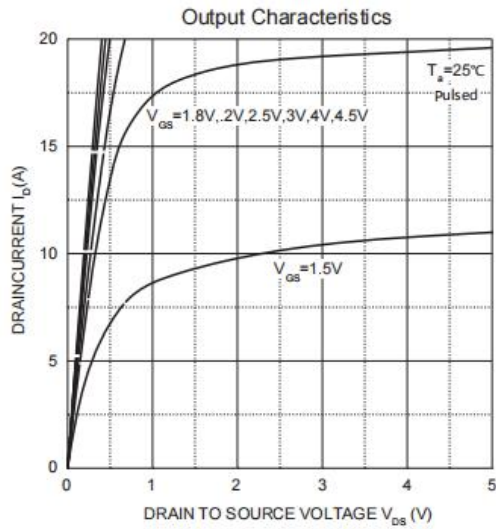
**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	20			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage <sup>3</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.5	0.7	1.0	V
Drain-source on-resistance <sup>3</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 5.0A		17	22	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 5.0A		18	24	
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 4.7A		22	32	
		V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 4.3A		30	45	
Forward transconductance <sup>3</sup>	g <sub>FS</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 3.8A	4			S
Diode Forward voltage <sup>3</sup>	V <sub>DS</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 1A			1	V
<b>Dynamic characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, f = 1MHz		630		pF
Output Capacitance	C <sub>oss</sub>			164		
Reverse Transfer Capacitance	C <sub>rss</sub>			137		
Gate resistance	R <sub>g</sub>	f = 1MHz		1.5		Ω
<b>Switching Characteristics</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = 5V, V <sub>DS</sub> = 10V, R <sub>L</sub> = 1.7Ω, R <sub>GEN</sub> = 6Ω		5.5		ns
Turn-on rise time	t <sub>r</sub>			14		
Turn-off delay time	t <sub>d(off)</sub>			29		
Turn-off fall time	t <sub>f</sub>			10.2		

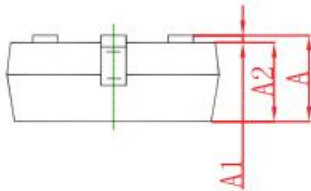
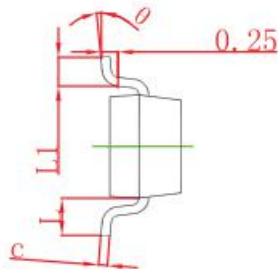
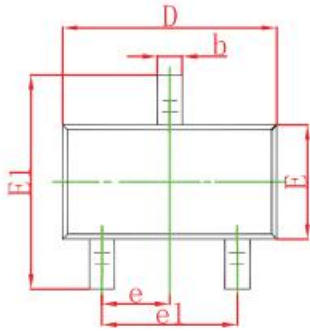
**Notes:**

- The maximum current rating is limited by package.
- Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- The power dissipation P<sub>D</sub> is limited by T<sub>J(MAX)</sub> = 150°C.
- Device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> = 25°C.

**Typical Electrical and Thermal Characteristics**



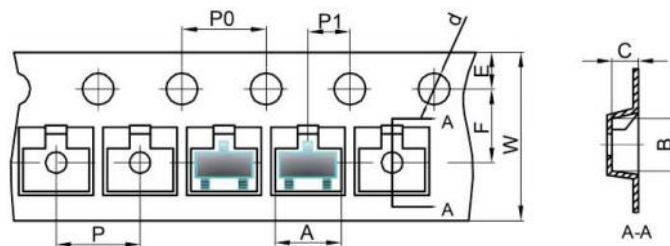
## SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
$\theta$	0°	8°	0°	8°

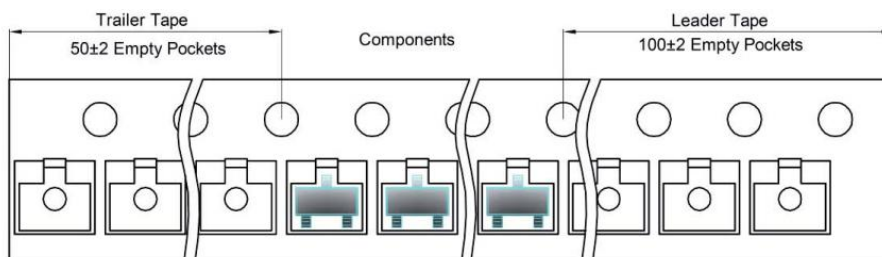
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

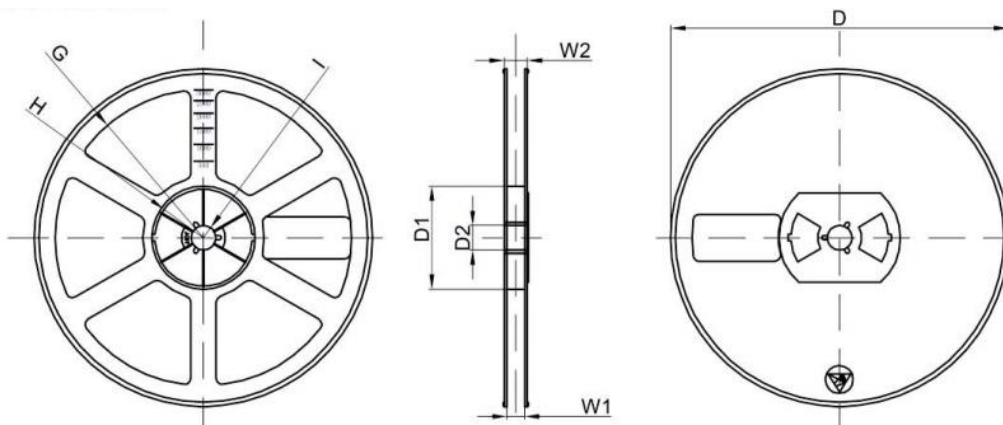


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	