

## PW3402

### 30V N-Channel MOSFET

4.0A 30V;  $R_{DS(ON)typ}=34m\Omega@10V$ ,  $R_{DS(ON)typ}=37m\Omega@4.5V$ ,  
 $R_{DS(ON)typ}=45m\Omega@2.5V$

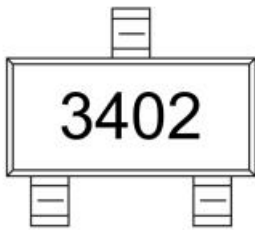
#### FEATURE

- TrenchFET Power MOSFET
- Excellent  $R_{DS(on)}$  and Low Gate Charge

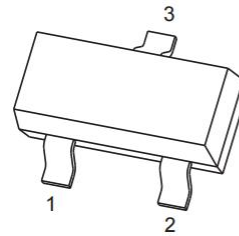
#### Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

#### MARKING:

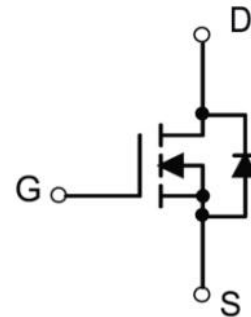


#### SOT-23



1. GATE
2. SOURCE
3. DRAIN

#### Schematic diagram



#### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	4	A
Pulsed Drain Current <sup>(1)</sup>	$I_{DM}$	15	A
Power Dissipation	$P_D$	0.35	W
Thermal Resistance from Junction to Ambient <sup>(2)</sup>	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

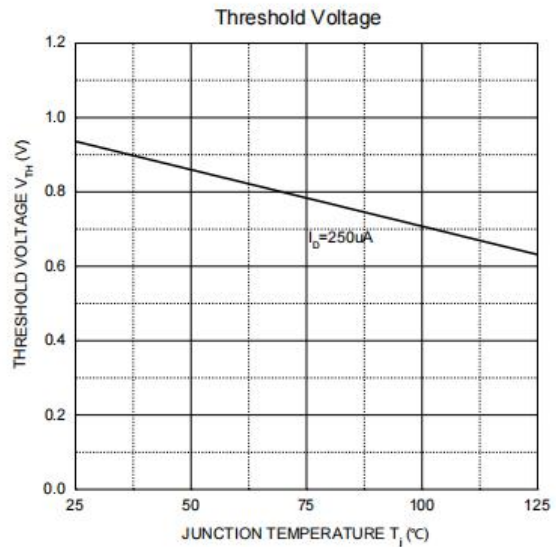
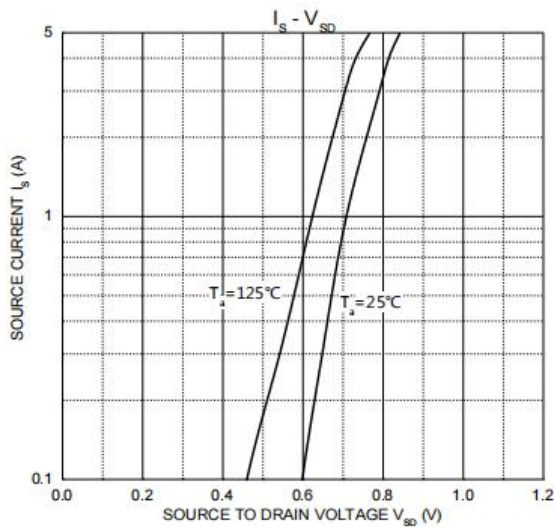
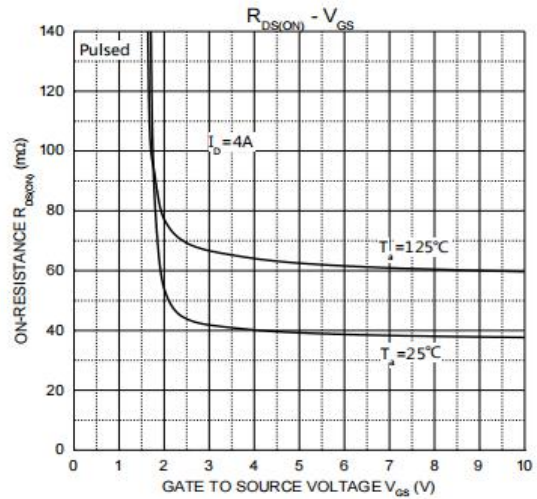
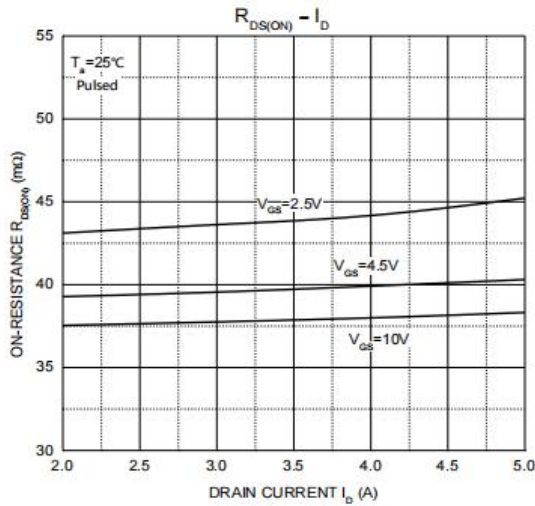
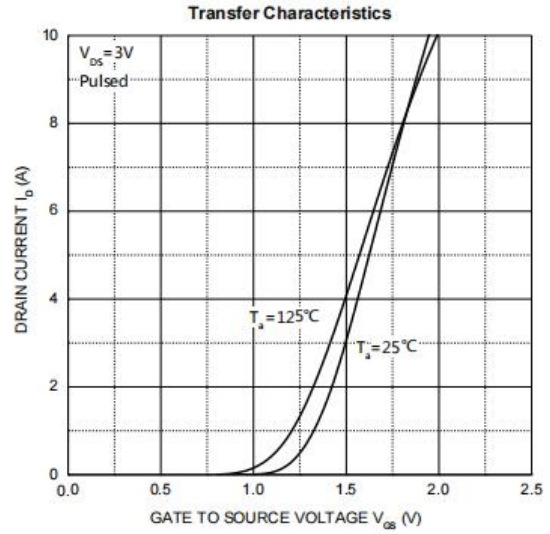
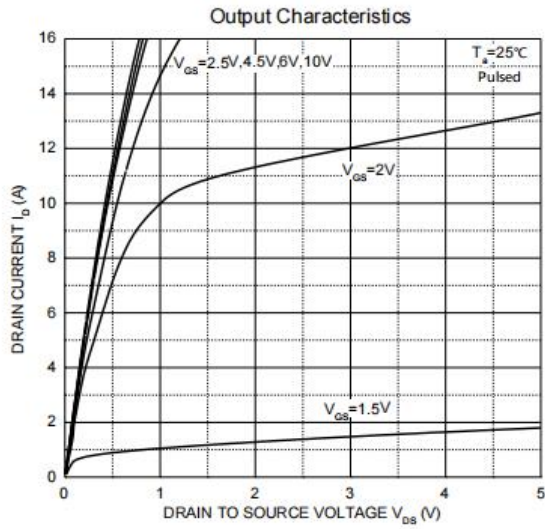
**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

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	30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 30V, 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	0.95	1.5	V
Drain-source on-resistance <sup>(3)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 4A		34	52	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3A		37	65	
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 2A		45	85	
Forward tranconductance <sup>(3)</sup>	g <sub>FS</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 3.6A		13		S
<b>DYNAMIC CHARACTERISTICS<sup>(4)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz		389		pF
Output Capacitance	C <sub>oss</sub>			54		
Reverse Transfer Capacitance	C <sub>rss</sub>			40		
Gate resistance	R <sub>g</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz		3.5		Ω
<b>SWITCHING CHARACTERISTICS<sup>(4)</sup></b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, R <sub>L</sub> = 3.75Ω, R <sub>GEN</sub> = 6Ω		3.5		ns
Turn-on rise time	t <sub>r</sub>			1.2		
Turn-off delay time	t <sub>d(off)</sub>			22		
Turn-off fall time	t <sub>f</sub>			2.2		
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 4A		4.4		nC
Gate-source charge	Q <sub>gs</sub>			0.7		
Gate-drain charge	Q <sub>gd</sub>			1.3		
<b>SOURCE-DRAIN DIODE CHARACTERISTICS</b>						
Body Diode Voltage <sup>(3)</sup>	V <sub>SD</sub>	I <sub>S</sub> = 1A, V <sub>GS</sub> = 0V			1	V
Continuous Source-Drain Diode Current	I <sub>S</sub>	T <sub>C</sub> = 25°C			1.5	A
Body diode reverse recovery time	t <sub>r</sub>	I <sub>F</sub> = 4A, dI/dt = 100A/μs		1.3		ns
Body diode reverse recovery charge	Q <sub>rr</sub>				6.2	

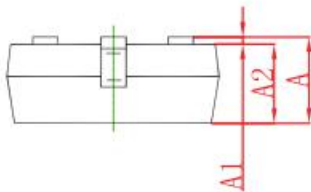
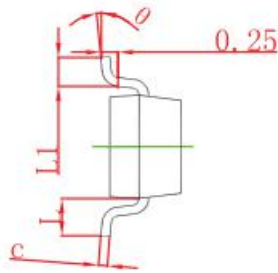
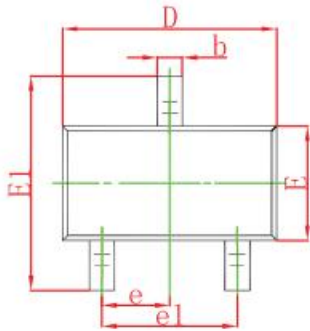
**Notes:**

- 1.Repetitive rating : Pulse width limited by junction temperature.
- 2.Surface mounted on FR4 board , t<sub>≤</sub>10s.
- 3.Pulse Test : Pulse Width≤80μs, Duty Cycle≤0.5%.
- 4.Guaranteed by design, not subject to producing.

**Typical Electrical and Thermal Characteristics**



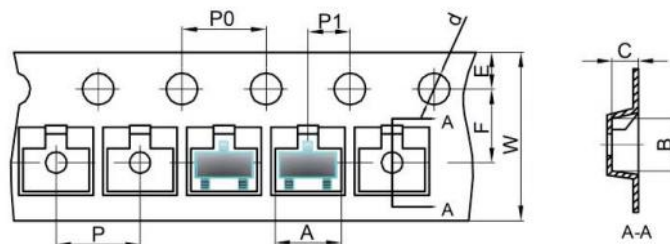
## SOT-23 Package Information



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°

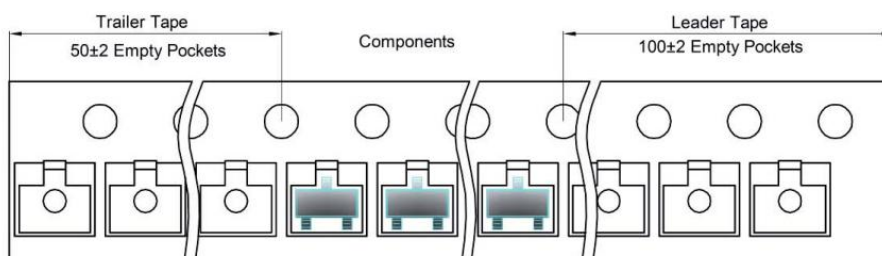
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

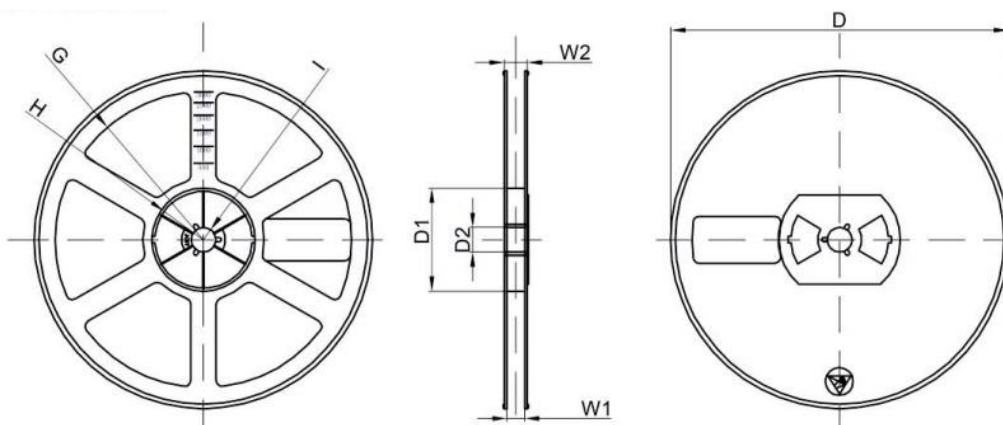


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

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	