

PW2305

12V P-Channel MOSFET

-4.1A -12V; $R_{DS(ON)typ}=30m\Omega@-4.5V$, $R_{DS(ON)typ}=40m\Omega@-2.5V$,
 $R_{DS(ON)typ}=60m\Omega@-1.8V$

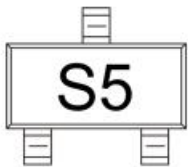
FEATURE

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

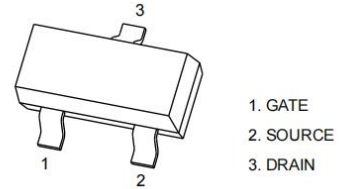
Application

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

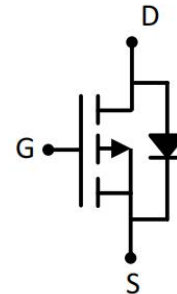
MARKING:



SOT-23



Schematic diagram



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	-4.1	A
Pulsed Drain Current($t=300\mu s$)	I_{DM}	-15	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}C$

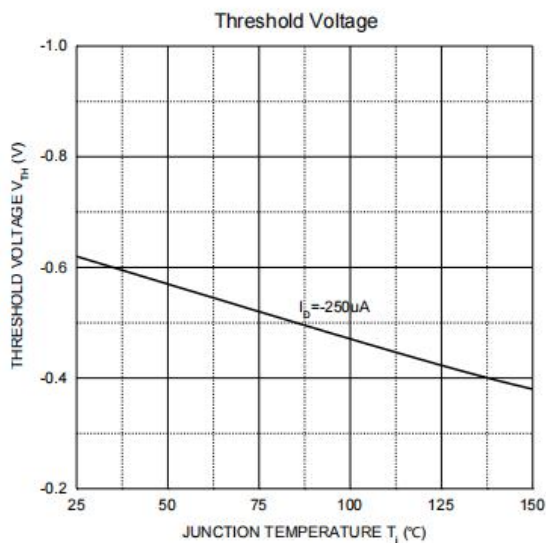
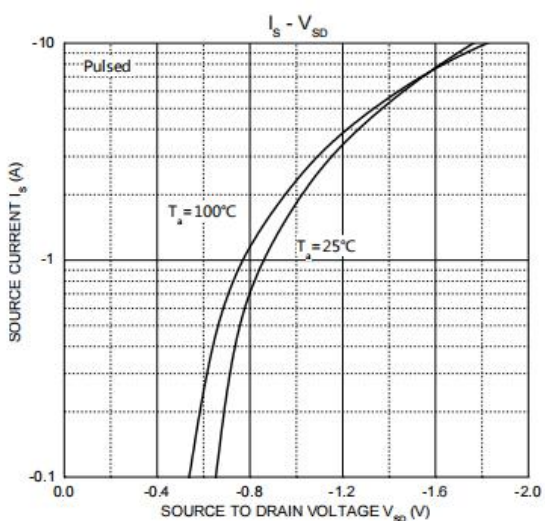
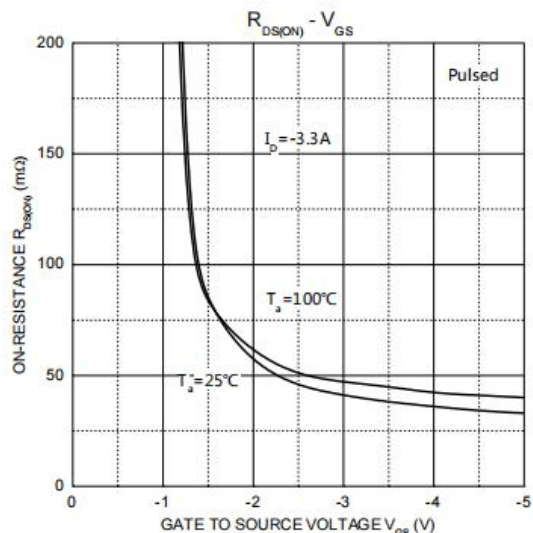
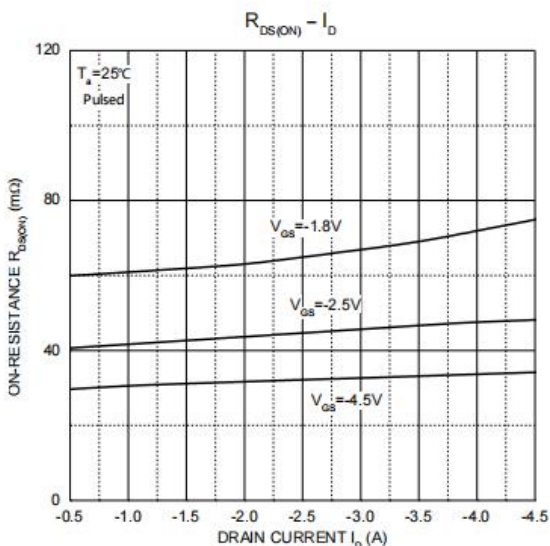
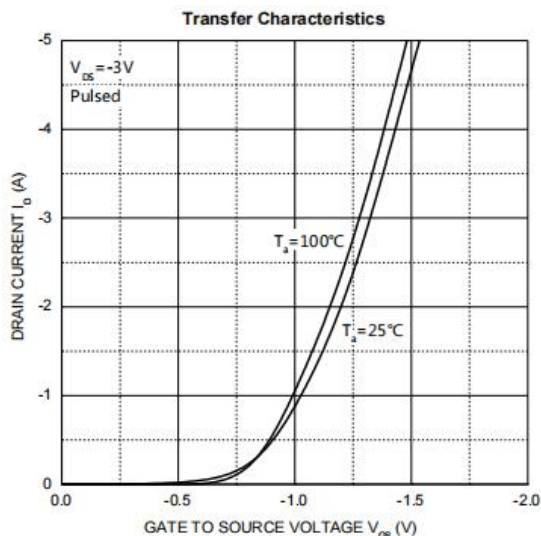
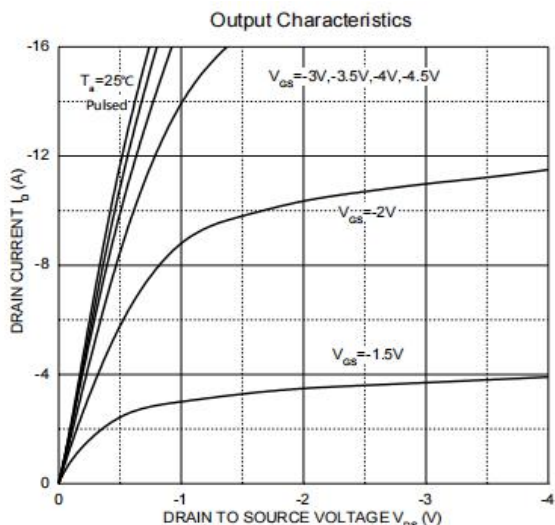
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-12			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -12V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.5	-0.65	-0.9	V
Drain-source on-resistance ^(a)	R _{DS(on)}	V _{GS} = -4.5V, I _D = -3.5A		30	40	mΩ
		V _{GS} = -2.5V, I _D = -3.0A		40	56	
		V _{GS} = -1.8V, I _D = -2.0A		60	90	
Forward tranconductance ^(a)	g _{FS}	V _{DS} = -5V, I _D = -4.1A	6			S
Dynamic characteristics^(b,c)						
Input Capacitance	C _{iss}	V _{DS} = -4V, V _{GS} = 0V, f = 1MHz		740		pF
Output Capacitance	C _{oss}			290		
Reverse Transfer Capacitance	C _{rss}			190		
Gate resistance	R _g	f = 1MHz	1.4		14	Ω
Total gate charge	Q _g	V _{DS} = -4V, V _{GS} = -2.5V, I _D = -4.1A		4.5	9	nC
Gate-source charge	Q _{gs}			1.2		
Gate-drain charge	Q _{gd}			1.6		
Turn-on delay time	t _{d(on)}	V _{DD} = -4V, V _{GEN} = -4.5V, I _D = -3.3A, R _L = 1.2Ω, R _{GEN} = 1Ω		13	20	ns
Turn-on rise time	t _r			35	53	
Turn-off delay time	t _{d(off)}			32	48	
Turn-off fall time	t _f			10	20	
Turn-on delay time	t _{d(on)}	V _{DD} = -4V, V _{GEN} = -8V, I _D = -3.3A, R _L = 6Ω, R _{GEN} = 1Ω		5	10	ns
Turn-on rise time	t _r			11	17	
Turn-off delay time	t _{d(off)}			22	33	
Turn-off fall time	t _f			16	24	
Source-Drain Diode characteristics						
Diode forward current	I _S	T _C = 25°C			-1.4	A
Diode pulsed forward current ^(a)	I _{SM}				-10	A
Diode Forward voltage	V _{DS}	I _S = -3.3A, V _{GS} = 0V			-1.2	V

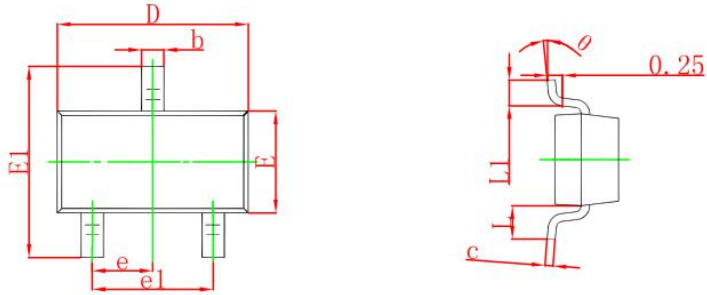
Notes:

- Pulse Test ;Pulse Width ≤300μs, Duty Cycle ≤2%.
- Guaranteed by design, not subject to production testing.
- These parameters have no way to verify.

Typical Electrical and Thermal Characteristics



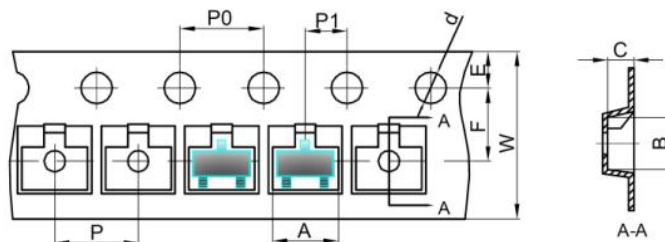
SOT-23 Package Information



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
θ	0°	8°	0°	8°

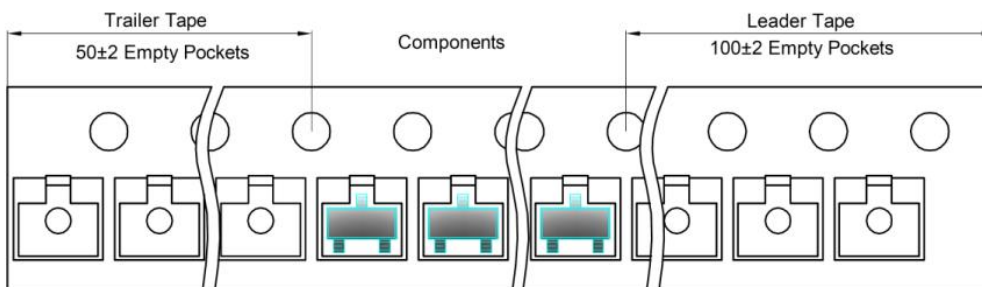
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

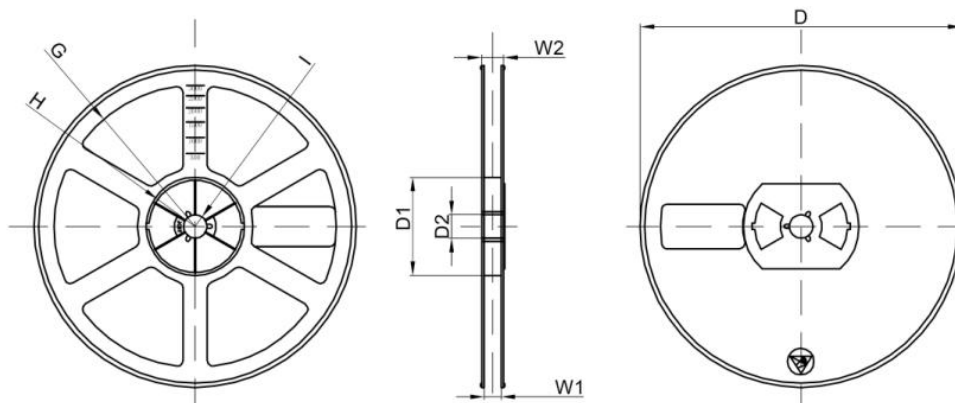


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

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	