PW2333

12V P-Channel MOSFET

-6A -12V; $R_{DS(ON)typ}$=19mΩ@-4.5V, $R_{DS(ON)typ}$=21mΩ@-3.7V, $R_{DS(ON)typ}$=27mΩ@-2.5V, $R_{DS(ON)typ}$=35mΩ@-1.8V, $R_{DS(ON)typ}$=50mΩ@-1.5V

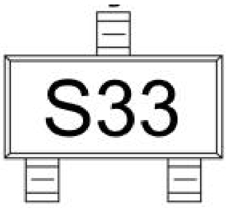
FEATURE

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

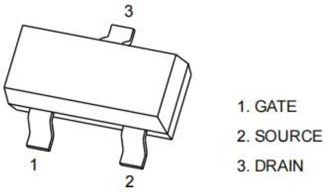
Application

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

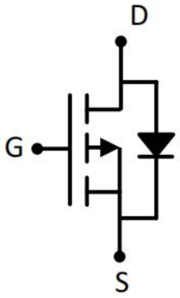
MARKING:



SOT-23



Schematic diagram



ABSOLUTE MAXIMUM RATINGS (T_a=25°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	-6[a]	A
Pulsed Drain Current(t=300μs)	I_{DM}	-20	A
Power Dissipation	P_D	0.35[b]	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357[b]	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

a. Device mounted on FR-4 substrate board, with minimum recommended pad layout, single side.

b. Device mounted on no heat sink.

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

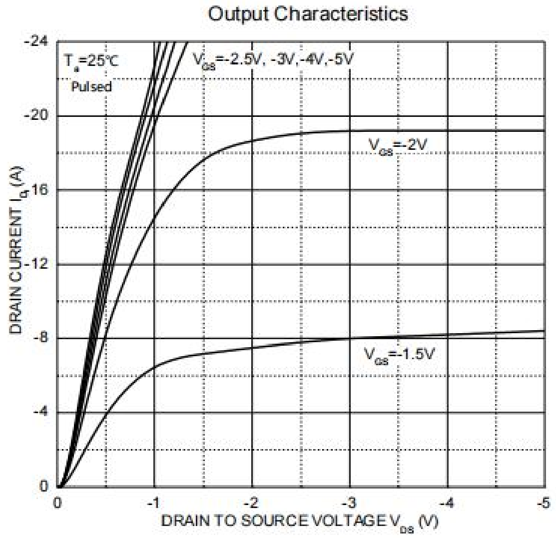
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-12			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-12V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±8V, V_{DS} = 0V			±0.1	μA
Gate threshold voltage(a)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.4	-0.65	-1	V
Drain-source on-resistance(a)	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-5A		19	28	mΩ
		V_{GS} =-3.7V, I_D =-4.6A		21	32	
		V_{GS} =-2.5V, I_D =-4.3A		27	40	
		V_{GS} =-1.8V, I_D =-1A		35	63	
		V_{GS} =-1.5V, I_D =-0.5A		50	150	
Forward tranconductance(a)	g_{FS}	V_{DS} =-5V, I_D =-5A		18		S
Dynamic characteristics(b)						
Input Capacitance	C_{iss}	V_{DS}=-6V,V_{GS}=0V,f=1MHz		1275		pF
Output Capacitance	C_{oss}			255		
Reverse Transfer Capacitance	C_{rss}			236		
Gate resistance	Rg	f =1MHz	1.9		19	Ω
Total gate charge	Q_g	V_{DS} =-6V,V_{GS} =-4.5V,I_D =-5A		14	21	nC
Gate-source charge	Q_{gs}			2.3		
Gate-drain charge	Q_{gd}			3.6		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-6V,V_{GEN}=-4.5V,ID=-4A, R_L=6Ω,R_{GEN}=1Ω		26	40	ns
Turn-on rise time	t_r			24	40	
Turn-off delay time	$t_{d(off)}$			45	75	
Turn-off fall time	t_f			20	35	
Source-Drain Diode characteristics						
Diode forward current	I_S	T_C=25°C			-1.4	A
Diode pulsed forward current	I_{SM}				-20	A
Diode Forward voltage(a)	V_{DS}	I_S=-4A, V_{GS} = 0V			-1.2	V
Diode reverse recovery time(b)	t_{rr}	I_F=-4A,dI/dt=100A/μs			48	nC
Diode reverse recovery charge(b)	Q_{rr}				16	ns

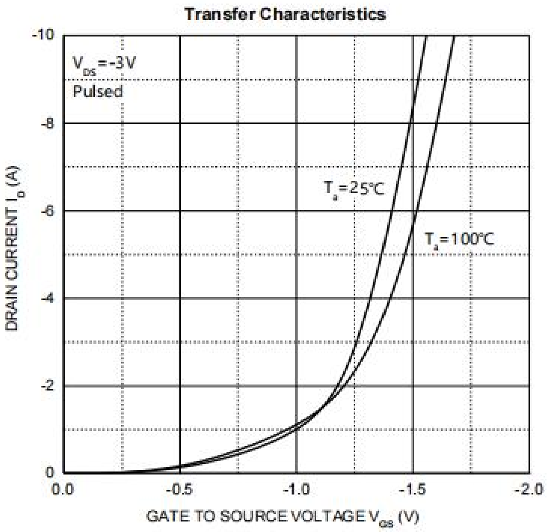
Notes:

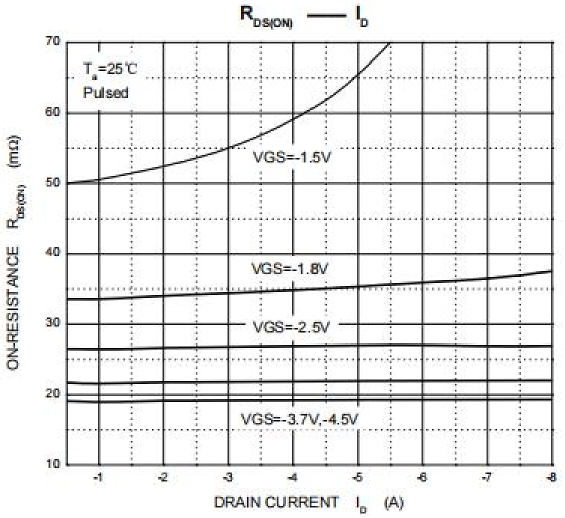
a. Pulse Test ;Pulse Width ≤300μs, Duty Cycle ≤2%.

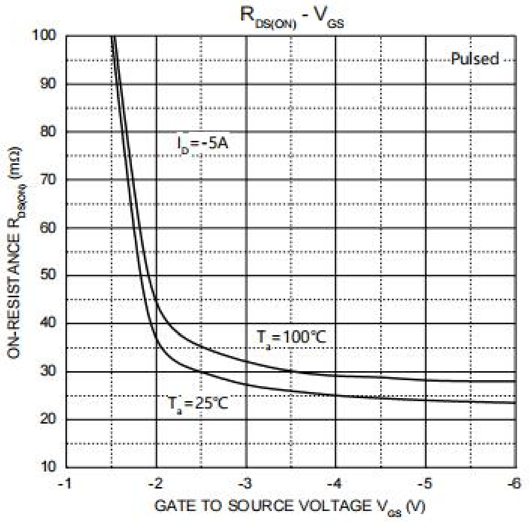
b. Guaranteed by design, not subject to production testing.

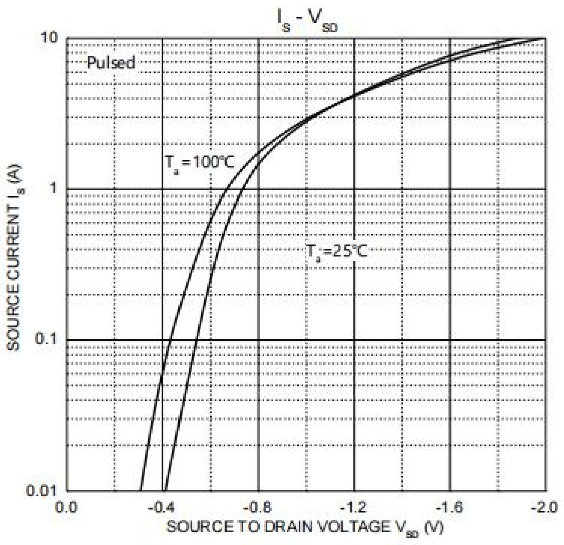
Typical Electrical and Thermal Characteristics

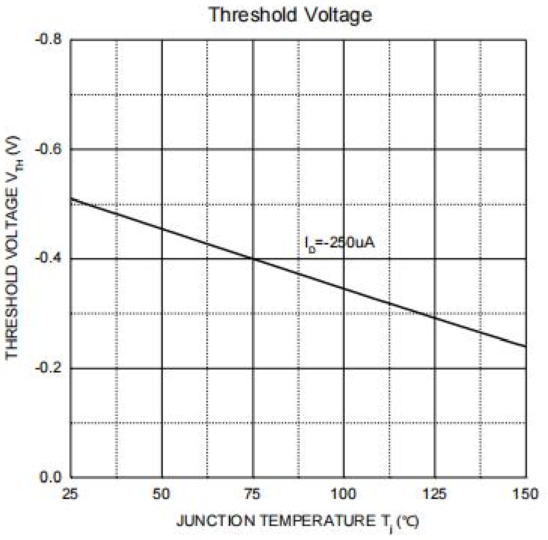

Output Characteristics


Transfer Characteristics

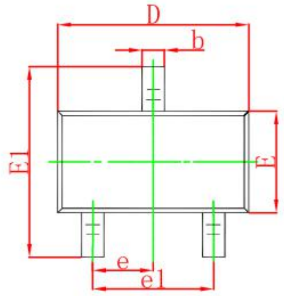

R_DS(ON) —— I_D

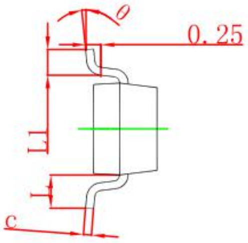

R_DS(ON) - V_GS

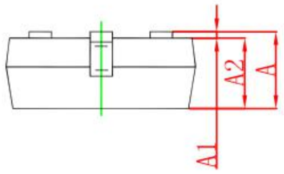

I_S - V_SD


Threshold Voltage

SOT-23 Package Information



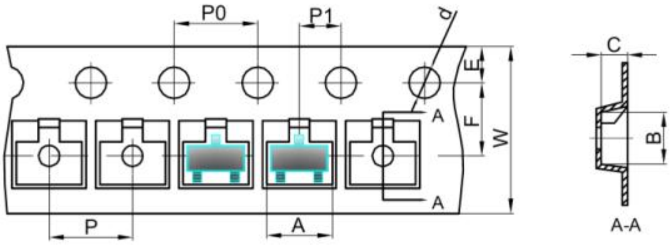




Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 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°

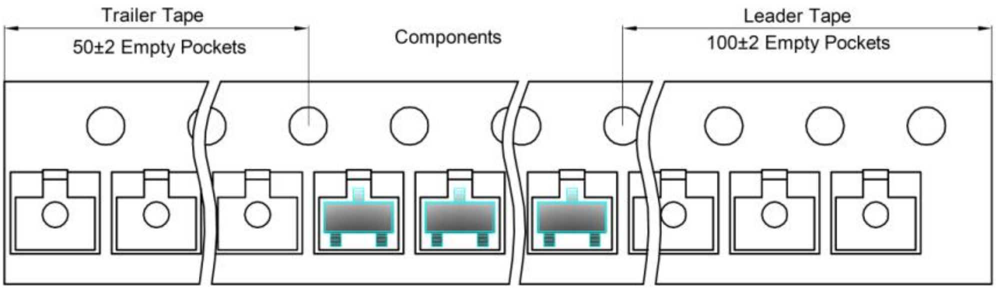
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

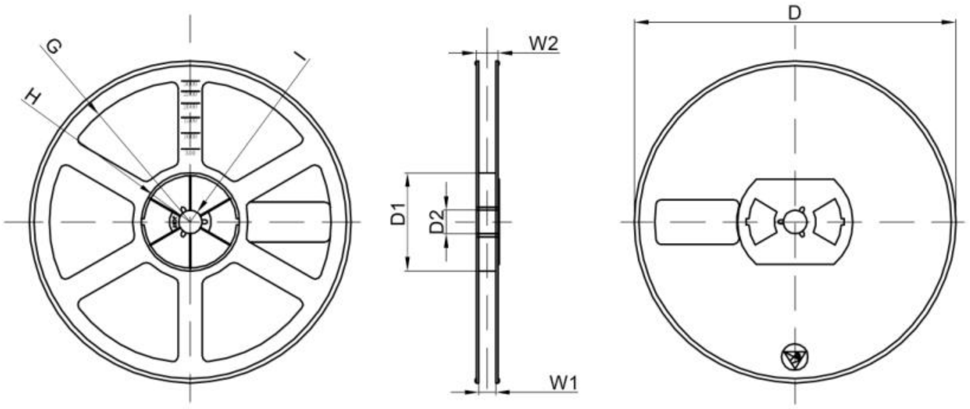


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

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	