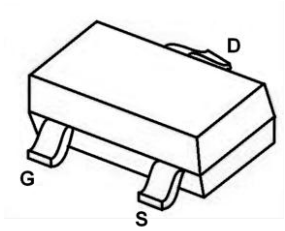
30V N-Channel MOSFET

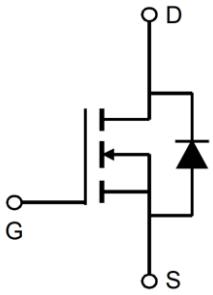
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	30mΩ@10V	5.8A
	42mΩ@4.5V	

SOT-23



Schematic diagram



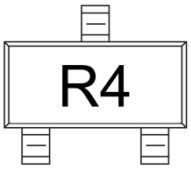
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge
- AEC-Q101 qualified (Automotive grade with suffix "Q".)
- Expsemi electronics

Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch
- AEC-Q101 qualified

MARKING:



ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	5.8	A
Pulsed Drain Current	I_{DM}	30	A
Power Dissipation*	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

* Repetitive rating : Pulse width limited by maximum junction temperature.

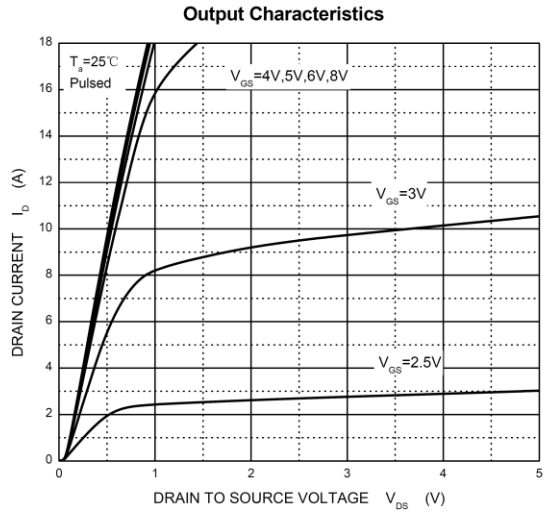
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

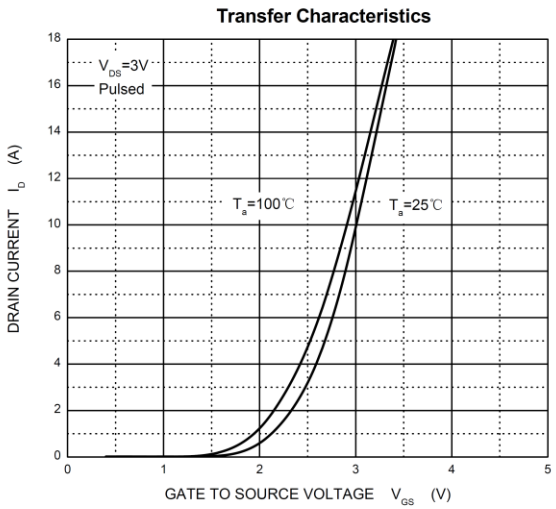
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.5	3	V
Drain-source on-resistance(1)	$R_{DS(on)}$	V_{GS} =10V, I_D =5.8A		21	30	mΩ
		V_{GS} =4.5V, I_D =4.8A		28	42	
Forward tranconductance(1)	g_{FS}	V_{DS} =5V, I_D =3.8A	5			S
Body Diode Voltage	V_{SD}	I_S=1A, VGS = 0V			1	V
DYNAMIC CHARACTERISTICS(2)						
Input Capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V,f=1MHz			810	pF
Output Capacitance	C_{oss}			115		
Reverse Transfer Capacitance	C_{rss}			83		
Gate resistance	R_g	V_{DS} =0V,V_{GS} =0V,f =1MHz			1.5	Ω
SWITCHING CHARACTERISTICS(2)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=15V, R_L=2.6Ω,R_{GEN}=6Ω			6.4	ns
Turn-on rise time	t_r			3.1		
Turn-off delay time	$t_{d(off)}$			15.0		
Turn-off fall time	t_f			2.6		

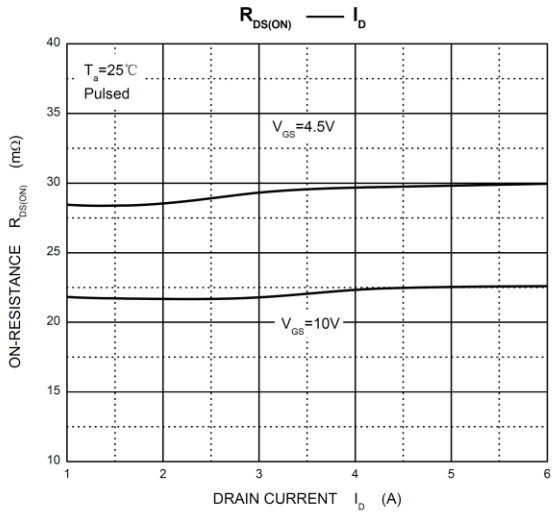
Notes:

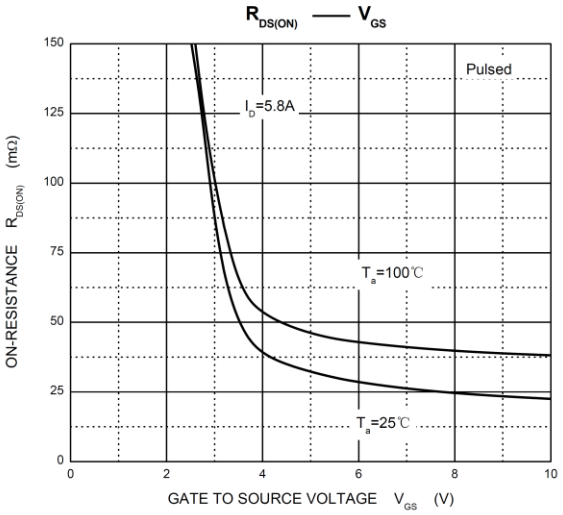
1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.
2. These parameters have no way to verify.

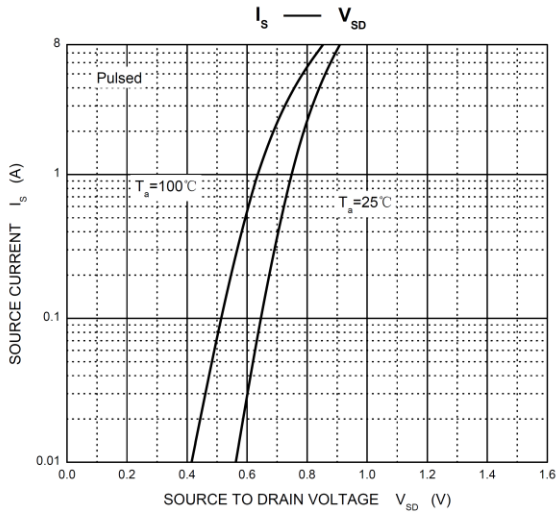
Typical Electrical and Thermal Characteristics

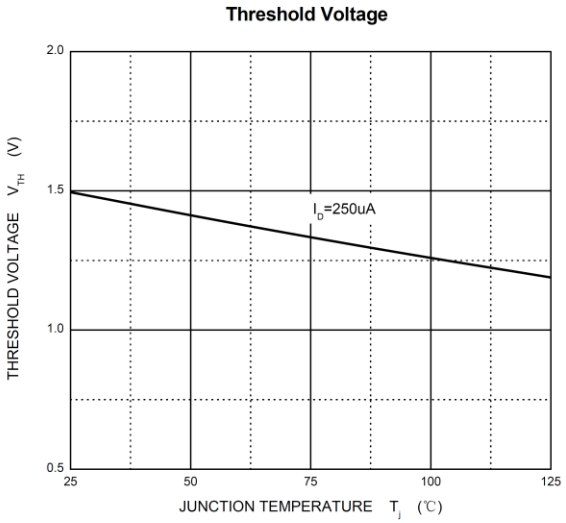




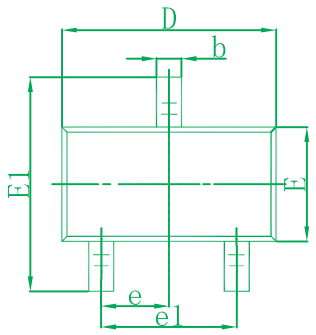


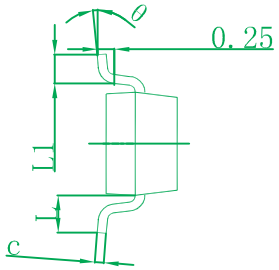


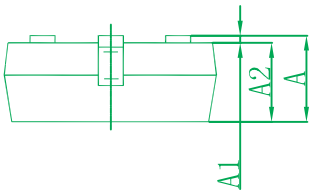




SOT-23 Package Information

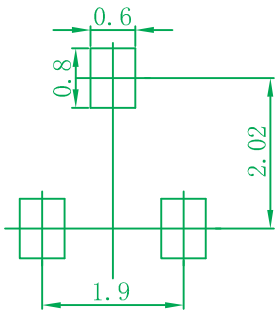






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.150	0.035	0.045
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.050	0.110	0.120
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.360 REF		0.014 REF	
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

Ordering information

Device	Package	Shipping
EP3404	SOT-23	3000/Tape&Reel(7inches)