

N-Channel 30V MOSFET

EX3402B

V_{DS} (V)	$R_{DS(on),max}$ (m Ω)	I_D (A)
30V	46 @ $V_{GS} = 10V$	4

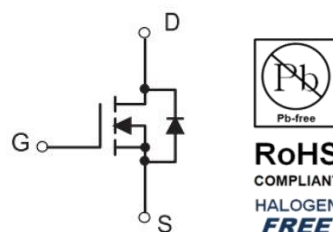
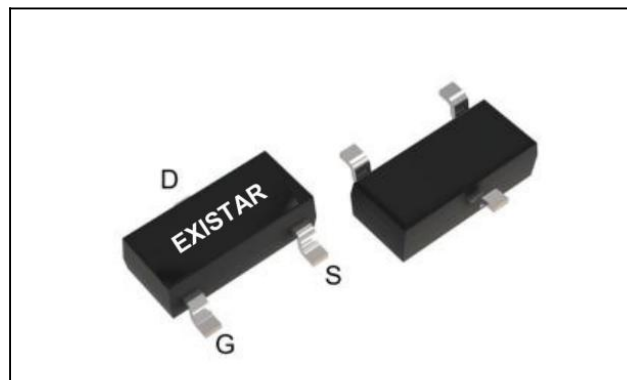
Features

- Low $R_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed
- 100% avalanche tested

Applications

- DC/DC conversion
- Load Switch
- Power Management

SOT-23



Package And Ordering Information

Ordering code	Package	Marking
EX3402B	SOT-23	3402B

Ordering Information

Package	Units/ Reel	Reels/ Inner Box	Units/ Inner Box
SOT-23	3000	15	45000

Key Performance Parameters

Parameter	Value	Unit
VDS, min @ Tj(max)	30	V
ID, pulse	15	A
RDS(ON), max @ VGS=10V	46	mΩ
Qg	4.34	nC

Absolute Maximum Ratings at Tj=25°C Unless Otherwise Noted

Parameter		Symbol	Limit	Unit
Drain-source voltage		V _{DS}	30	V
Gate-source voltage		V _{GS}	±12	
Continuous drain current	T _A =25°C	I _D	4	A
	T _A =100°C		-	
Pulsed drain current		I _{D,pulse}	15	
Avalanche energy, single pulse		E _{AS}	-	mJ
Power dissipation	T _A =25°C	P _D	0.35	W
	T _A =100°C		-	
Operating junction and storage temperature range		T _J , T _{stg}	-55 To 150	°C

Thermal Characteristics

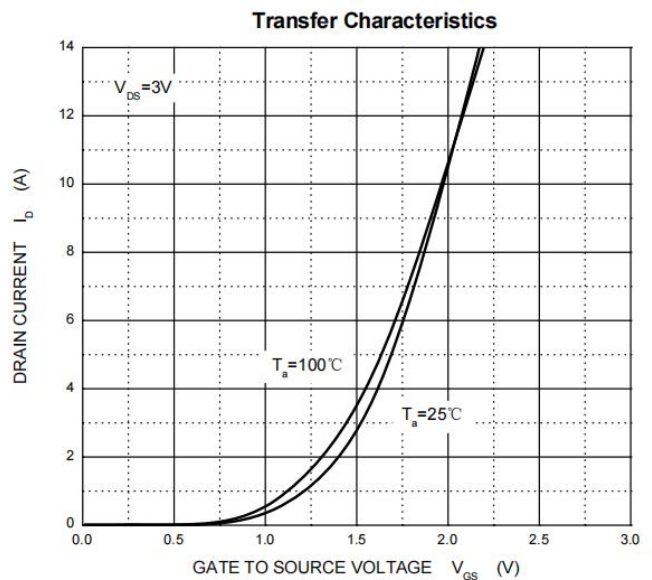
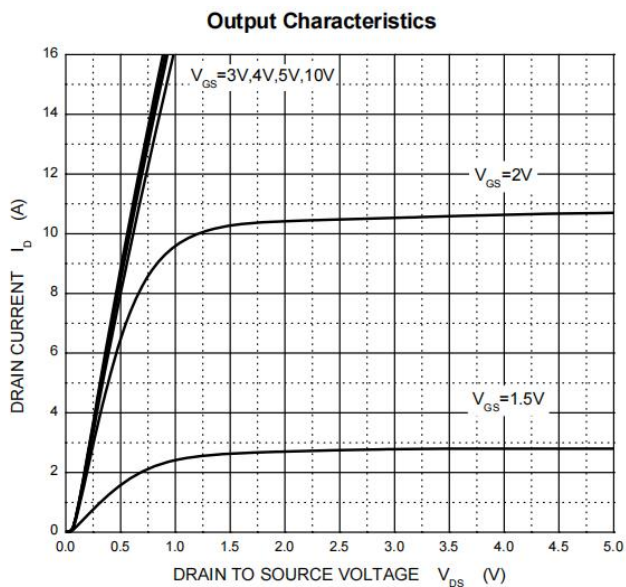
Parameter		Symbol	Max.	Unit
Thermal resistance, junction-to-case	Steady state	R _{θJC}	-	°C/W
Thermal resistance, junction-to-ambient	Steady state	R _{θJA}	357	

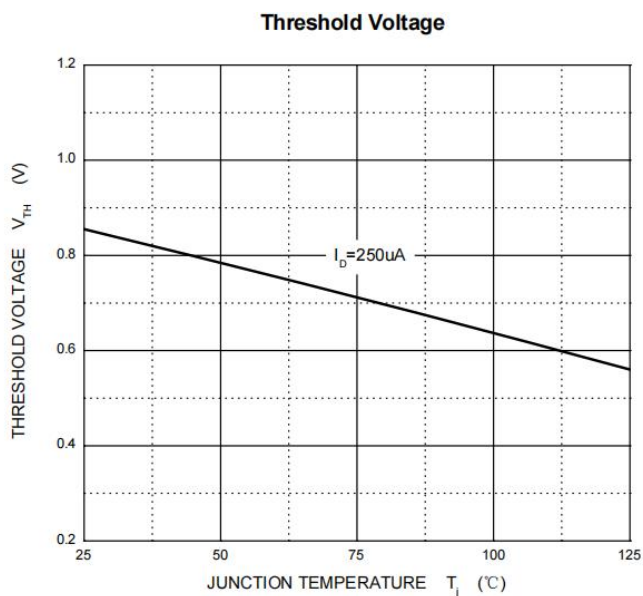
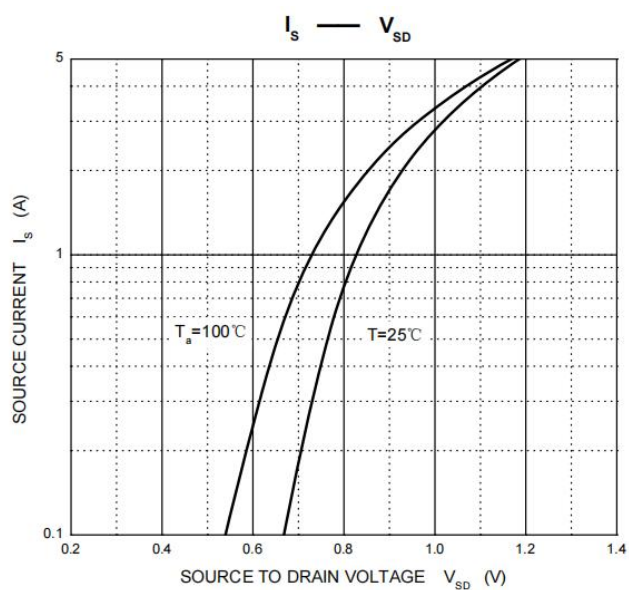
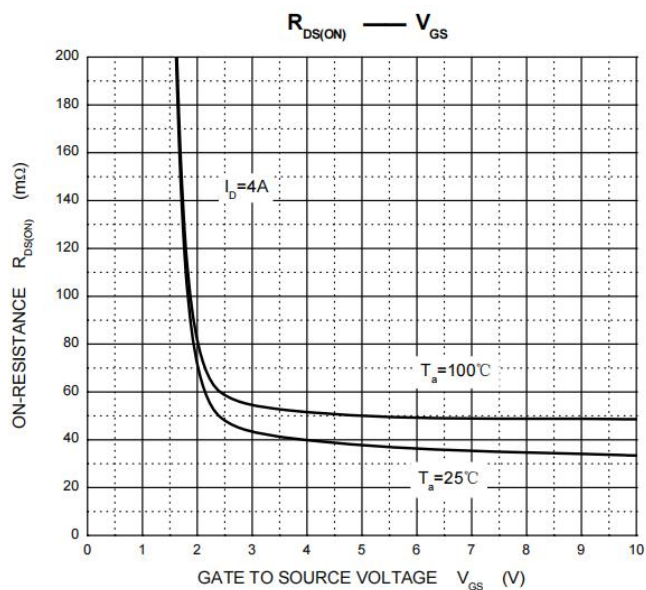
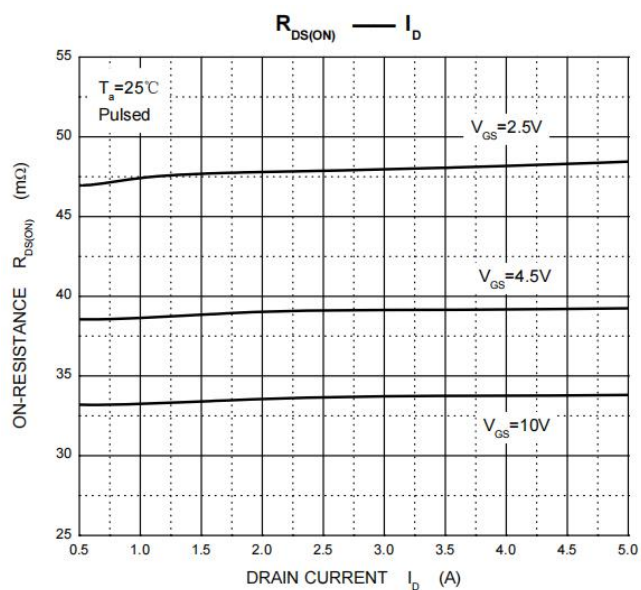
Electrical Characteristics at Tj=25°C unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Static						
Drain to source breakdown voltage	V _{(BR)DSS}	30			V	V _{GS} = 0, I _D = 250 μA
Gate-source threshold voltage	V _{GS(th)}	0.6		1.4	V	V _{DS} = V _{GS} , I _D = 250 μA
Gate-body leakage	I _{GSS}			±100	nA	V _{DS} = 0 V, V _{GS} = ±12 V
Zero gate voltage drain current	I _{DSS}			1	μA	V _{DS} = 24 V, V _{GS} = 0 V
Drain-source on-resistance	R _{DS(on)}		33	46	mΩ	V _{GS} = 10 V, I _D = 4 A
Drain-source on-resistance	R _{DS(on)}		39	55	mΩ	V _{GS} = 4.5 V, I _D = 3 A
Forward transconductance	g _{fs}		8		S	V _{DS} = 15 V, I _D = 4 A

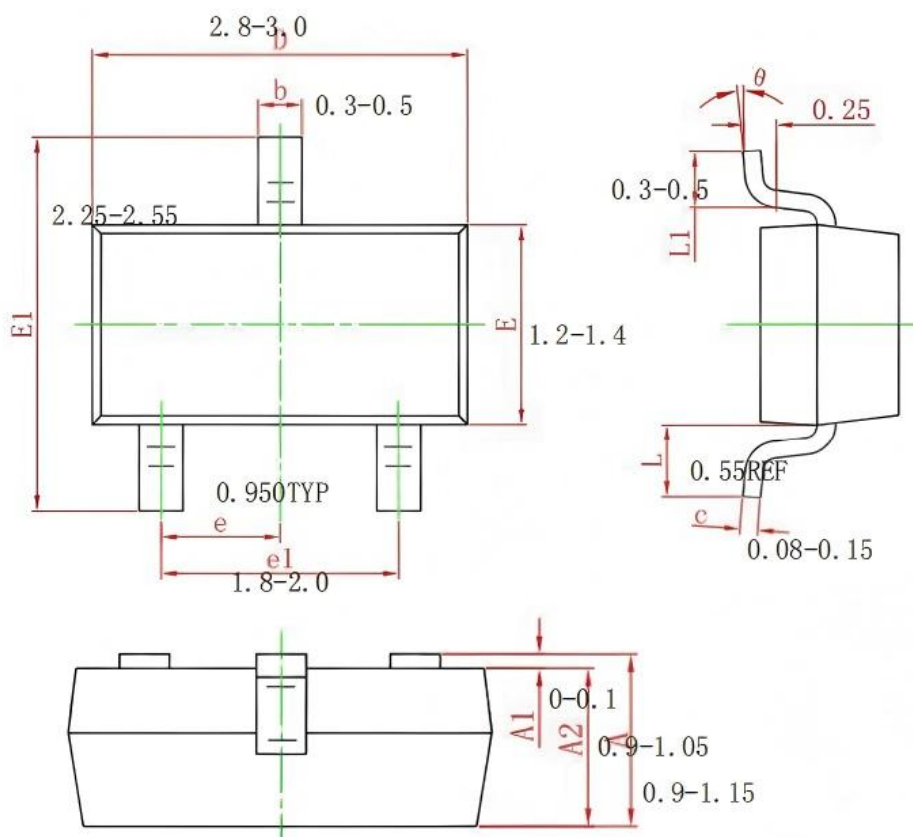
Gate resistance	R _g		3		Ω	f=1MHz
Gate Charge						
Total gate charge	Q _g		4.34		nC	V _{DS} = 15 V, I _D = 4 A, V _{GS} = 4.5 V
Gate-source charge	Q _{gs}		0.6			
Gate-drain charge	Q _{gd}		1.38			
Dynamic						
Turn-on delay time	t _{d(on)}		3.3		ns	V _{DS} = 15 V, V _{GS} = 10 V, R _L = 3.75 Ω, R _{GEN} = 6 Ω
Rise time	t _r		1			
Turn-off delay time	t _{d(off)}		21.7			
Fall time	t _f		2.1			
Input capacitance	C _{iss}		390		pF	V _{DS} =15 V, V _{GS} = 0 V, f = 1MHz
Output capacitance	C _{oss}		54.5			
Reverse transfer capacitance	C _{rss}		41			
Body Diode						
Diode forward voltage	V _{SD}			1	V	V _{GS} = 0 V, I _F = 1 A
Reverse recovery time	t _{rr}		1.2		ns	I _S =4 A, di/dt = 100 A/μs
Reverse recovery charge	Q _{rr}		6.3		nC	

Electrical Characteristics Diagrams





Package Outline Dimensions



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°

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