

N-Channel 30V MOSFET

EX3400B

V_{DS} (V)	$R_{DS(on),max}$ (m Ω)	I_D (A)
30V	26 @ $V_{GS} = 10V$	5.8

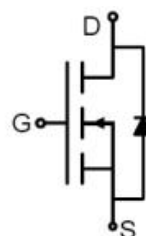
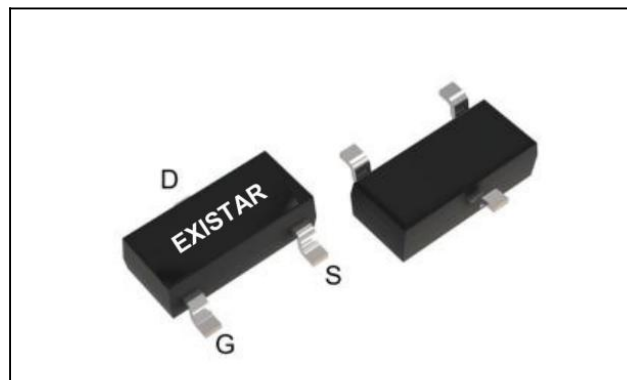
Features

- 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
EX3400B	SOT-23	3400B

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	23.2	A
RDS(ON), max @ VGS=10V	26	mΩ
Qg	20	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	5.8	A
	T _A =100°C		3.6	
Pulsed drain current		I _{D,pulse}	23.2	
Avalanche energy, single pulse		E _{AS}	20	mJ
Power dissipation	T _A =25°C	P _D	1.4	W
	T _A =100°C		0.5	
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}	90	

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)}	0.45		1.25	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} = 30 V, V _{GS} = 0 V
Drain-source on-resistance	R _{DS(on)}		20	26	mΩ	V _{GS} = 10 V, I _D = 3 A
Drain-source on-resistance	R _{DS(on)}		22	28.5	mΩ	V _{GS} = 4.5 V, I _D = 2 A
Forward transconductance	g _{fs}		7.8		S	V _{DS} = 5 V, I _D = 2 A

Gate resistance	Rg		1.9		Ω	f=1MHz
Gate Charge						
Total gate charge	Qg		20		nC	VDS = 15 V, ID = 2 A, VGS = 4.5 V
Gate-source charge	Qgs		2			
Gate-drain charge	Qgd		2.2			
Dynamic						
Turn-on delay time	td(on)		5		ns	VDS = 15 V, VGS = 4.5 V, RL = 7.5 Ω, RGEN = 3 Ω
Rise time	tr		12			
Turn-off delay time	td(off)		24			
Fall time	tf		2			
Input capacitance	Ciss		696		pF	VDS=15 V, VGS = 0 V, f = 1MHz
Output capacitance	Coss		53			
Reverse transfer capacitance	Crss		42			
Body Diode						
Diode forward voltage	VSD			1.2	V	VGS = 0 V, IF = 2 A
Reverse recovery time	trr		8.5		ns	Is =2 A, di/dt = 100 A/μs
Reverse recovery charge	Qrr		3.4		nC	

Electrical Characteristics Diagrams

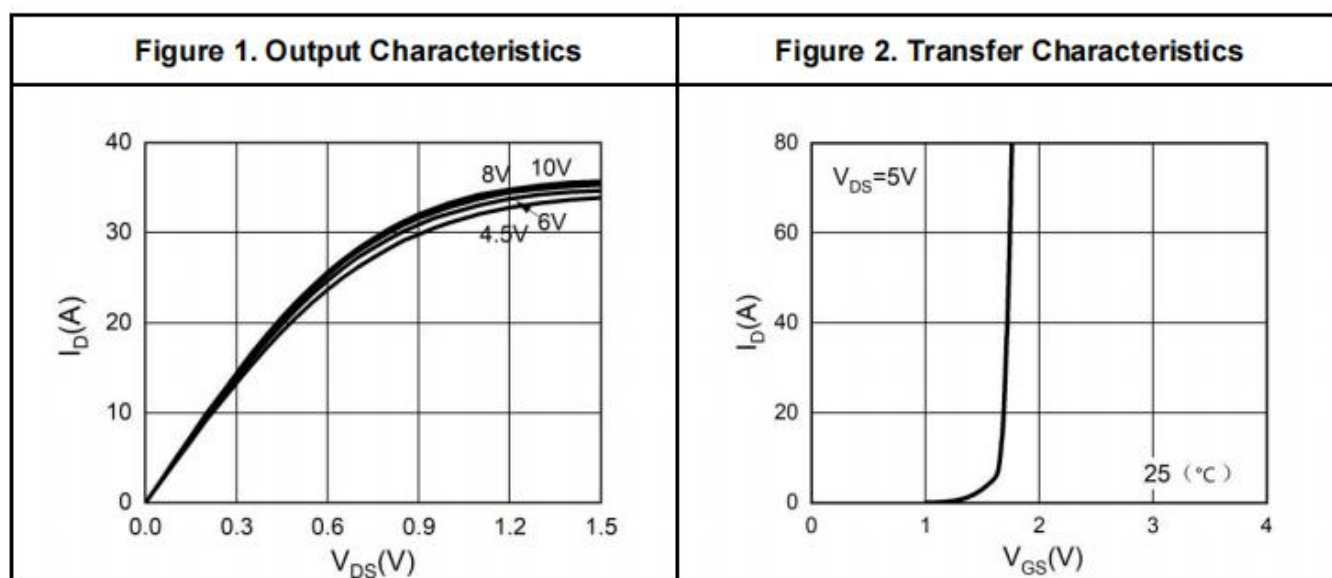


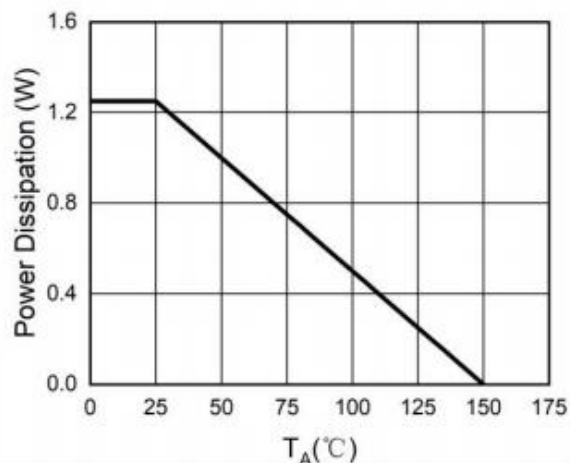
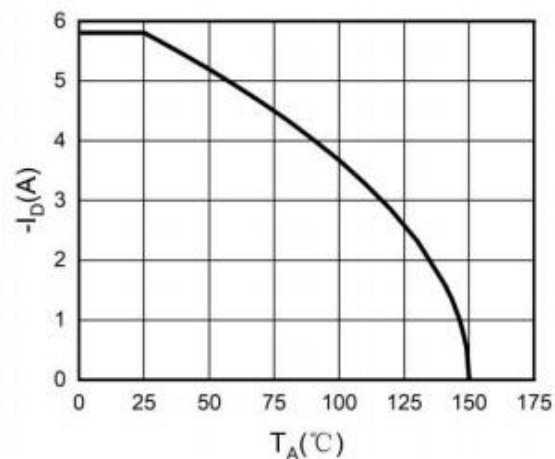
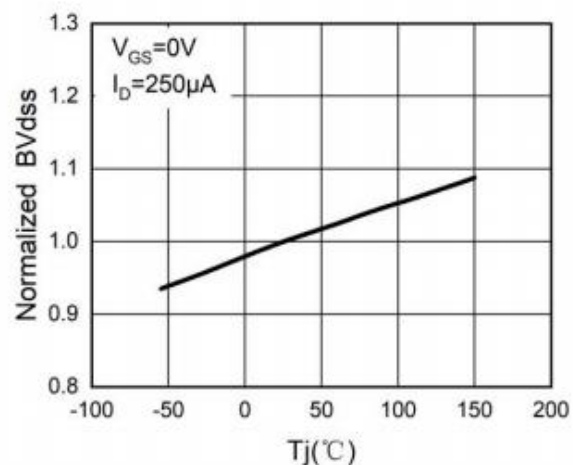
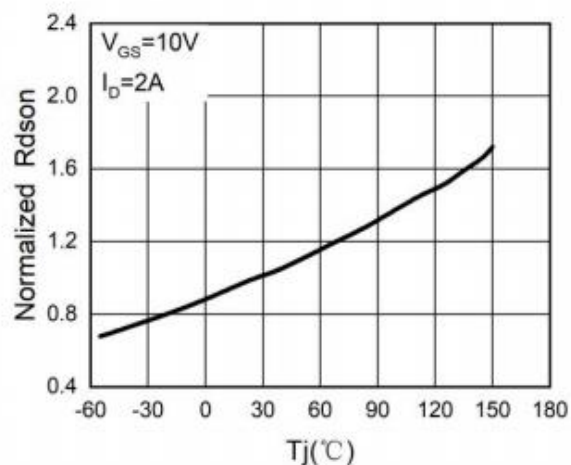
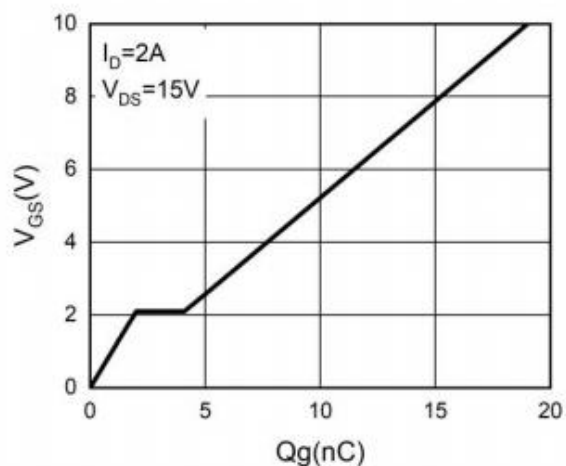
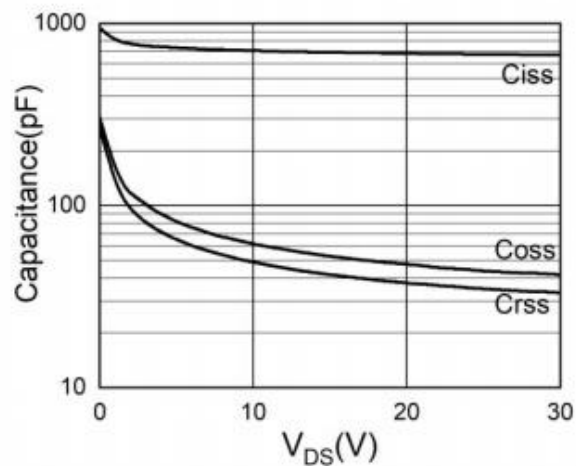
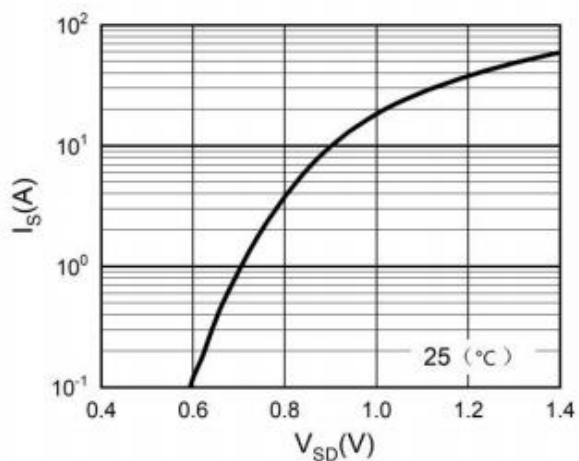
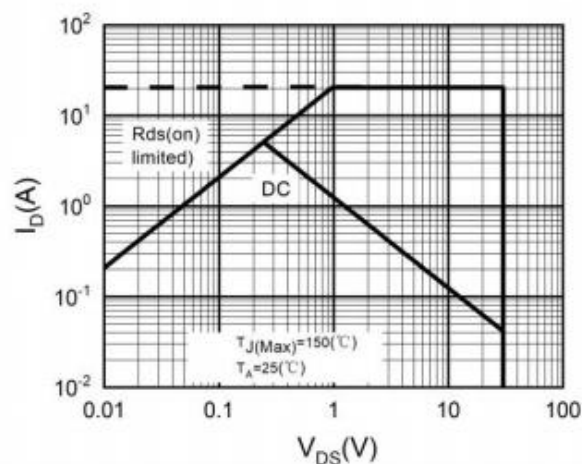
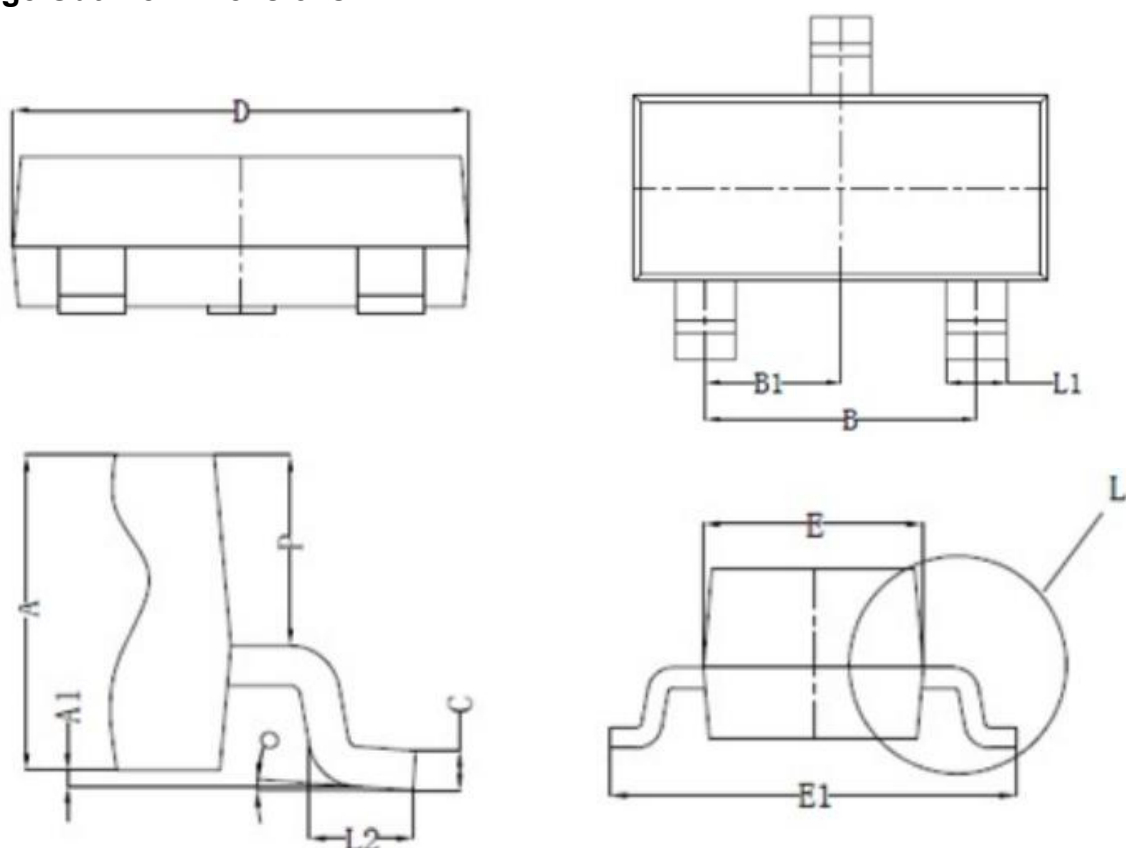
Figure 3. Power Dissipation

Figure 4. Drain Current

Figure 5. BV_{DSS} vs Junction Temperature

Figure 6. $R_{DS(ON)}$ vs Junction Temperature


Figure 7. Gate Charge Waveforms

Figure 8. Capacitance

Figure 9. Body-Diode Characteristics

Figure 10. Maximum Safe Operating Area


Package Outline Dimensions



Symbol	Dim in mm		
	Min	Nor	Max
A	0.900	1.000	1.100
A1	0.000	0.050	0.100
L1	0.350	0.400	0.550
C	0.100	0.110	0.120
D	2.800	2.900	3.000
E	1.250	1.300	1.350
E1	2.250	2.400	2.550
B	1.800	1.900	2.000
B1	0.950 TYP		
L2	0.200	0.350	0.450
P	0.550	0.575	0.600

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