



General Description

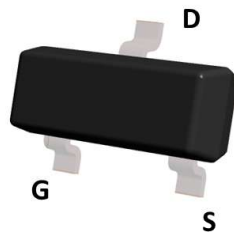
- Trench Power LV MOSFET technology
- High Power and current handling capability
- ESD Protected Up to 3.5KV (HBM)

Applications

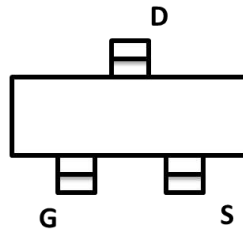
- PWM application
- Load switch

Product Summary

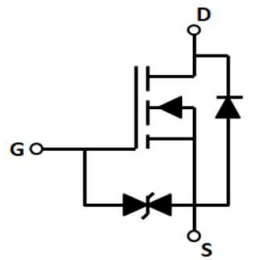
V_{DS}	20	V
$R_{DS(on),Typ} @ V_{GS}=4.5V$	16	m Ω
I_D	7.0	A



Top View



SOT-23



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	20	V
Gate-source Voltage		V_{GS}	± 12	V
Drain Current	$T_A=25^\circ\text{C}$ @ Steady State	I_D	7.0	A
	$T_A=70^\circ\text{C}$ @ Steady State		5.6	
Pulsed Drain Current ^A		I_{DM}	28	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$		P_D	1.3	W
Thermal Resistance Junction-to-Ambient @ Steady State		$R_{\theta JA}$	96	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ\text{C}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$		2.5	± 10	μA
		$V_{GS}=\pm 5V, V_{DS}=0V$		300	± 1000	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.45	0.62	1.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=7.0A$		16	18	m Ω
		$V_{GS}=2.5V, I_D=4.0A$		19	22	
		$V_{GS}=1.8V, I_D=3.0A$		25	39	
Diode Forward Voltage	V_{SD}	$I_S=7.0A, V_{GS}=0V$			1.2	V
Maximum Body-Diode Continuous Current	I_S				7.0	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1\text{MHz}$		640		pF
Output Capacitance	C_{oss}			147		
Reverse Transfer Capacitance	C_{rss}			78		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=4.5V, V_{DS}=10V, I_D=7.0A$		8.1		nC
Gate Source Charge	Q_{gs}			2.4		
Gate Drain Charge	Q_{gd}			3		
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=4.5V, V_{DD}=10V, R_L=1.5\Omega, R_{GEN}=3\Omega$		1.2		ns
Turn-on Rise Time	t_r			2.4		
Turn-off Delay Time	$t_{D(off)}$			22		
Turn-off Fall Time	t_f			7		

 A. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Performance Characteristics

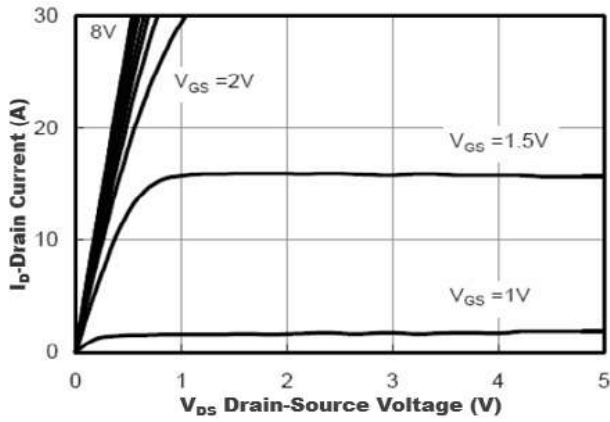


Figure1. Output Characteristics

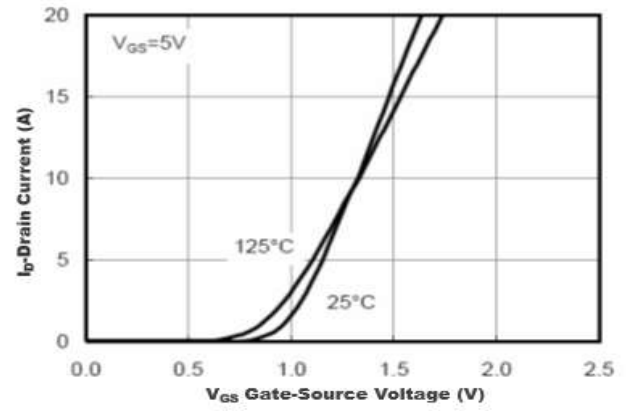


Figure2. Transfer Characteristics

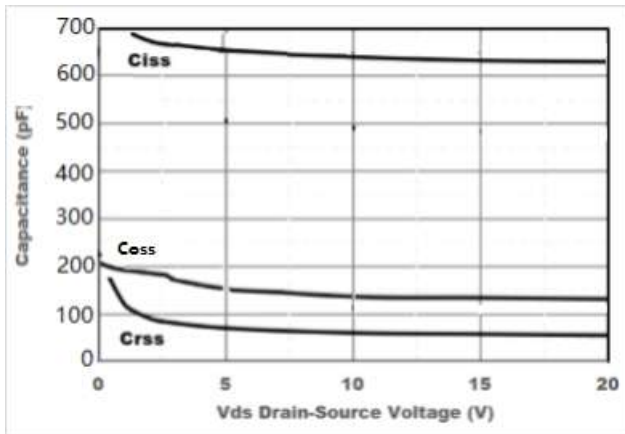


Figure3. Capacitance Characteristics

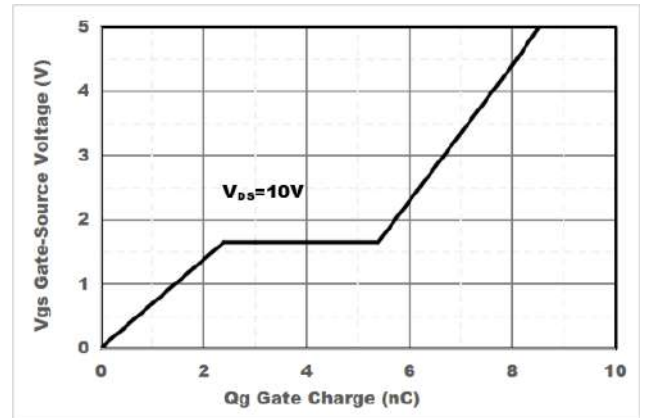


Figure4. Gate Charge

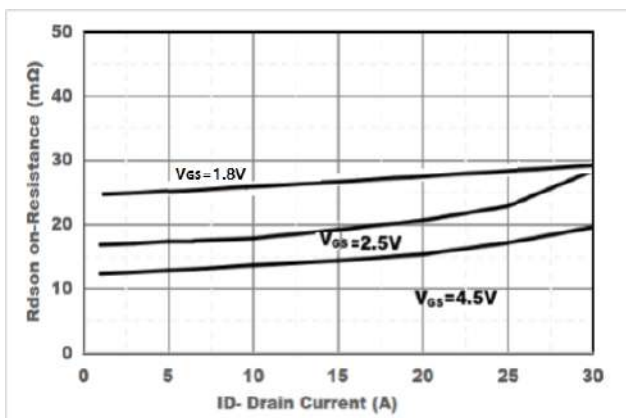


Figure5. Drain-Source on Resistance

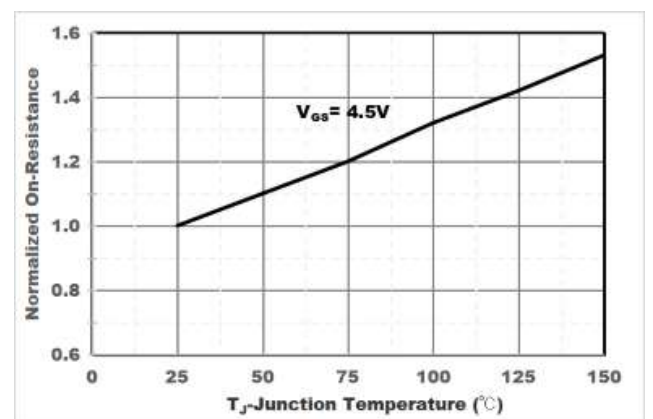


Figure6. Drain-Source on Resistance

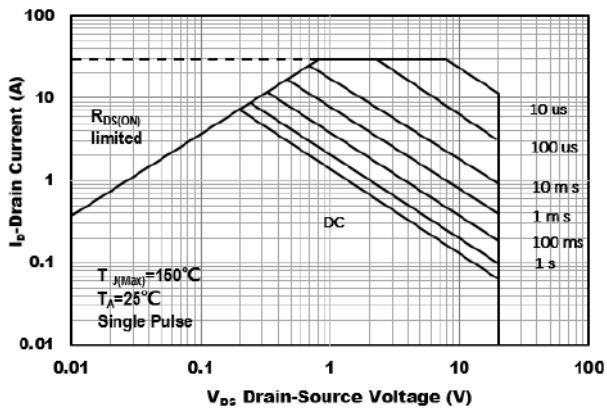


Figure7. Safe Operation Area

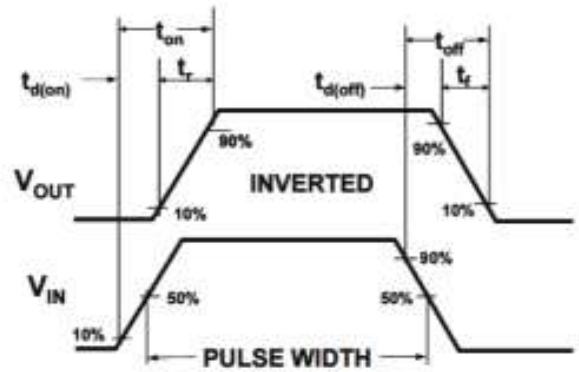
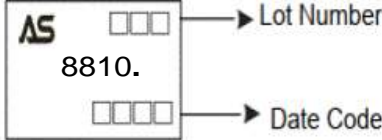


Figure8. Switching wave

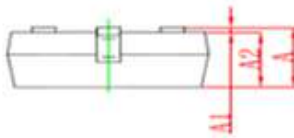
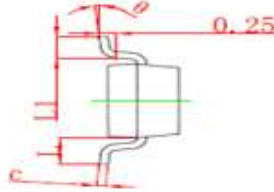
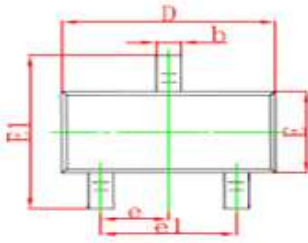
Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM3416EZA-R	8810.	SOT-23	Tape&Reel	3000/Reel

PACKAGE	MARKING
SOT-23	 <p>AS □□ → Lot Number 8810. □□□□ → Date Code</p>

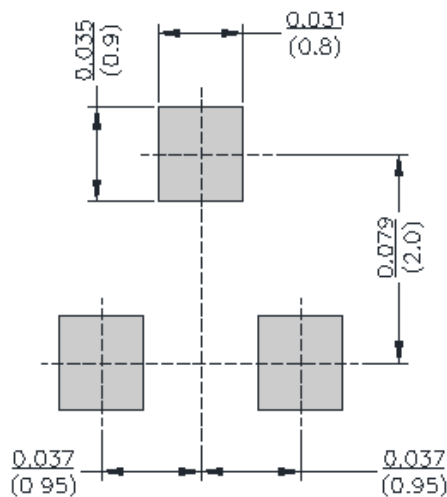


SOT-23 Package information



Symbol	Dimentions in Millimeter		Dimentions 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	0.100	0.200	0.004	0.008
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	0.950Type		0.037Type	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.220REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

■SOT-23 Suggested Pad Layout





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