General Description

- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching
- V_{GS} >±25V

Applications

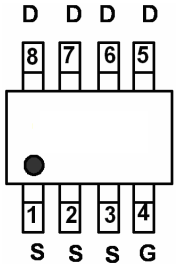
- Battery protection
- Load switch
- Power management

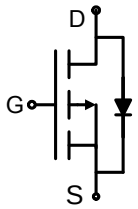
Product Summary

V_{DS}	-30	V
$R_{DS(on),TYP}$@ V_{GS}=10 V	8.8	mΩ
I_D	-14	A

top view

SOP-8





Absolute Maximum Ratings T_A = 25ºC, unless otherwise noted

Parameter		Symbol	Values	Unit
Drain-Source voltage(V_{GS}=0V)		V_{DS}	-30	V
Continuous Drain Current[2]	T_A = 25ºC	I_D	-14	A
	T_A = 100ºC		-8.8	
Pulsed Drain Current[3]		$I_{D,pulse}$	-56	A
Gate-Source Voltage		V_{GSS}	±25V	V
Single Pulse Avalanche Energy		E_{AS}	135	mJ
Power Dissipation		P_D	2.9	W
Continuous Diode Forward Current		I_S	-4	A
Diode Forward Voltage		V_{SD}	-1.2	V
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55~+150	ºC

Electrical Characteristics T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
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, T_J = 25ºC	--	--	-1	μA
		V_{DS} = -24V, V_{GS} = 0V, T_J = 125ºC	--	--	-100	
Gate-Source Leakage Current	I_{GSS}	V_{GS} = ±25V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.2	-1.7	-2.3	V
Drain-Source On-State-Resistance	$R_{DS(on)}$	V_{GS} = -20V, I_D = -14A	--	7.9	10.5	mΩ
		V_{GS} = -10V, I_D = -14A	--	8.8	11.5	mΩ
		V_{GS} = -6V, I_D = -10A	--	10	13	mΩ
		V_{GS} = -4.5V, I_D = -10A	--	11.8	16	mΩ
Gate Resistance	R_G	f = 1.0MHz open drain	--	3.7	--	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V f = 1.0MHz	--	3351	--	pF
Output Capacitance	C_{oss}		--	327.6	--	
Reverse Transfer Capacitance	C_{rss}		--	285	--	
Total Gate Charge	Q_g	V_{DS} = -15V , I_D = -14A V_{GS} = -10V	--	61.9	--	nC
Gate-Source Charge	Q_{gs}		--	9.85	--	
Gate-Drain Charge	Q_{gd}		--	11.5	--	
Gate Plateau Voltage	$V_{Plateau}$		--	2.9	--	V
Turn-on Delay Time	$t_{d(on)}$	V_{DS} = -15V , V_{GS} = -10V R_G = 3Ω	--	12	--	ns
Turn-on Rise Time	t_r		--	7	--	
Turn-off Delay Time	$t_{d(off)}$		--	53	--	
Turn-off Fall Time	t_f		--	16.5	--	
Drain-Source Body Diode Characteristics						
Body Diode Forward Voltage	V_{SD}	T_J = 25ºC, I_{SD} = -14A, V_{GS} = 0V	--	-0.7	-1.2	V
Reverse Recovery Time	t_{rr}	I_F = -14A, di_F/dt = 500A/μs	--	18	--	ns
Reverse Recovery Charge	Q_{rr}		--	32	--	μC

Typical Performance Characteristics

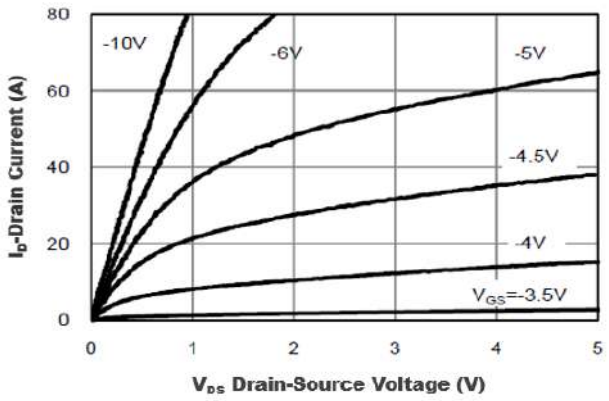


Figure1. Output Characteristics

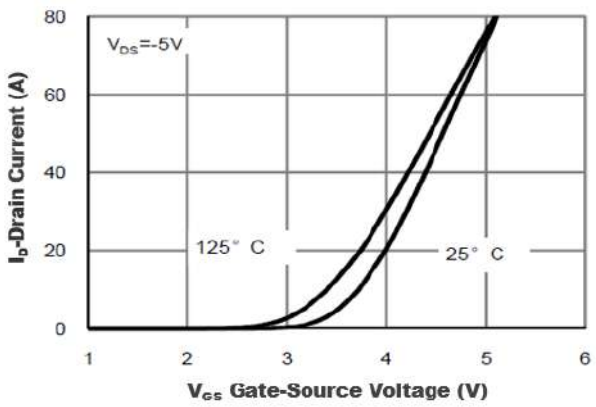


Figure2. Transfer Characteristics

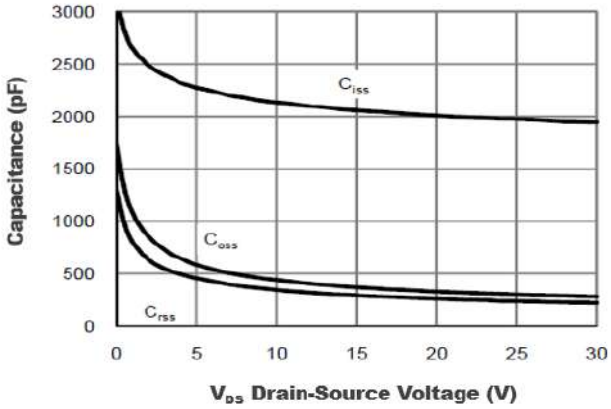


Figure3. Capacitance Characteristics

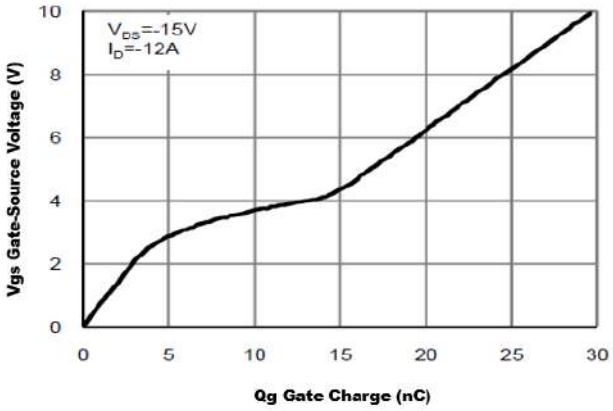


Figure4. Gate Charge

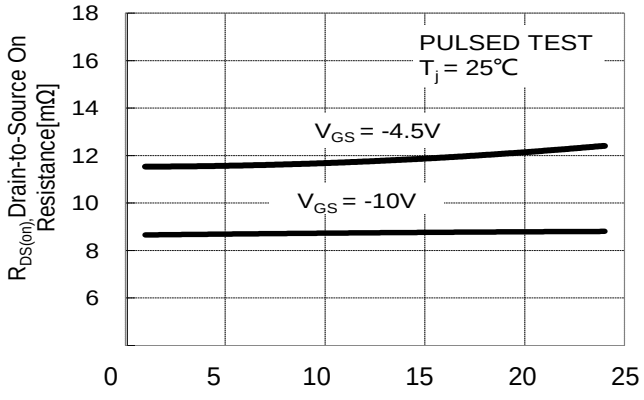


Figure5. Drain-Source on Resistance

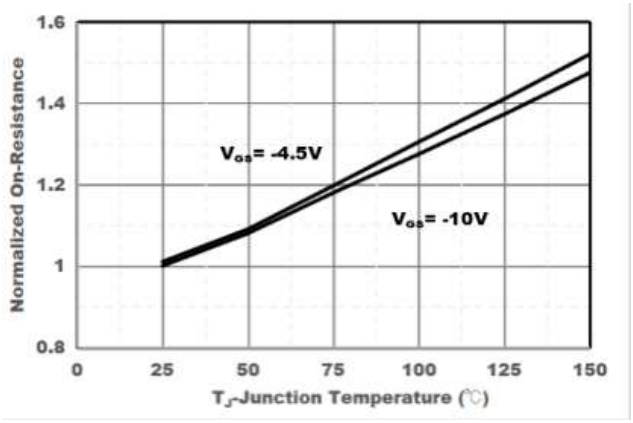


Figure6. Drain-Source on Resistance

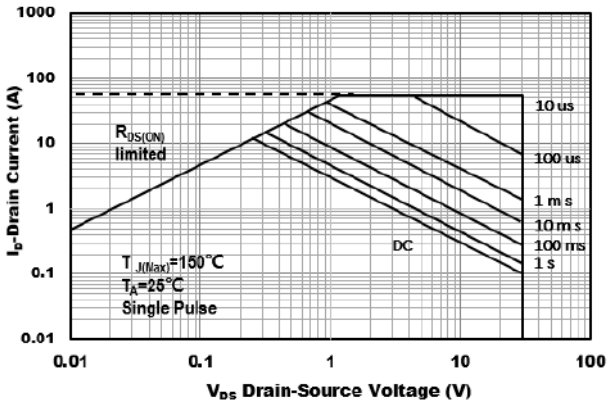


Figure7. Safe Operation Area

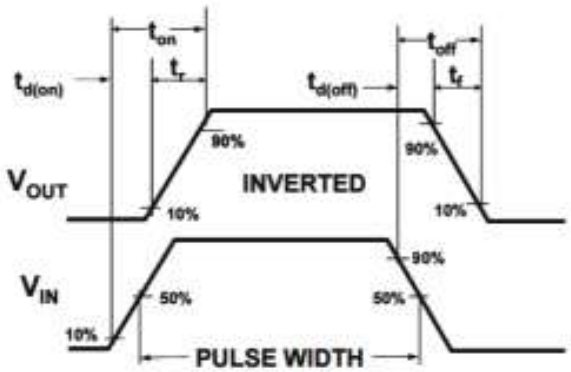
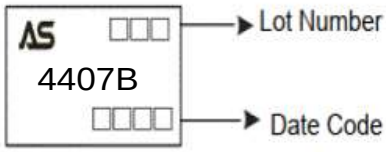


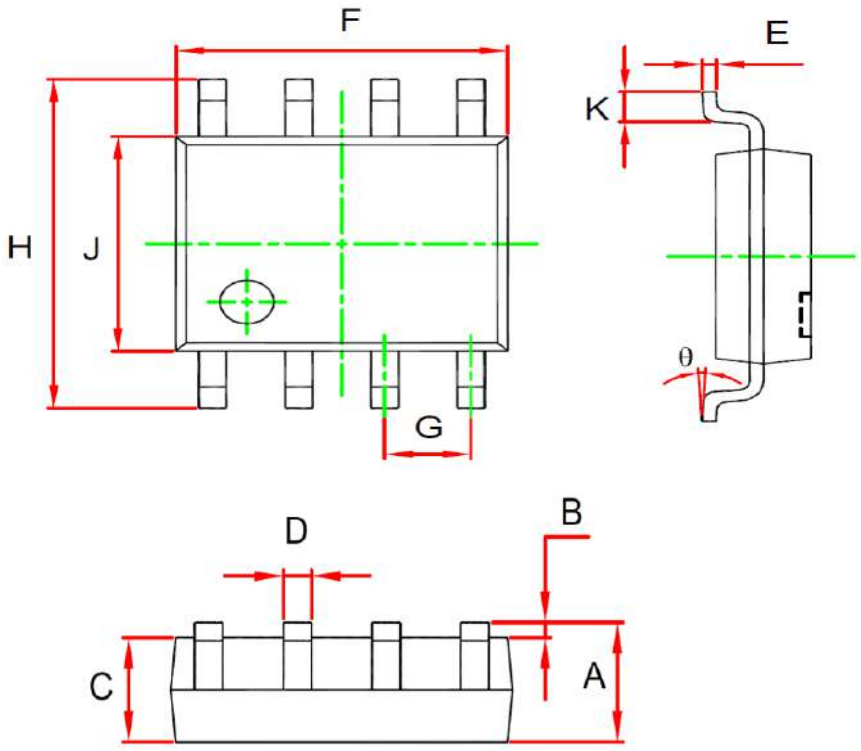
Figure8. Switching wave

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM4407BS-R	4407B	SOP-8	Tape&Reel	4000/Reel

PACKAGE	MARKING
SOP-8	

SOP-8 Package information



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.053	0.069	1.350	1.750	
B	0.004	0.010	0.100	0.250	
C	0.053	0.061	1.350	1.550	
D	0.013	0.020	0.330	0.510	
E	0.007	0.010	0.170	0.250	
F	0.189	0.197	4.800	5.000	
G	0.050 (BSC)		1.270 (BSC)		
H	0.228	0.244	5.800	6.200	
J	0.150	0.157	3.800	4.000	
K	0.016	0.050	0.400	1.270	
θ	0°	8°	0°	8°	

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