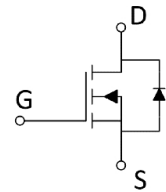
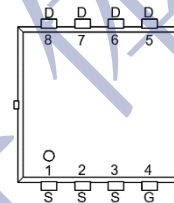
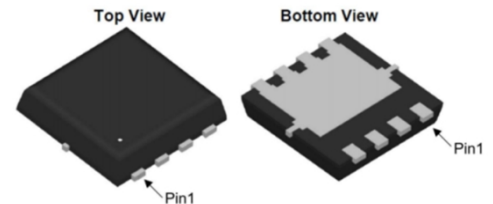


40V_{DS}/±20V_{GS} N-Channel Shield Trench Power MOSFET

Features

- $V_{DS}=40V, I_D=72A$
- $R_{DS(ON)}=5m\Omega$ (TYP.) $V_{GS}=10V, I_D=20A$
- $R_{DS(ON)}=6.8m\Omega$ (TYP.) $V_{GS}=4.5V, I_D=20A$
- Reliable and Rugged
- Avalanche Rated
- Low On-Resistance
- High Current Capability
- Halogen and Antimony Free, RoHS compliant

PDFN5060



Applications

- Load Switch
- Power management in portable/desktop PCs
- DC/DC conversion

Ordering Information

Orderable Device	Package		Marking information	Package Qty.
AER4051AE	PDFN5060	Pb-Free	AER4051AE ywwFxxx	5000pcs/Reel

Absolute Maximum Ratings (T_a=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage ($V_{GS}=0V$)	V_{DS}	40	V
Gate-Source Voltage ($V_{GS}=0V$, static)	V_{GS}	±20	V
Continuous Drain Current ($T_C=25^\circ C$)	I_D	72	A
Continuous Drain Current ($T_C=100^\circ C$)		50	A
Pulsed Drain Current	I_{DM}	288	A
Avalanche Current ($L=0.3mH$)	I_{AS}	27.7	A
Single Pulsed Avalanche Energy	E_{AS}	115	mJ
Maximum Power Dissipation ($T_C=25^\circ C$)	P_D	54	W
Maximum Power Dissipation ($T_C=100^\circ C$)		22	W
Operating, Storage Temperature Range	T_J, T_{STG}	-55~150	°C

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	-	2.3	-	$^{\circ}\text{C}/\text{W}$
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	-	57	-	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	40	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$	-	-	1	μA
Gate -Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.3	1.8	2.3	V
Drain-Source On-stage Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=20\text{A}$	-	5	6.5	m Ω
		$V_{GS}=4.5\text{V}, I_D=20\text{A}$	-	6.8	8.8	

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{DS}=15\text{V}$	-	1240	-	pF
Output capacitance	C_{oss}	$V_{GS}=0\text{V}$	-	249	-	
Reverse transfer capacitance	C_{rss}	$f=1\text{MHz}$	-	12.8	-	
Gate Resistance	R_g	$f=1\text{MHz}$	-	1.3	-	Ω
Total Gate Charge	Q_g	$V_{DS}=15\text{V}$	-	21	-	nC
Gate Source Charge	Q_{gs}	$V_{GS}=10\text{V}$	-	4.3	-	
Gate Drain Charge	Q_{gd}	$I_D=20\text{A}$	-	5.1	-	
Turn-on delay Time	$t_{d(on)}$	$V_{GS}=10\text{V}$	-	TBD	-	ns
Rise time	t_r	$V_{DS}=15\text{V}$	-	TBD	-	
Turn-off delay Time	$t_{d(off)}$	$R_L=0.75\Omega$	-	TBD	-	
Fall time	t_f	$R_G=3\Omega$	-	TBD	-	

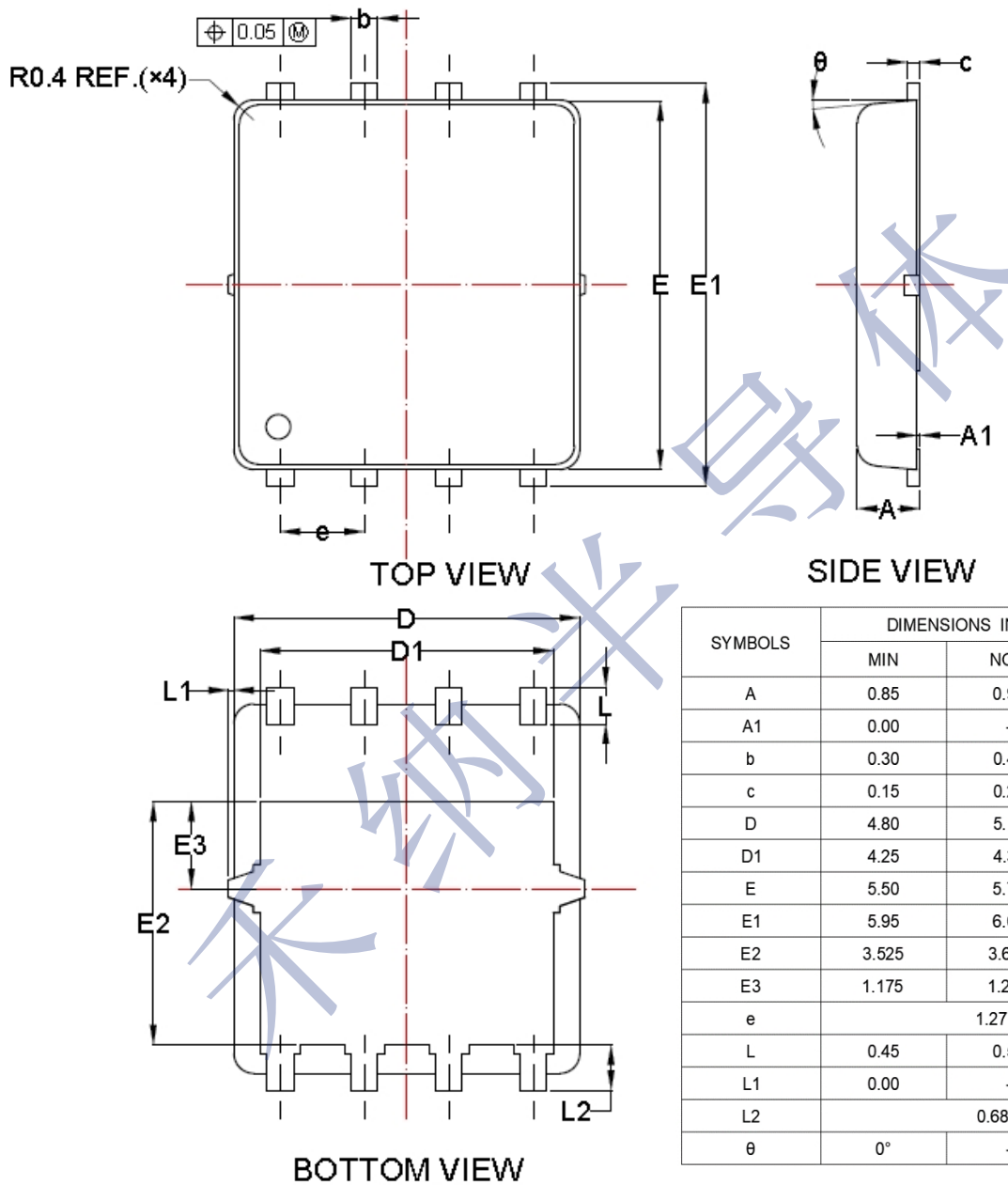
Reverse Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}, I_{SD}=1\text{A}$	-	0.7	1	V
Reverse Recovery Time	t_{rr}	$V_{GS}=0\text{V}, I_{SD}=20\text{A}$	-	TBD	-	ns
Reverse Recovery Charge	Q_{rr}	$d_i/d_t=500\text{A}/\mu\text{s}$	-	TBD	-	nC



Physical Dimensions

PDFN5060



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