N-Channel Enhancement Mode MOSFET

Primary characteristics			
Symbol	**Parameter**	**Value**	**Unit**
I_D	Continuous drain current	5.0	A
V_{DS}	Drain source voltage	30	V
R_{DSON}	Static drain-source on-resistance	90	mΩ MAX

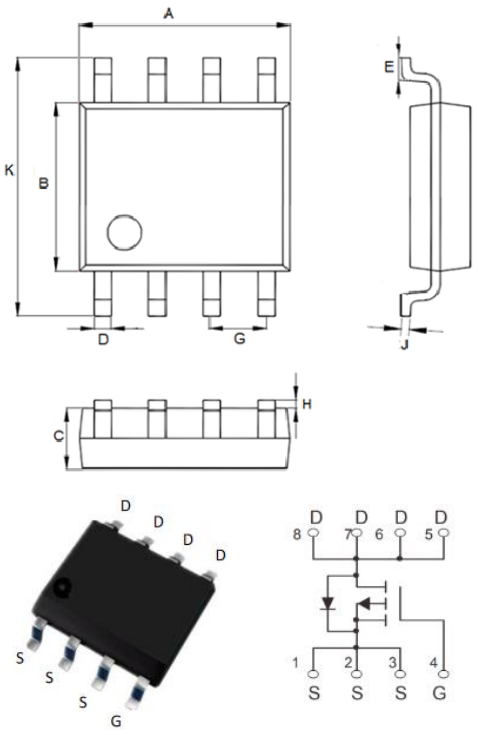
Features

- **SOP-8** case for easy automatic insertion
- Pb-free and **RoHS** compliant
- Trench power MV MOSFET technology
- Excellent package for good heat dissipation

Applications

- DC-DC converters
- Power management functions

Case dimensions, pin configuration



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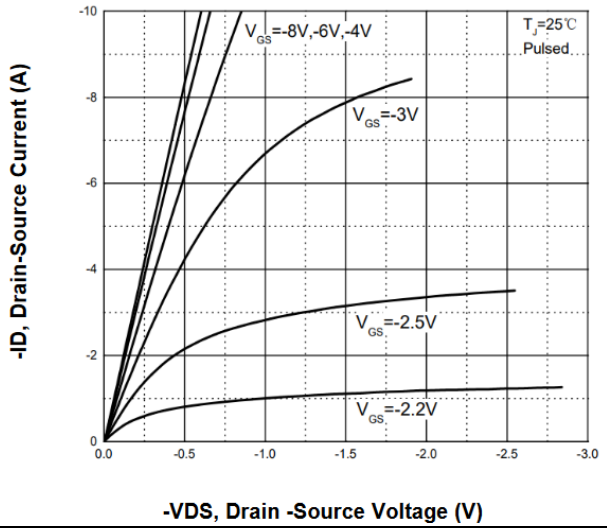
Unit		A	B	C	D	E	G	H	J	K
mm	MIN	4.8	3.8	1.3	0.3	0.4	1.17	0.1	0.1	5.8
	MAX	5.2	4.2	1.5	0.5	1.0	1.37	0.3	0.3	6.2

Maximum ratings (T_A = 25°C unless otherwise noted)			
Characteristic	**Symbol**	**Value**	**Unit**
Drain-source voltage	V_{DS}	30	V
Gate-source voltage	V_{GS}	±20	V
Diode continuous forward current (T_C=25°C)	I_S	5.0	A
Continuous drain current (V_{GS}=10V, TC=25°C)	I_D	5.0	A
Pulsed drain current (T_C=25°C)	I_{DM}	20	A
Power Dissipation	P_D	2.5	W
Maximum junction temperature	T_J	150	°C
Storage temperature range	T_{STG}	-50 ~ 155	°C
Thermal resistance junction-ambient (1 inch^2 pad of 2-oz copper, max.)	$R_{\theta JA}$	50	°C/W

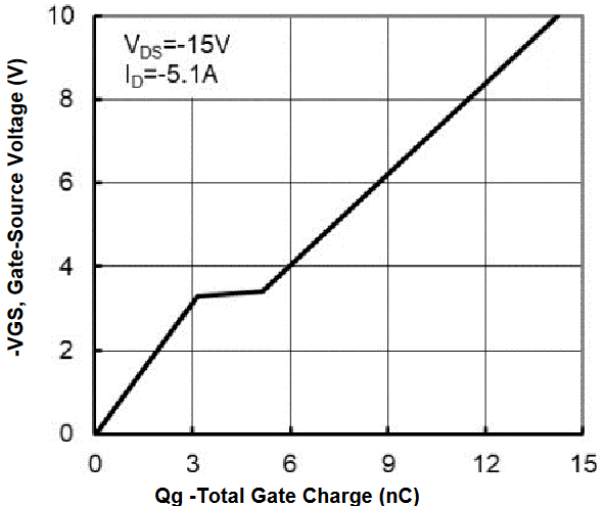
Electrical characteristics (T_J = 25°C)						
Characteristic	**Test condition**	**Symbol**	**Value**			**Unit**
			Min.	**Typ.**	**Max.**	
Drain-source breakdown voltage	V_{GS}=0V, I_D=250μA	$V_{(BR)DSS}$	30	-	-	V
Zero gate voltage drain current	V_{DS}=30V, V_{GS}=0V	I_{DSS}	-	-	1.0	μA
Gate body leakage current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate threshold voltage	V_{DS}=V_{GS}, I_D=250μA	$V_{GS(TH)}$	1.0	1.5	2.5	V
Drain-source on-state resistance	V_{GS}=10V, I_D=4.6A	$R_{DS(ON)}$	-	45	60	mΩ
	V_{GS}=4.5V, I_D=4.1A		-	60	90	
Dynamic electrical characteristics (T_J = 25°C)						
Characteristic	**Test condition**	**Symbol**	**Value**			**Unit**
			Min.	**Typ.**	**Max.**	
Input capacitance	V_{DS}=15V V_{GS}=0V f=1.0MHz	C_{ISS}	-	770	-	pF
Output capacitance		C_{OSS}	-	440	-	
Reverse transfer capacitance		C_{RSS}	-	123	-	
Turn ON delay time	V_{DS}=15V V_{GS}=10V R_G=3.0Ω I_D=1.0A	$t_{d(ON)}$	-	9.0	-	ns
Turn ON rise time		t_r	-	16	-	
Turn OFF delay time		$t_{d(OFF)}$	-	77	-	
Turn OFF fall time		t_f	-	40	-	
Switching characteristics						
Characteristic	**Test condition**	**Symbol**	**Value**			**Unit**
			Min.	**Typ.**	**Max.**	
Total gate-charge	V_{DS}=15V V_{GS}=10V I_D=4.2A	Q_G	-	30	-	nC
Gate to source charge		Q_{GS}	-	2.7	-	
Gate to drain (Miller) charge		Q_{GD}	-	6.9	-	
Source-drain diode characteristics						
Characteristic	**Test condition**	**Symbol**	**Value**			**Unit**
			Min.	**Typ.**	**Max.**	
Diode forward voltage	I_{SD}=5.0A, T_J=25°C	V_{SD}	-	-	1.2	V

Typical characteristics

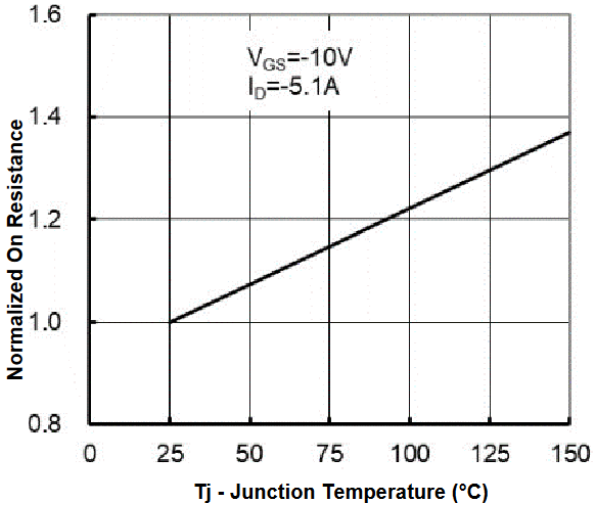
Typical output characteristics



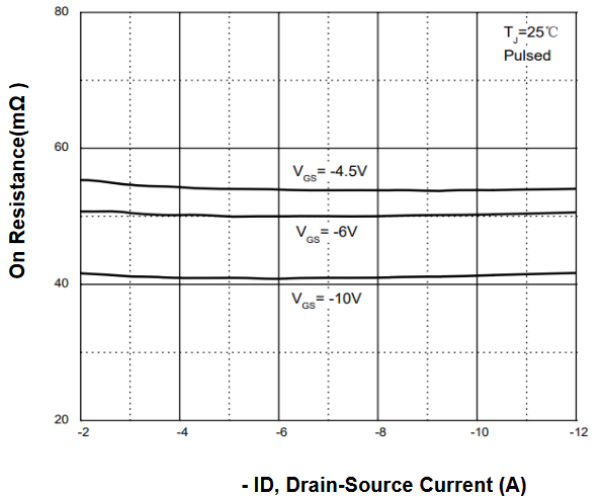
Typical gate charge vs gate-source voltage



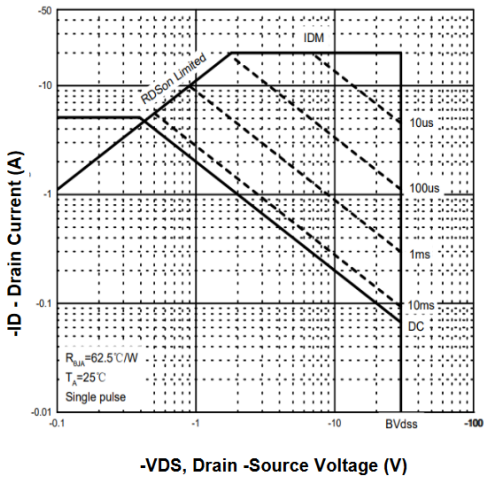
Normalized ON-resistance vs. temperature



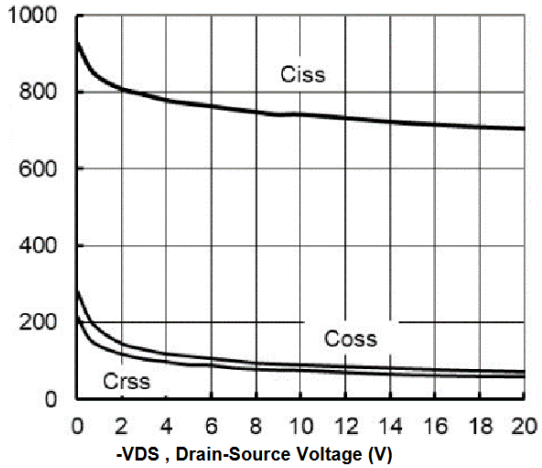
ON-resistance vs. drain-source current



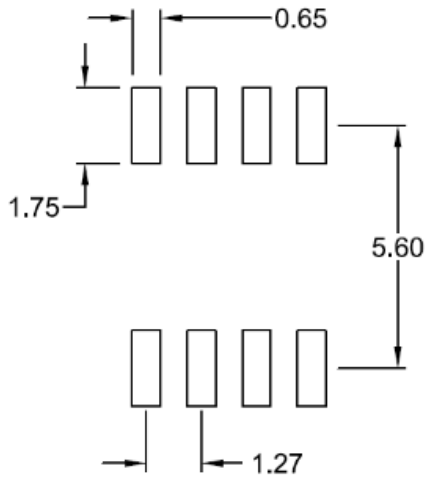
Maximum safe operating area



Typical capacitance vs. drain-source voltage



Suggested soldering pad layout



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Ordering information				
Part Number	**Marking**	**Package**	**Shipping Quantity**	**Dimensions**
AKS9435A	9435A	SOP-8	**3000 pcs / tape & reel**	---

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