AH14N15S

N-Channel Enhancement Mode Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
150V	65mΩ@10V	14A

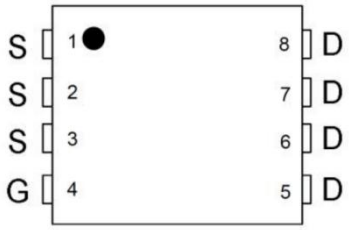
Feature

- Ultra-low $R_{DS(ON)}$
- Low Gate Charge
- Fast Switching

Application

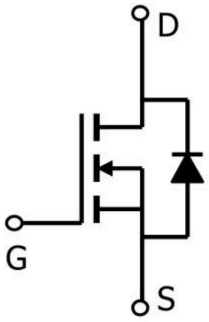
- Motor driving in power tool, E-vehicle, robotics.
- Currnet switching in DC/DC & AC/DC(SR) sub-systems.
- Power management in telecom, industrial automation,CE .

Package

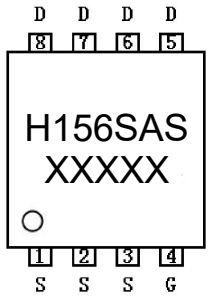


PDFN3.3*3.3-8L

Circuit diagram



Marking



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Absolute maximum ratings (T_j=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1](TC =25℃)	I_D	14	A
Continuous Drain Current[1](TC =100℃)	I_D(100℃)	8.6	
Pulsed Drain Current[2](TC =25℃)	I_{DM}	37	A
Power Dissipation[4](TC =25℃)	P_D	28	W
Single pulse avalanche energy[3]	E_{AS}	20	mJ
Avalanche current[3]	I_{AS}	20	A
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	4.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}= 0V, I_D =250μA	150			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =120V,V_{GS} = 0V			1	μA
		V_{DS} =120V,V_{GS} = 0V,T_J =55℃			5	
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.5	3.2	4.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =7A		54	65	mΩ
Forward transconductance	g_{FS}	V_{DS} =5V, I_D =7A		10		S
Dynamic characteristics[5]						
Input Capacitance	C_{iss}	V_{DS} =75V,V_{GS} =0V,f =1MHz		306		pF
Output Capacitance	C_{oss}			70		
Reverse Transfer Capacitance	C_{rss}			3.8		
Gate resistance	R_G	f =1MHz		1.6		Ω
Total Gate Charge	Q_g	V_{DS} =75V,V_{GS} =10V, I_D =7A		5.3		nC
Gate-Source Charge	Q_{gs}			1.6		
Gate-Drain Charge	Q_{gd}			1.9		
Turn-on delay time	$t_{d(on)}$	V_{DS}=75V,V_{GS}=10V, R_L=10Ω,R_{GEN}=6Ω		4.3		nS
Turn-on rise time	t_r			3.5		
Turn-off delay time	$t_{d(off)}$			7.6		
Turn-off fall time	t_f			3.5		
Source-Drain Diode characteristics						
Diode Forward current	I_S	T_C =25℃			14	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=1A			1.0	V
Reverse recovery time	t_{rr}	I_F=7A, dI_F/dt=100A/μs		75		nS
Reverse recovery charge	Q_{rr}			99		nC

Notes:

1) Computed continuous current assumes the condition of T_{J_Max} while the actual continuous current depends on the thermal & electro-mechanical application board design.

2) This single-pulse measurement was taken under T_{J_Max} =150°C.

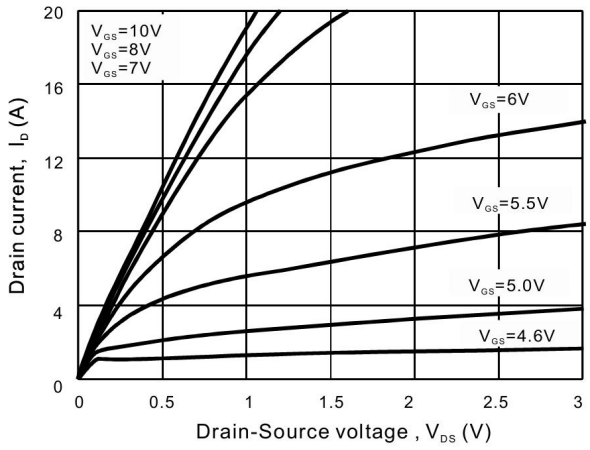
3) This single-pulse measurement was taken under the following condition [L=100 uH,V_{GS} =10V,V_{DD} =75V] while its value is limited by T_{J_Max} =150°C.

4) The power dissipation P_D is based on T_{J_Max} =150°C.

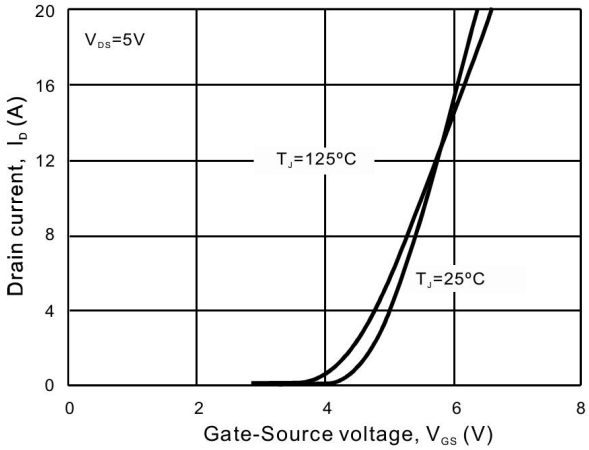
5) Guaranteed by design, not subject to production.

Typical Characteristics

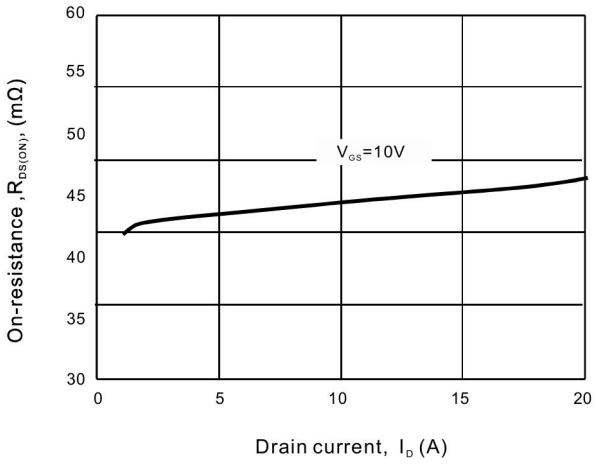
Saturation characteristics



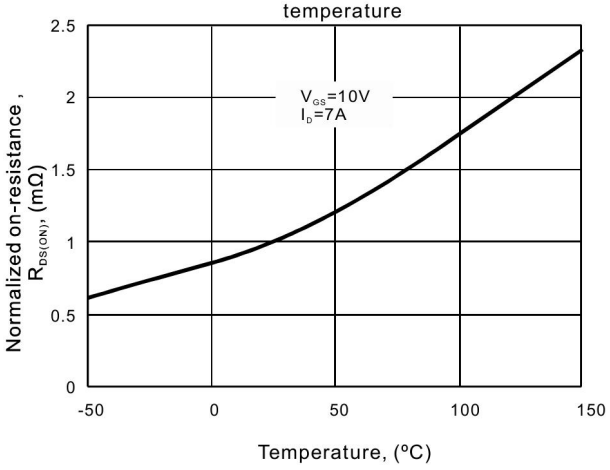
Transfer characteristics



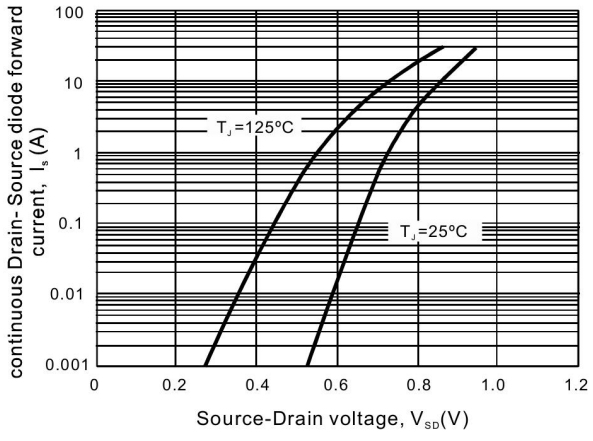
On-resistance vs. Drain current



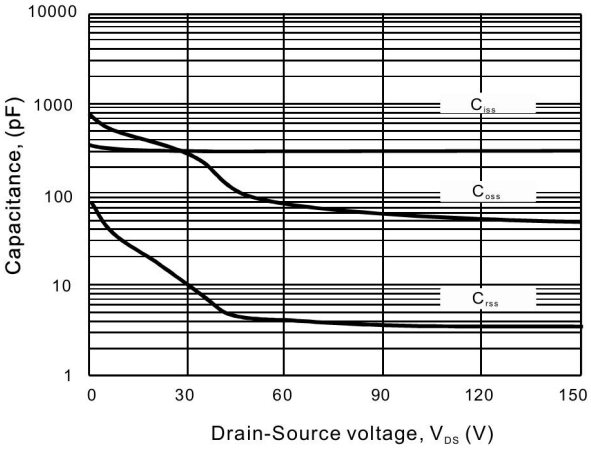
Normalized on-resistance vs. Junction temperature



Body-diode characteristics

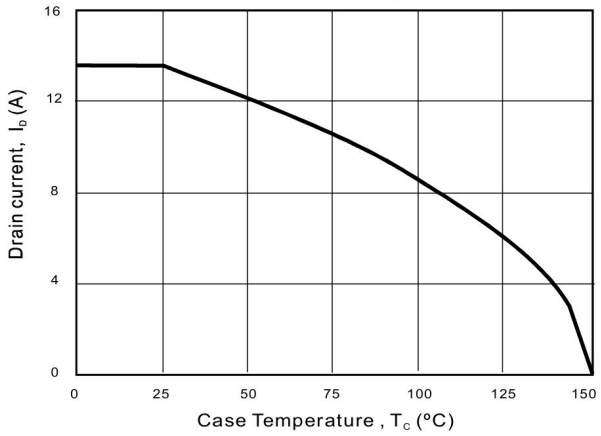


Capacitance characteristics

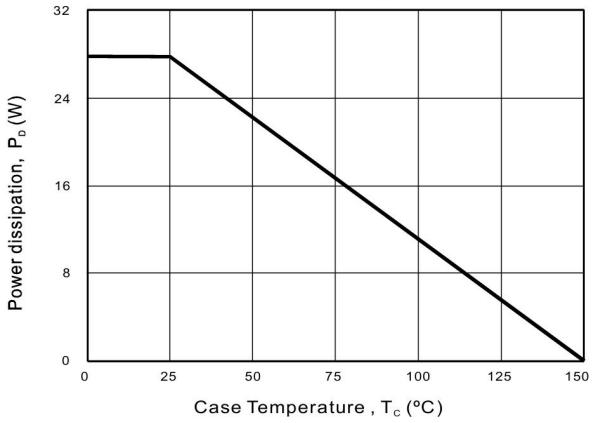


Typical Characteristics

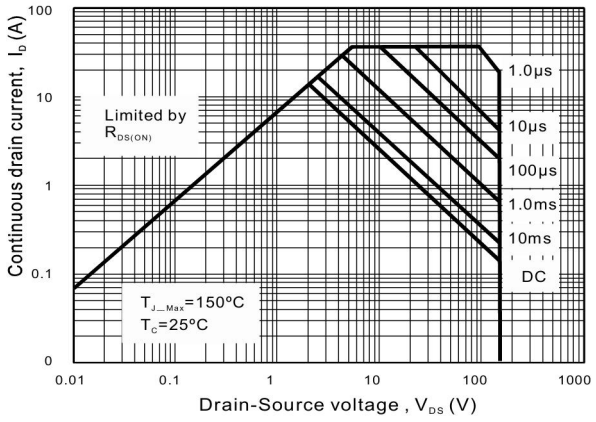
Current de-rating



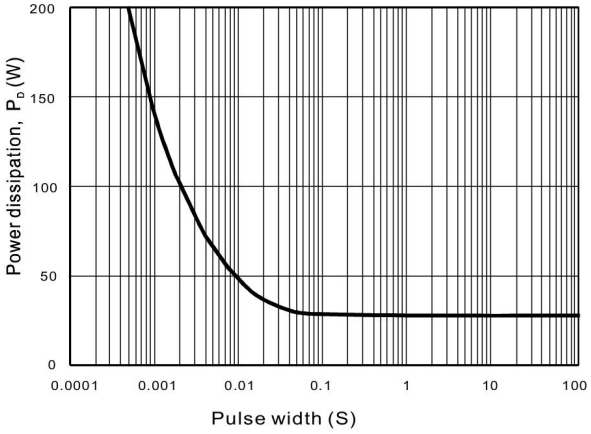
Power de-rating



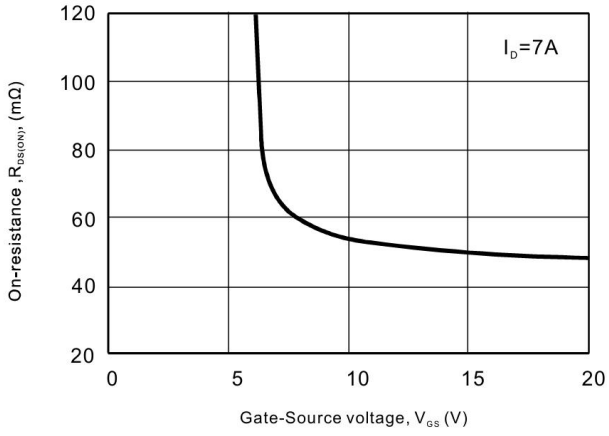
Maximum safe operating area



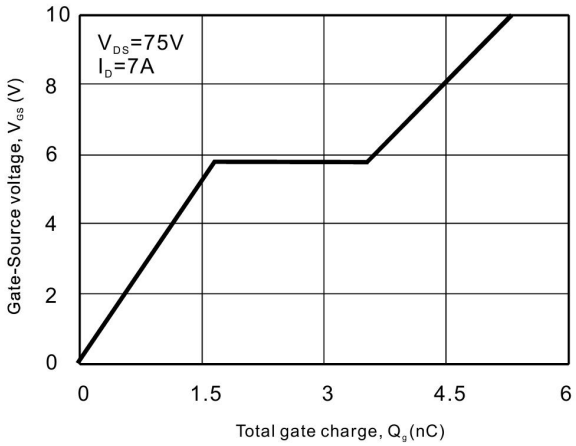
Single pulse power rating vs. Junction-Case



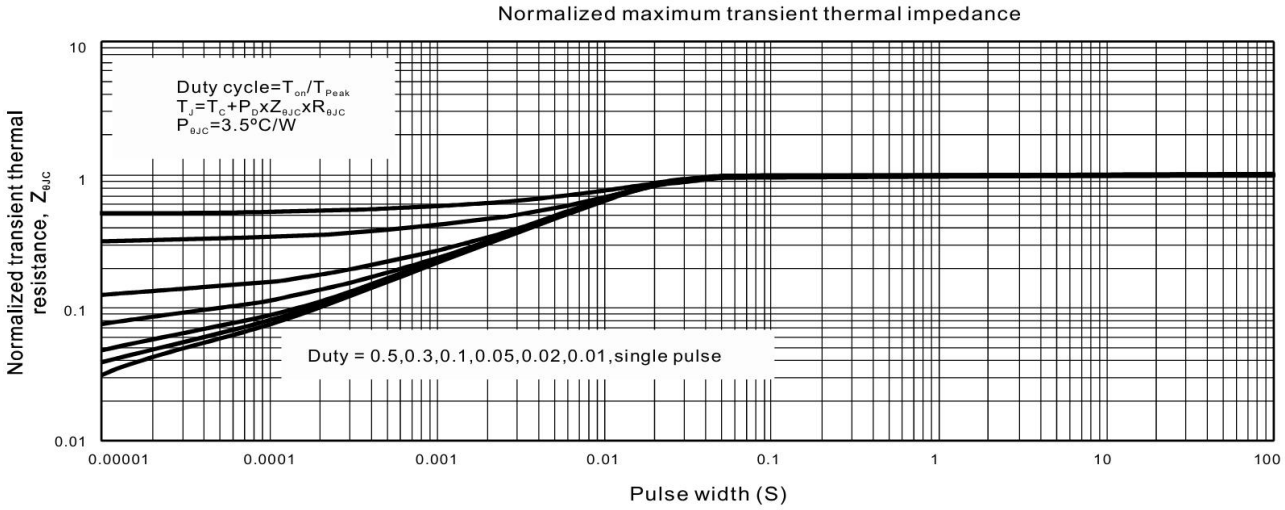
On-resistance vs. Gate-Source voltage



Gate charge



Typical Characteristics



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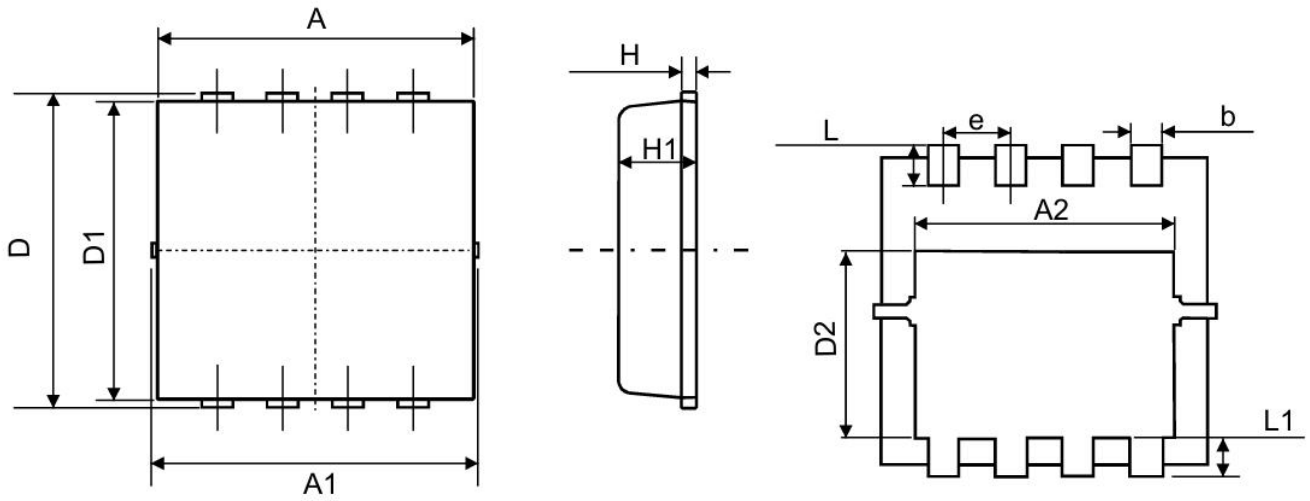
PDFN3.3*3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.950	3.150	0.116	0.124
A1	3.000	3.250	0.118	0.128
A2	2.390	2.590	0.094	0.102
b	0.250	0.350	0.010	0.014
D	3.200	3.400	0.126	0.134
D1	2.950	3.150	0.116	0.124
D2	1.700	1.900	0.067	0.075
e	0.650 BSC		0.026 BSC	
H	0.100	0.250	0.004	0.010
H1	0.700	0.800	0.028	0.031
L	0.250	0.500	0.010	0.020
L1	0.300	0.500	0.012	0.020