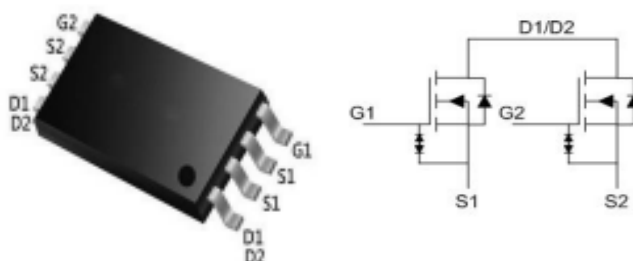


20V_{DS}/±10V_{GS} N-Channel Enhancement Mode MOSFET

Features

- V_{DS}=20V, I_D=7A
- R_{DS(ON)}=18mΩ (TYP.) V_{GS}=4.5V
- R_{DS(ON)}=26mΩ (TYP.) V_{GS}=2.5V
- Reliable and Rugged
- Avalanche Rated
- Low On-Resistance
- Load Switch
- Power management in portable/desktop PCs
- DC/DC conversion

TSSOP8



Ordering Information

Device	package	Device Marking	Package Qty.
HMN8814AS	TSSOP-8	N8814AS	3000/PCS

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} =0V)	V _{DS}	20	V
Gate-Source Voltage (V _{GS} =0V, static)	V _{GS}	±10	V
Continuous Drain Current (T _C =25°C)	I _D	7.0	A
Continuous Drain Current (T _C =100°C)		4.5	A
Pulsed Drain Current	I _{DM}	24	A
Single Pulsed Avalanche Energy	E _{AS}	-	mJ
Maximum Power Dissipation (T _C =25°C)	P _D	2	W
Maximum Power Dissipation (T _C =100°C)		1.25	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 _{θJC}	-	6.8	-	°C/W
Thermal Resistance, Junction-to-Ambient	R _{θJA}	-	78	-	°C/W

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
Gate -Source 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	0.5	-	1.22	V
Drain-Source On-stage Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =1A	-	13	18	mΩ
		V _{GS} =2.5V, I _D =1A	-	18	26	

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{DS}=15V$	-	950	-	pF
Output capacitance	C_{oss}	$V_{GS}=0V$	-	200	-	
Reverse transfer capacitance	C_{rss}	$f=1MHz$	-	150	-	
Gate Resistance	R_g	$f=1MHz$	-	1.9	-	Ω
Total Gate Charge	Q_g	$V_{DS}=15V$	-	11.3	-	nC
Gate Source Charge	Q_{gs}	$V_{GS}=10V$	-	1.89	-	
Gate Drain Charge	Q_{gd}	$I_D=20A$	-	3.56	-	
Turn-on delay Time	$t_{d(on)}$	$V_{GS}=10V$	-	8	-	ns
Rise time	t_r	$V_{DS}=15V$	-	17	-	
Turn-off delay Time	$t_{d(off)}$	$R_L=3.5\Omega$	-	27	-	
Fall time	t_f	$R_G=6.8\Omega$	-	8.8	-	

Reverse Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=1A$	-	0.7	1.2	V
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_{SD}=20A$	-	-	-	ns
Reverse Recovery Charge	Q_{rr}	$dI/dt=100A/\mu s$	-	-	-	nC

Electrical Characteristics Diagrames

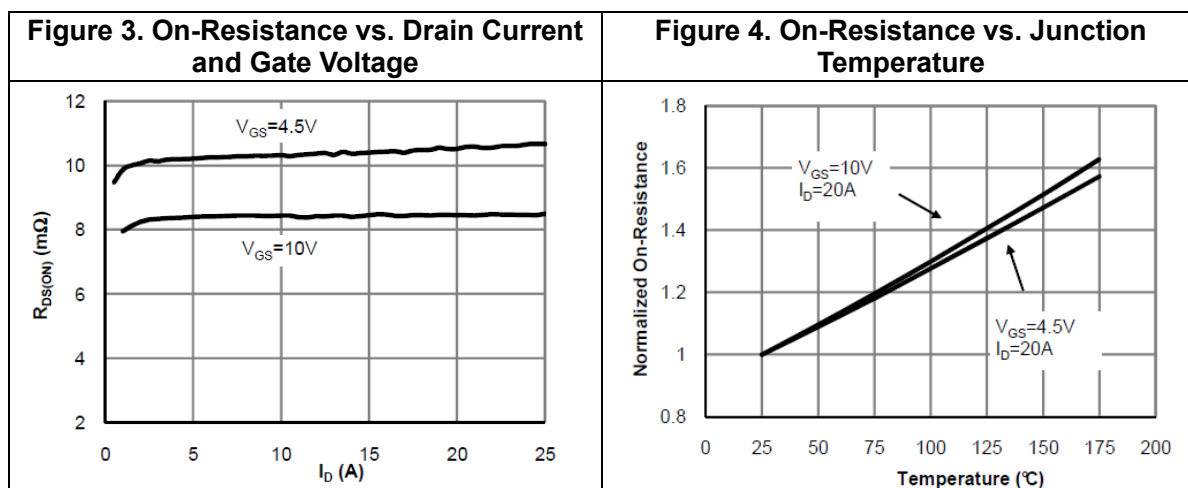
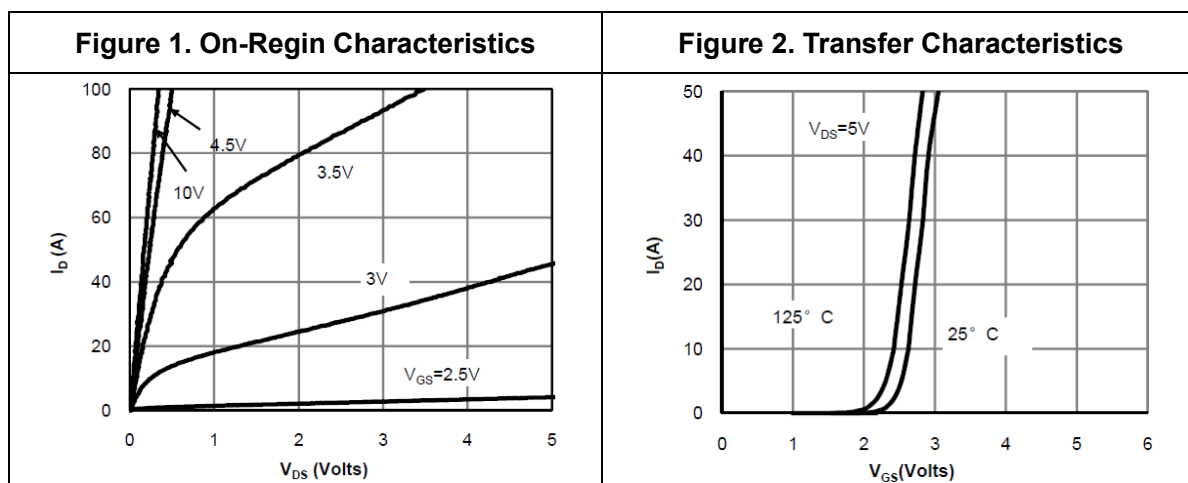


Figure 5. On-Resistance vs. Gate-Source Voltage

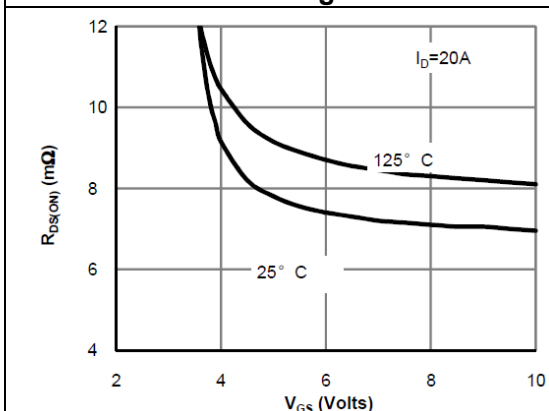


Figure 6. Body-Diode Characteristics

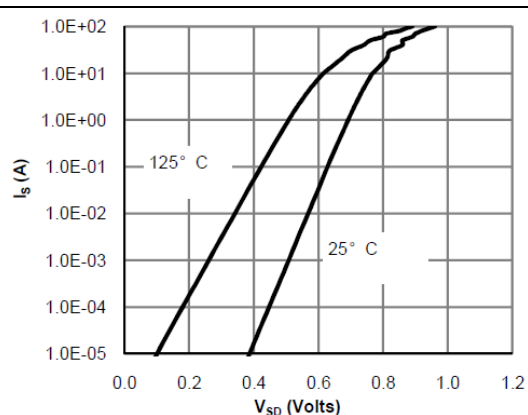


Figure 7. Gate-Charge Characteristics

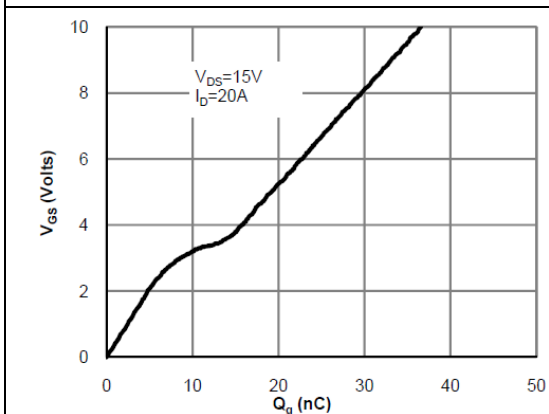


Figure 8. Capacitance Characteristics

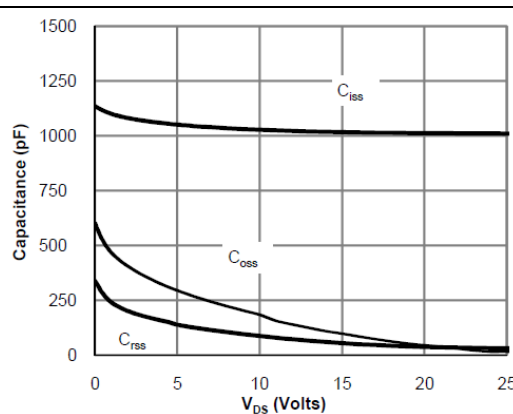


Figure 9. Maximum Forward Biased Safe Operating Area

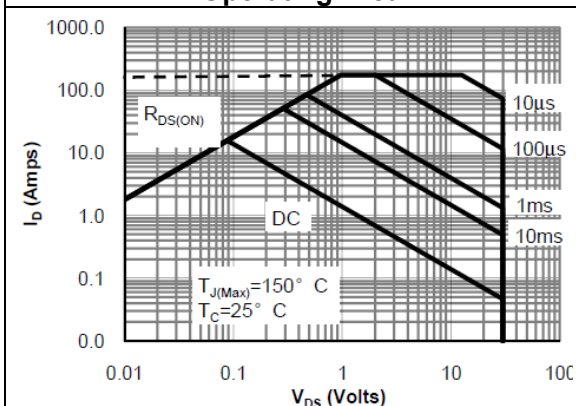


Figure 10. Single Pulse Power Rating Junction-to-Ambient

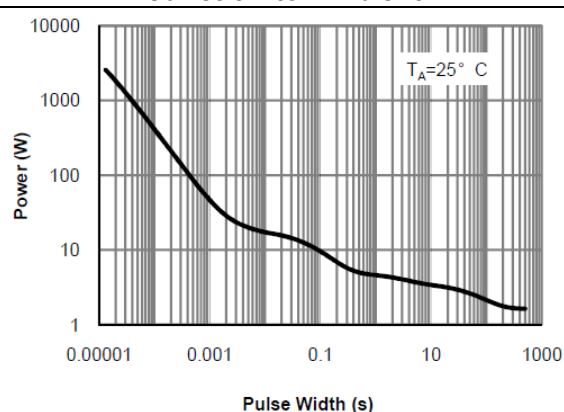
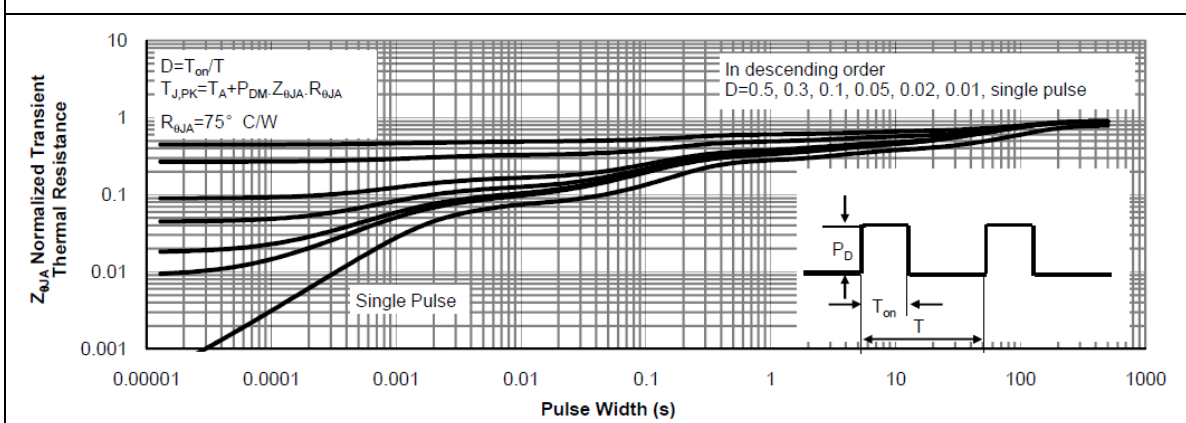


Figure 11. Normalized Maximum Transient Thermal Impedance



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