



Power MOSFETS

DATASHEET

LM1A034NHV2A

N-Channel
Enhancement Mode MOSFET

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Quality Management Systems

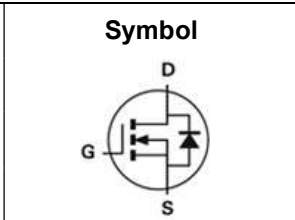
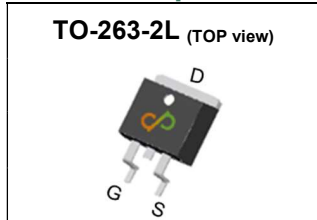
ISO 9001:2015 Certificate

LM1A034NHV2A



N-Channel Enhancement Mode MOSFET

Pin Description



Product Summary

Symbol	N-Channel	Unit
V _{DSS}	100	V
R _{DS(ON)-Max}	3.2	mΩ
I _D	245	A

Feature

- High Speed Power Switching
- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- 100% UIS and R_g Tested

Applications

- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit

Ordering Information

Orderable Part Number	Package Type	Form	Shipping	Marking
LM1A034NHV2A	TO-263-2L	Tape & Reel	800 / Tape & Reel	1A034 □□□□□□

Absolute Maximum Ratings (T_J=25°C Unless Otherwise Noted)

Symbol	Parameter		N-Channel	Unit
V _{DSS}	Drain-Source Voltage		100	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _c =25°C	200	A
I _{DM}	Pulse Drain Current Tested	T _c =25°C	400	A
I _D	Continuous Drain Current	T _c =25°C	245 ^①	A
		T _c =100°C	156	
P _D	Maximum Power Dissipation	T _c =25°C	284	W
		T _c =100°C	113	
I _{AS} ^②	Avalanche Current, Single pulse	L=0.1mH	65	A
		L=0.5mH	42	
E _{AS} ^②	Avalanche Energy, Single pulse	L=0.1mH	211	mJ
		L=0.5mH	441	

Thermal Characteristics

Symbol	Parameter		Rating	Unit
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	0.44	°C/W
R _{θJA} ^③	Thermal Resistance-Junction to Ambient	Steady State	60	°C/W

Note ① : Max. current is limited by bonding wire

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150°C

Note ③ : Surface Mounted on 1in² FR-4 board with 1oz.

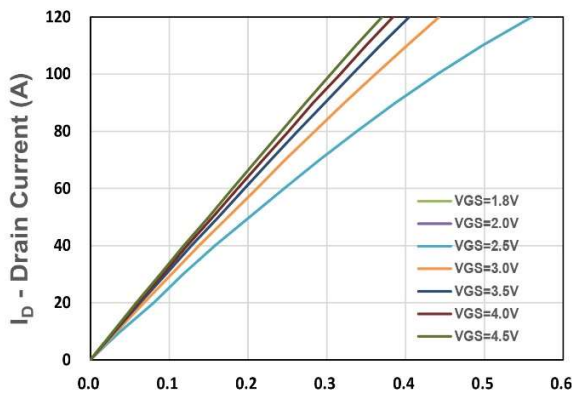
N-Channel Electrical Characteristics (T_J=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250uA	100	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V _{DS} =80V, V _{GS} =0V	-	-	1	uA
V_{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250uA	2	3	4	V
I_{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R_{DS(ON)} ^④	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =20A	-	2.7	3.2	mΩ
gfs	Forward Transconductance	V _{DS} =5V, I _{DS} =10A	-	39	-	S
Dynamic Characteristics ^⑤						
R_G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, Freq.=1MHz	-	0.2	-	Ω
C_{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =50V, Freq.=1MHz	-	7424	-	pF
C_{oss}	Output Capacitance		-	1983	-	
C_{rss}	Reverse Transfer Capacitance		-	59	-	
t_{d(ON)}	Turn-on Delay Time	V _{GS} =10V, V _{DS} =25V, I _D =1A, R _{GEN} =1Ω	-	22.5	-	nS
t_r	Turn-on Rise Time		-	6.5	-	
t_{d(OFF)}	Turn-off Delay Time		-	61.5	-	
t_f	Turn-off Fall Time		-	119.2	-	
Q_g	Total Gate Charge	V _{GS} =10V, V _{DS} =50V, I _D =20A	-	123.6	-	nC
Q_{gs}	Gate-Source Charge		-	34.7	-	
Q_{gd}	Gate-Drain Charge		-	27.6	-	
Source-Drain Characteristics						
V_{SD} ^④	Diode Forward Voltage	I _{SD} =10A, V _{GS} =0V	-	0.75	1.1	V
t_{rr}	Reverse Recovery Time	I _F =10A, V _R =50V	-	84.9	-	nS
Q_{rr}	Reverse Recovery Charge	dI _F /dt=100A/μs	-	186.5	-	nC

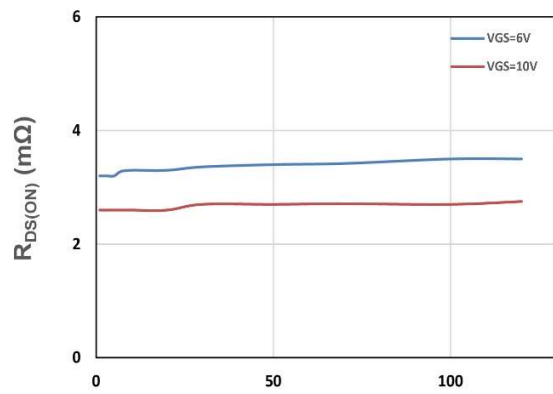
Note ④ : Pulse test (pulse width≤300us, duty cycle≤2%).

Note ⑤ : Guaranteed by design, not subject to production testing.

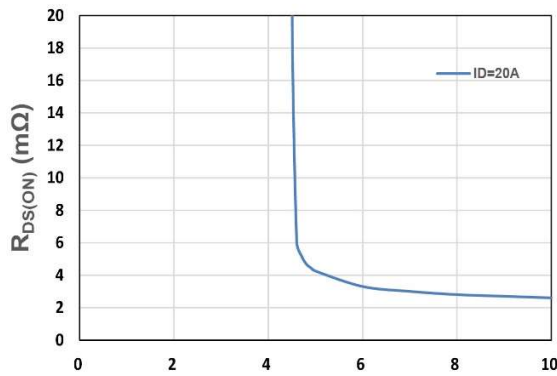
N-Channel Typical Characteristics



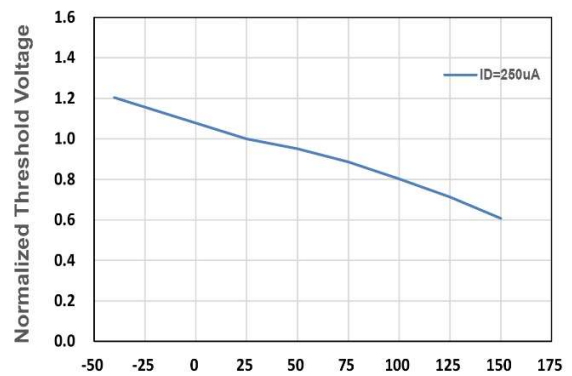
V_{DS} - Drain - Source Voltage (V)
Figure 1. Output Characteristics



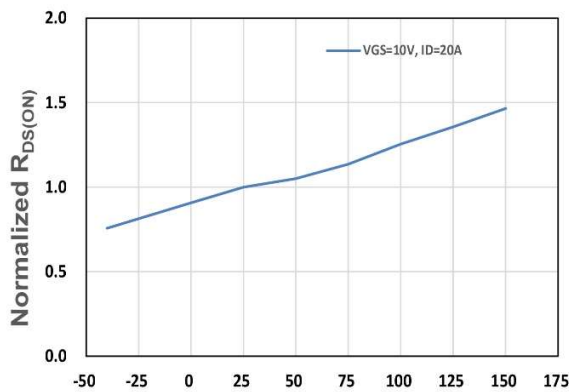
I_D- Drain Current (A)
Figure 2. On-Resistance vs. ID



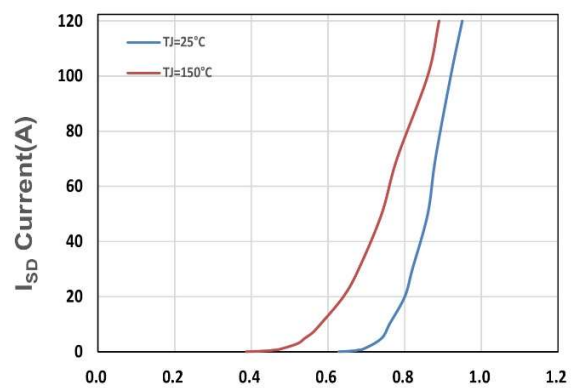
V_{GS} - Gate - Source Voltage (V)
Figure 3. On-Resistance vs. VGS



T_j, Junction Temperature(°C)
Figure 4. Gate Threshold Voltage

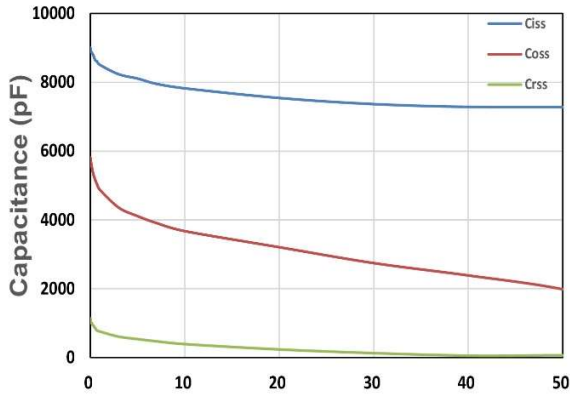


T_j, Junction Temperature(°C)
Figure 5. Drain-Source On Resistance

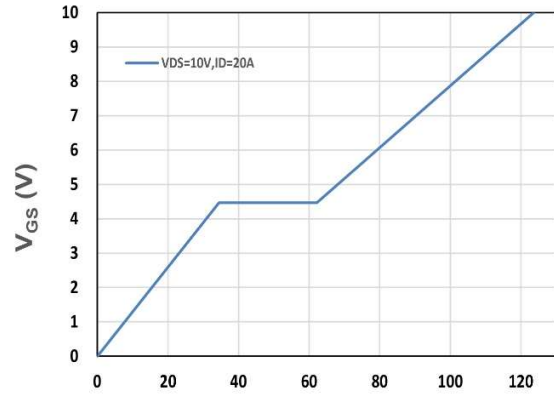


V_{SD}, Source-Drain Voltage(V)
Figure 6. Source-Drain Diode Forward

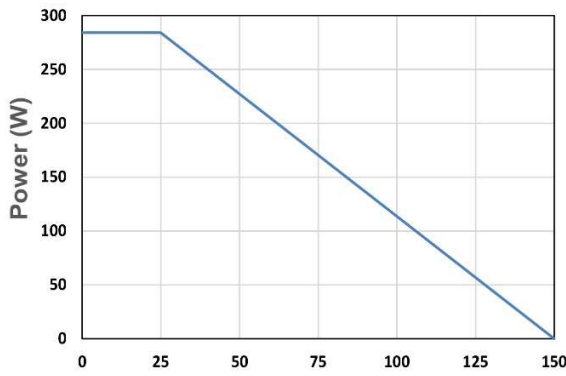
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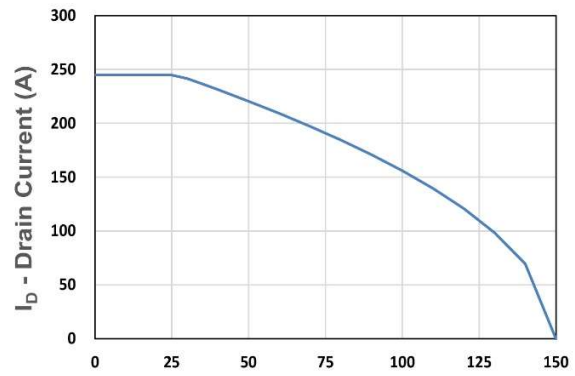
V_{DS} - Drain - Source Voltage (V)
Figure 7. Capacitance



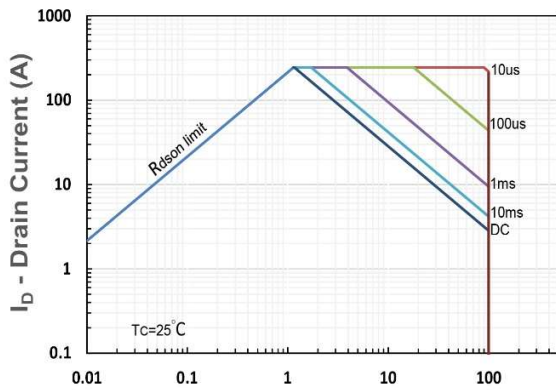
Q_g , Total Gate Charge (nC)
Figure 8. Gate Charge Characteristics



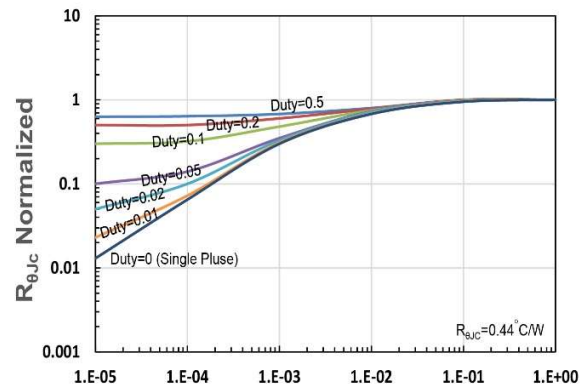
T_c - Case Temperature ($^{\circ}C$)
Figure 9. Power Dissipation



T_c - Case Temperature ($^{\circ}C$)
Figure 10. Drain Current



V_{DS} - Drain-Source Voltage (V)
Figure 11. Safe Operating Area



t_1 , Square Wave Pulse Duration (s)
Figure 12. $R_{\theta Jc}$ Transient Thermal Impedance