

Features

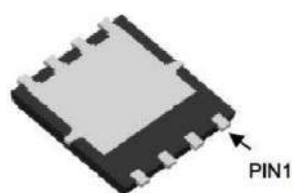
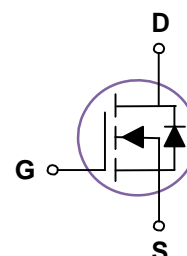
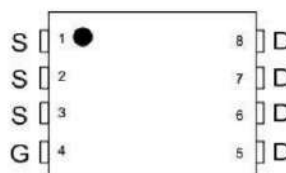
- Advanced Trench MOS Technology
- Low Gate Charge
- Low $R_{DS(ON)}$
- 100% EAS Guaranteed
- Green Device Available

Applications

- Power Management in Desktop Computer or DC/DC Converters.
- Isolated DC/DC Converters in Telecom and Industrial.

Product Summary


V_{DS}	100	V
$R_{DS(on),Typ} @ V_{GS}=10V$	6.6	$m\Omega$
I_D	68	A


DFN5x6-8

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C=25^\circ C$	Continuous Drain Current ^{1,6}	68	A
$I_D @ T_C=70^\circ C$	Continuous Drain Current ^{1,6}	48	A
I_{DM}	Pulsed Drain Current ²	140	A
EAS	Single Pulse Avalanche Energy ³	61	mJ
I_{AS}	Avalanche Current	35	A
$P_D @ T_C=25^\circ C$	Total Power Dissipation ⁴	108	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹ ($t \leq 10s$)	---	25	$^\circ C/W$
	Thermal Resistance Junction-Ambient ¹	---	55	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	---	1.15	$^\circ C/W$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	100	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =13.5A	---	6.6	8	mΩ
	Static Drain-Source On-Resistance ²	V _{GS} =4.5V, I _D =11.5A	---	8.7	10.5	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	---	2.3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =80V, V _{GS} =0V, T _J =25°C	---	---	1	uA
		V _{DS} =80V, V _{GS} =0V, T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =20A	---	85	---	S
Q _g	Total Gate Charge (10V)	V _{DS} =50V, V _{GS} =10V, I _D =13.5A	---	45	---	nC
Q _g	Total Gate Charge (4.5V)		---	19.3	---	
Q _{gs}	Gate-Source Charge		---	9.5	---	
Q _{gd}	Gate-Drain Charge		---	4.8	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =50V, V _{GS} =10V, R _G =3Ω, I _D =13.5A	---	10	---	ns
T _r	Rise Time		---	6.5	---	
T _{d(off)}	Turn-Off Delay Time		---	45	---	
T _f	Fall Time		---	7.5	---	
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	---	3320	---	pF
C _{oss}	Output Capacitance		---	605	---	
C _{rss}	Reverse Transfer Capacitance		---	20	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,5,6}	V _G =V _D =0V, Force Current	---	---	48	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1.1	V
t _{rr}	Reverse Recovery Time	I _F =13.5A, di/dt=100A/μs,	---	33	---	nS
Q _{rr}	Reverse Recovery Charge	T _J =25°C	---	150	---	nC

Note :

- 1.The data tested by surface mounted on a 1 inch²FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.3mH,I_{AS}=35A
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.
- 6.The maximum current rating is package limited.

Typical Characteristics

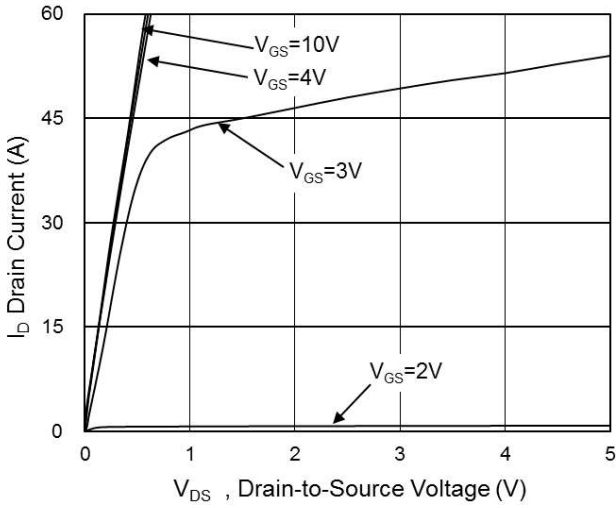


Fig.1 Typical Output Characteristics

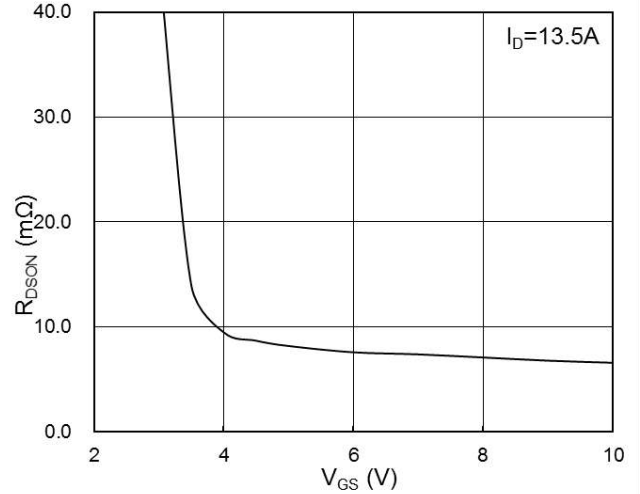


Fig.2 On-Resistance vs. G-S Voltage

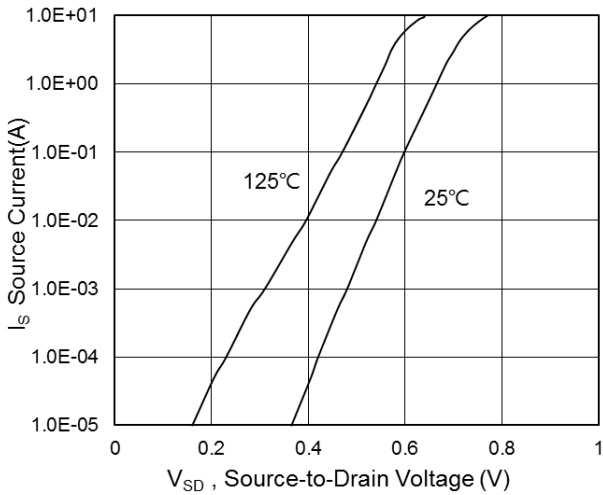


Fig.3 Source-Drain Forward Characteristics

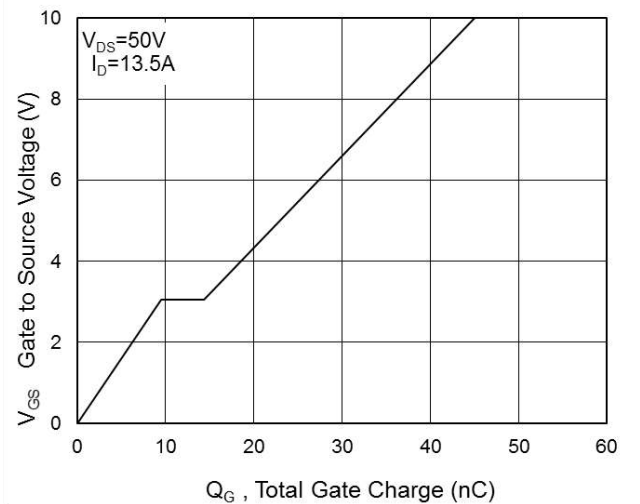


Fig.4 Gate-Charge Characteristics

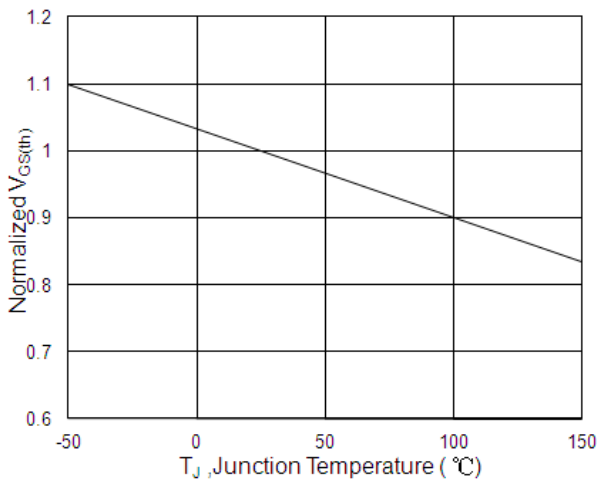


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

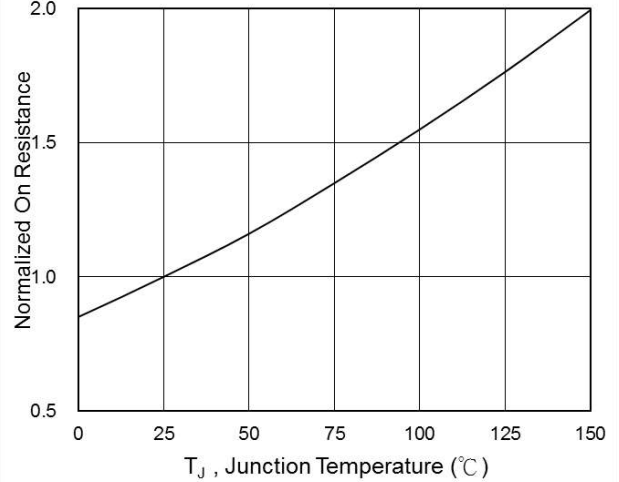


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

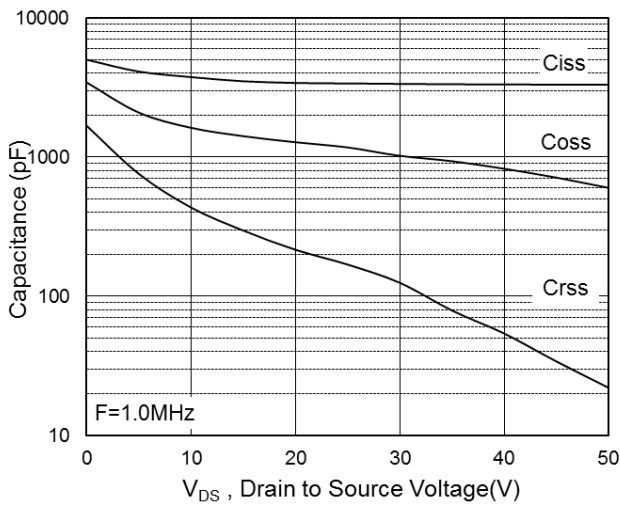


Fig.7 Capacitance

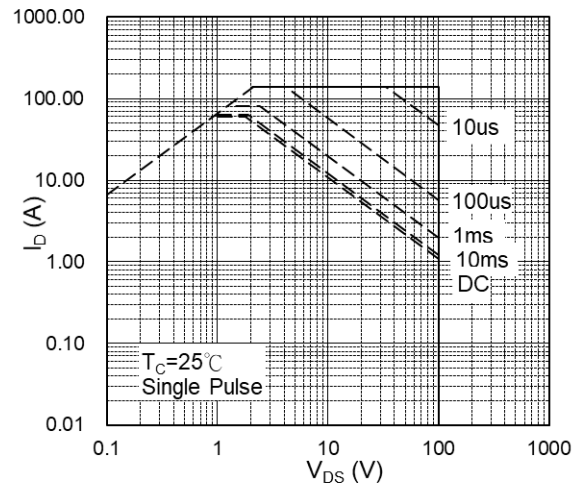


Fig.8 Safe Operating Area

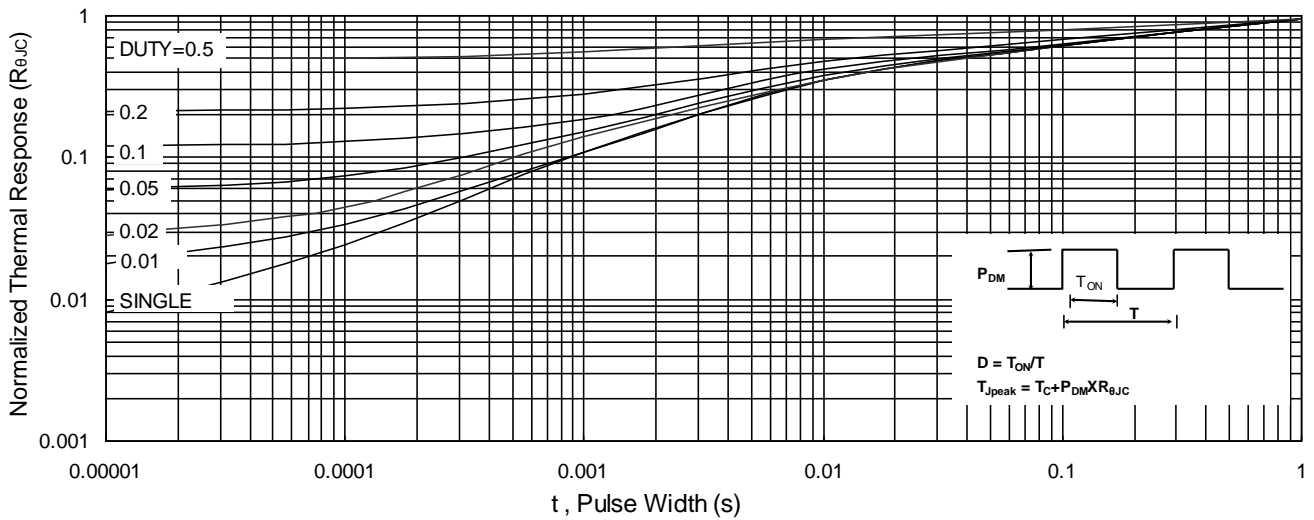


Fig.9 Normalized Maximum Transient Thermal Impedance

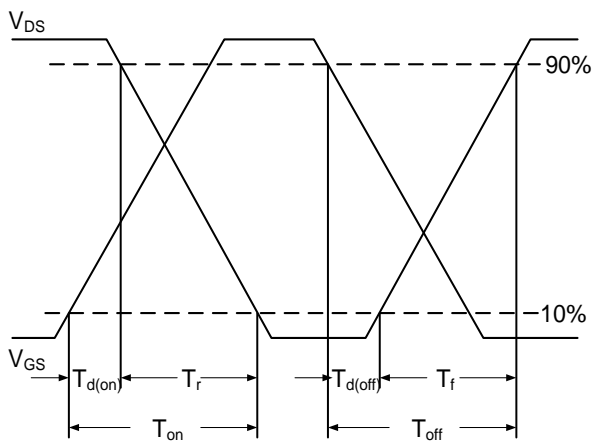


Fig.10 Switching Time Waveform

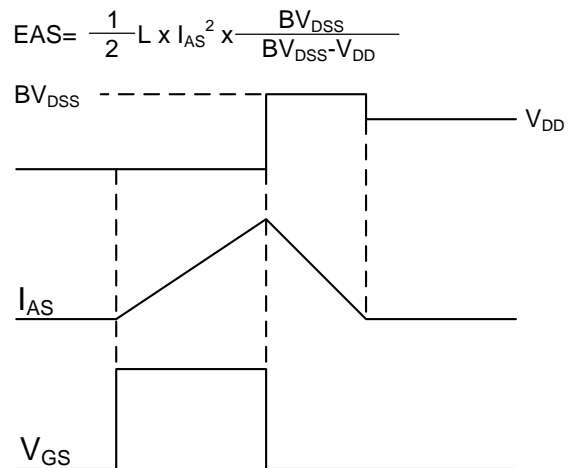
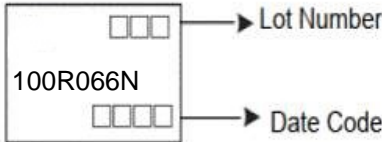


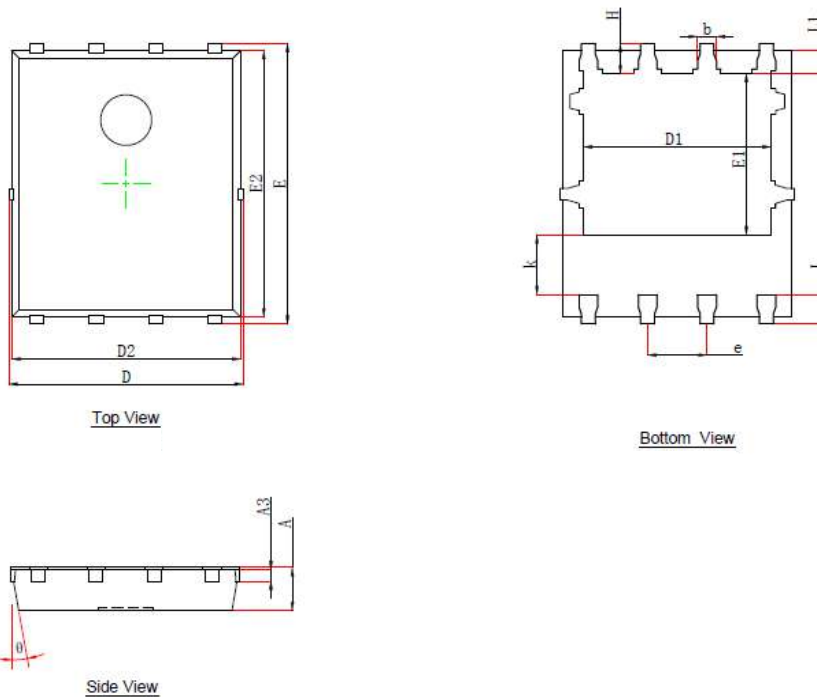
Fig.11 Unclamped Inductive Switching Waveform

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
JMN100R066NQ-R	100R066N	DFN5x6-8	Tape&Reel	5000

PACKAGE	MARKING
DFN5x6-8	 <p>The diagram shows a rectangular package with the marking '100R066N' in the center. Above the marking are three small squares, with an arrow pointing to the text 'Lot Number'. Below the marking are four small squares, with an arrow pointing to the text 'Date Code'.</p>

DFN5x6-8 PACKAGE IN FORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

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