

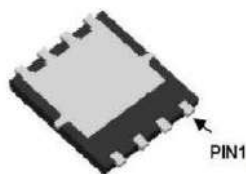
Features

- Super Low Gate Charge
- 100% EAS Guaranteed
- Green Device Available
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

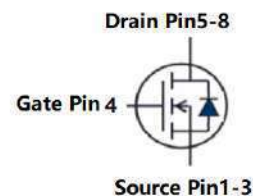
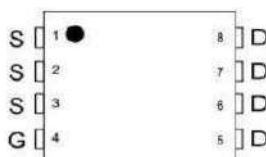
Product Summary



V_{DS}	60	V
$R_{DS(on),Max} @ V_{GS}=10V$	8.5	mΩ
I_D	75	A



DFN5*6-8



N-Channel

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^1$	75	A
$I_D @ T_C=100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^1$	47	A
I_{DM}	Pulsed Drain Current ²	300	A
EAS	Single Pulse Avalanche Energy ³	80	mJ
I_{AS}	Avalanche Current	40	A
$P_D @ T_C=25^\circ C$	Total Power Dissipation ⁴	41	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	---	62	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case ¹	---	1.4	$^\circ C/W$

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	60	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =10A	---	---	8.5	mΩ
		V _{GS} =4.5V, I _D =5A	---	---	12	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	---	2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =48V, V _{GS} =0V, T _J =25°C	---	---	1	uA
		V _{DS} =48V, V _{GS} =0V, T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	1.2	---	Ω
Q _g	Total Gate Charge (10V)	V _{DS} =30V, V _{GS} =10V, I _D =18A	---	57	---	nC
Q _{gs}	Gate-Source Charge		---	8.7	---	
Q _{gd}	Gate-Drain Charge		---	14	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =30V, V _{GS} =10V, R _G =3.3Ω, I _D =20A	---	16.2	---	ns
T _r	Rise Time		---	41.2	---	
T _{d(off)}	Turn-Off Delay Time		---	56.4	---	
T _f	Fall Time		---	16.2	---	
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	---	3307	---	pF
C _{oss}	Output Capacitance		---	201	---	
C _{rss}	Reverse Transfer Capacitance		---	151	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V, Force Current	---	---	75	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1.2	V
t _{rr}	Reverse Recovery Time	I _F =20A, dI/dt=100A/μs,	---	22	---	nS
Q _{rr}	Reverse Recovery Charge	T _J =25°C	---	72	---	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}=50V, V_{GS}=10V, L=0.1mH, I_{AS}=40A
- 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.

Typical Characteristics

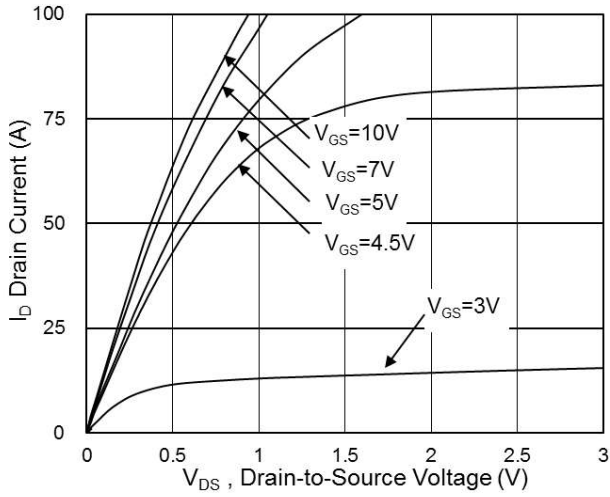


Fig.1 Typical Output Characteristics

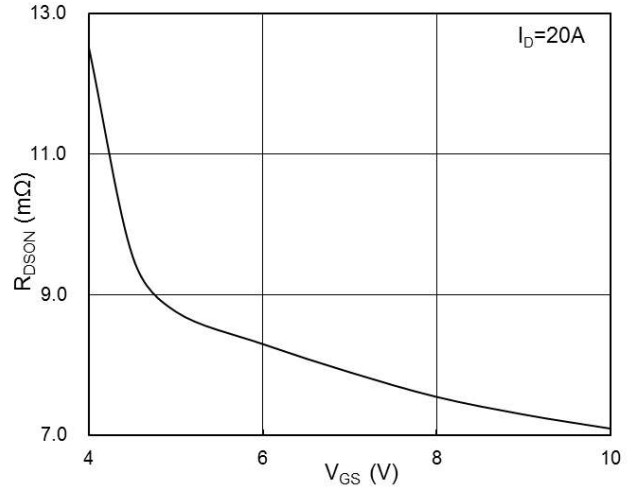


Fig.2 On-Resistance vs Gate-Source Voltage

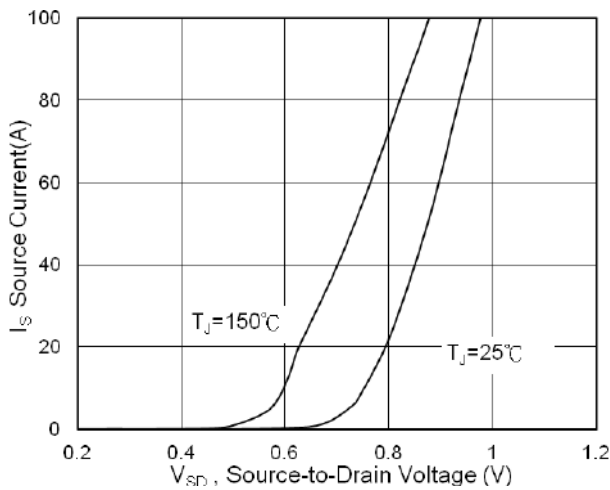


Fig.3 Forward Characteristics of Reverse

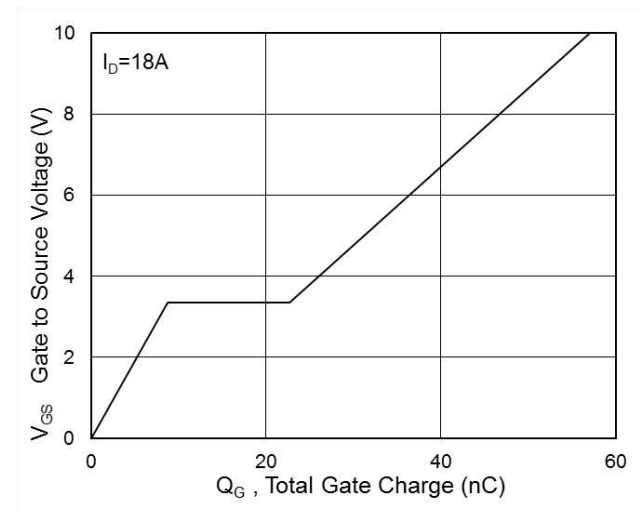


Fig.4 Gate-Charge Characteristics

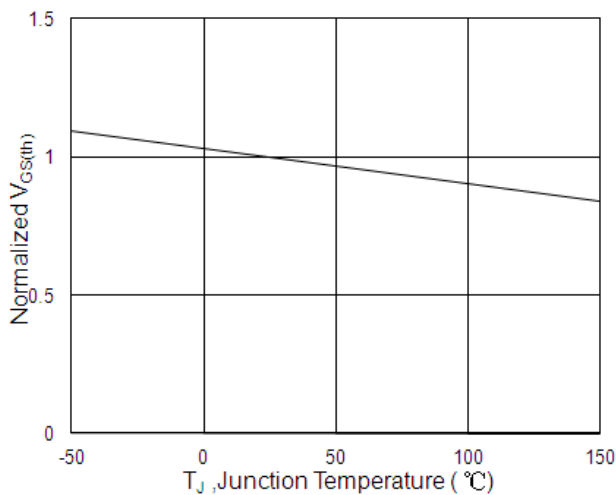


Fig.5 Normalized $V_{GS(th)}$ vs T_J

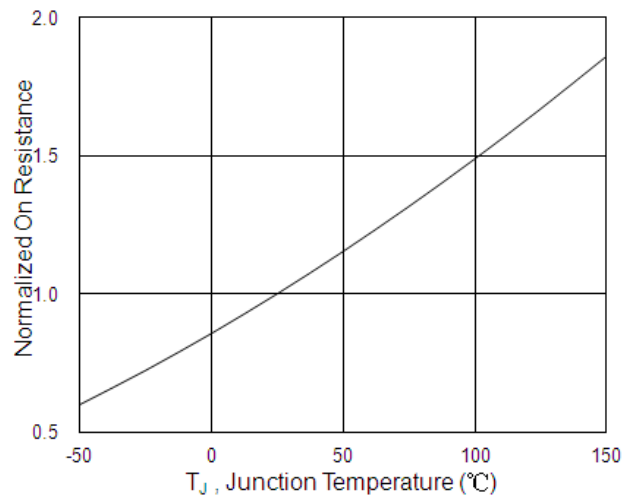


Fig.6 Normalized $R_{DS(on)}$ vs T_J

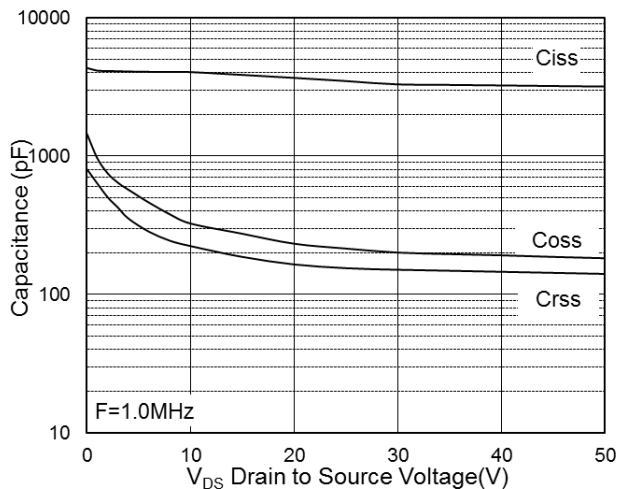


Fig.7 Capacitance

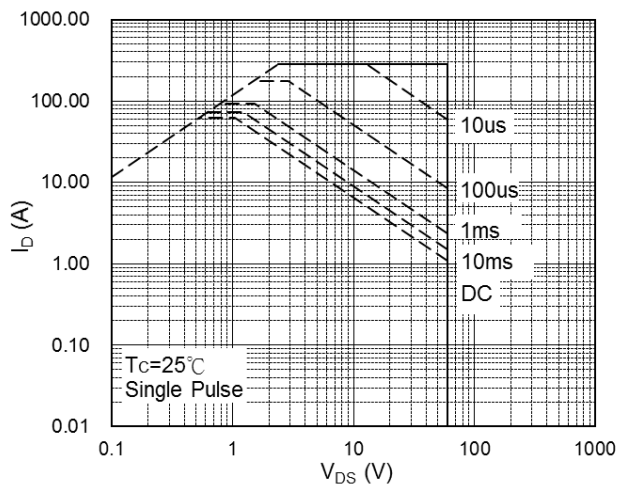


Fig.8 Safe Operating Area

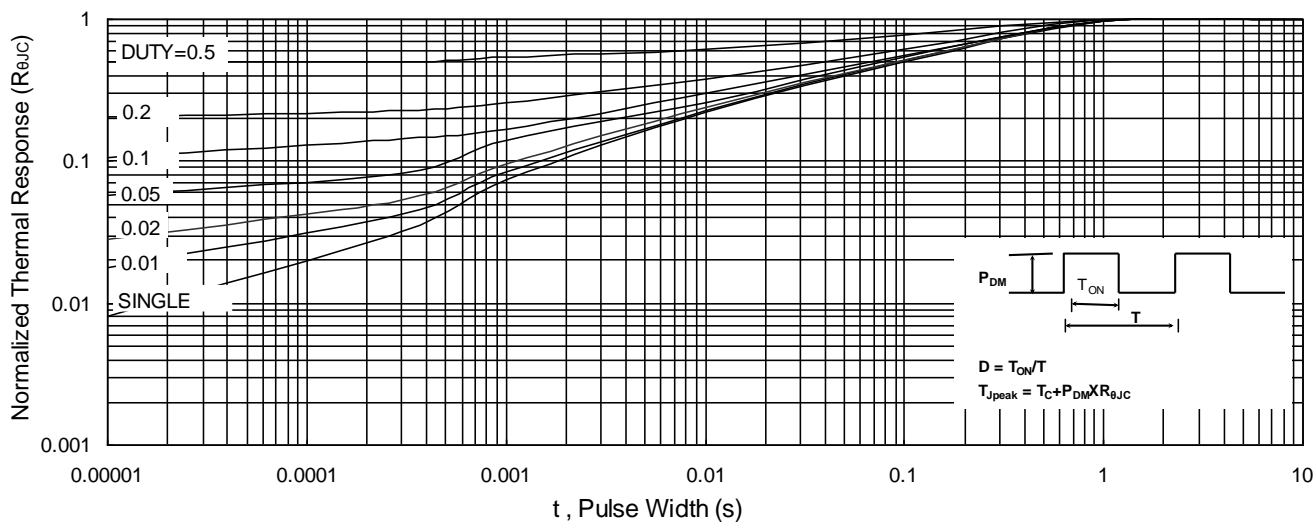


Fig.9 Normalized Maximum Transient Thermal Impedance

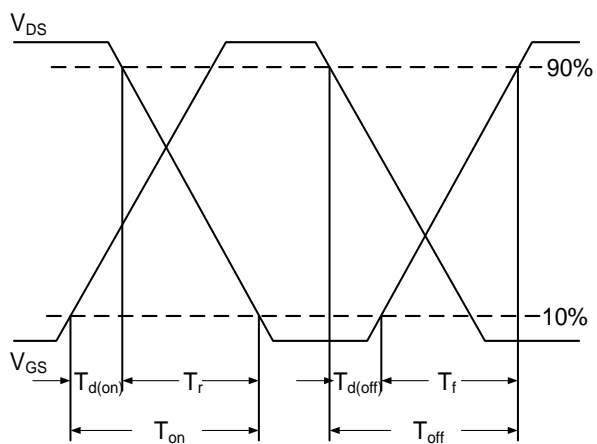


Fig.10 Switching Time Waveform

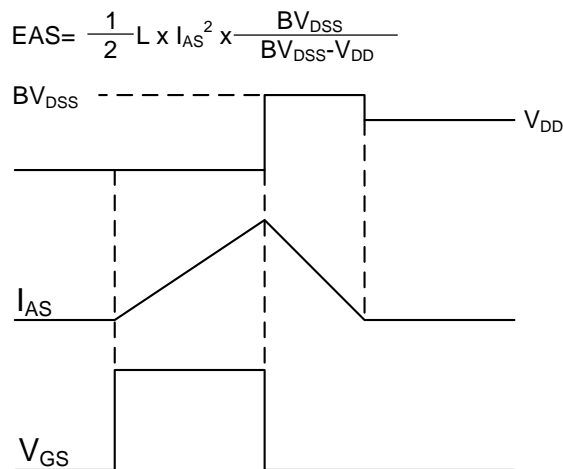
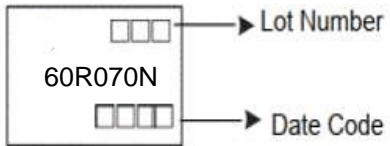


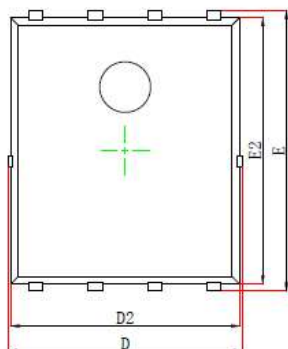
Fig.11 Unclamped Inductive Switching Waveform

Ordering and Marking Information

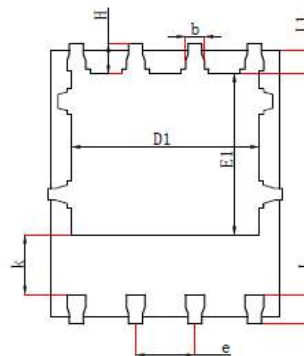
Ordering Device No.	Marking	Package	Packing	Quantity
JMN60R070NQ-R	60R070N	DFN5*6-8	Tape&Reel	4000/Reel

PACKAGE	MARKING
DFN5*6-8	 <p>The diagram shows a rectangular marking area containing the text '60R070N'. Above this text are two small squares, and below it are four small squares. An arrow points from the two squares to the text 'Lot Number', and another arrow points from the four squares to the text 'Date Code'.</p>

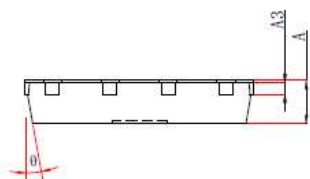
DFN5x6_P, 8 Leads



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

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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