

N-MOSFET 150V 7.3mΩ 100A

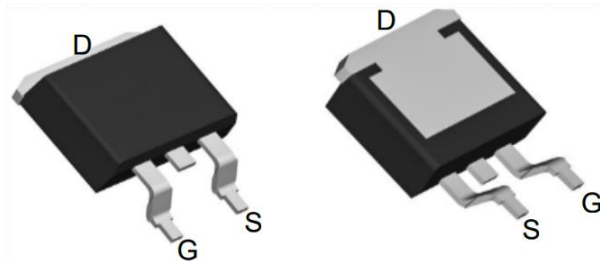
■ Product Summary

- V_{DS} 150V
- I_D 100A
- R_{DS(ON)} (at V_{GS}=10V) <9.0 mΩ (Typ: 7.3 mΩ)

■ Naming convention

M	G	H	0	7	3	N	1	5	A	N
Megain	B: PDFN3X3 C: PDFN5X6 P: TO220 H: TO263 S: SOP8 T: TO252	R _{DS(ON)} Typ. @V _{GS} =10V	N: N P: P C: N+P D: N+N	15: 150V 12: 120V 10: 100V 06: 60V 04: 40V 03: 30V	A:V _{GS} 20/-12 w/o A: V _{GS} ±20	L:V _{th} (1~2.5V) N:V _{th} (2~4V)				

■ Pin configuration



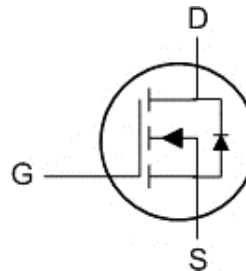
■ Features

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

■ Application

- Load Switch
- LED Applications
- Networking Applications
- Quick Charger

■ Symbol



■ Ordering Information

Order code	Package	Form	Quantity (PCS)	Marking
MGH073N15N	TO263	Tape & Reel	800 / Tape & Reel	MGH073N15N

■ Absolute Maximum Ratings

T_C=25°C Unless Otherwise Noted.

Symbol	Parameter	Value	Units
V _{DS}	Drain-Source Voltage	150	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current – Continuous ¹ (T _C =25°C)	100	A
	Drain Current – Continuous ¹ (T _C =100°C)	63	
I _{DM}	Pulsed Drain Current ²	400	A
EAS	Single Pulse Avalanche Energy ³	784	mJ
I _{AS}	Avalanche Current	56	A
P _D	Total Power Dissipation ⁴ (T _C =25°C)	178	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

■ Thermal Characteristics

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance Junction to Ambient ¹	50	°C/W
$R_{\theta JC}$	Thermal Resistance Junction to Case ¹	0.7	°C/W

■ Electrical Characteristics

$T_J=25^{\circ}\text{C}$ Unless Otherwise Noted.

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
B _V D _{SS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	150	-	-	V
R _{DS} (ON)	Drain-Source On-state Resistance ²	V _{GS} =10V, I _D =20A	-	7.3	9	mΩ
V _{GS} (th)	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2	3	4	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =120V, V _{GS} =0V	-	-	1	uA
		V _{DS} =120V, V _{GS} =0V T _J =55℃	-	-	5	
		I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	-	1.9	-	Ω
Q _g	Total Gate Charge (10V)	V _{DS} =75V, V _{GS} =10V I _b =20A	-	100	-	nC
Q _{gs}	Gate-Source Charge		-	24.9	-	
Q _{gd}	Gate-Drain Charge		-	30.8	-	
T _d (ON)	Turn-on Delay Time	V _{DS} =30V, V _{GS} =10V, R _G =3.3Ω, I _b =1A	-	32	-	nS
T _r	Turn-on Rise Time		-	25	-	
T _d (OFF)	Turn-off Delay Time		-	97	-	
T _f	Turn-off Fall Time		-	89	-	
C _{iss}	Input Capacitance	V _{DS} =75V, V _{GS} =0V, F=1MHz	-	5870	-	pF
C _{oss}	Output Capacitance		-	404	-	
C _{rss}	Reverse Transfer Capacitance		-	9.3	-	
Diode Characteristics						
I _S	Continuous Source Current ^{1,5,6}	V _G =V _D =0V,Force Current	-	-	100	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =1A	-	-	1.2	V

Note :

1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

3.The EAS data shows Max. rating . The test condition is $V_{DD}=50V, V_{GS}=10V, L=0.5mH, I_{AS}=56A$.

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

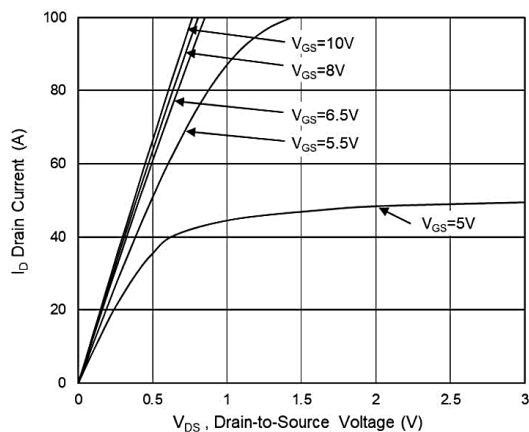


Fig.1 Typical Output Characteristics

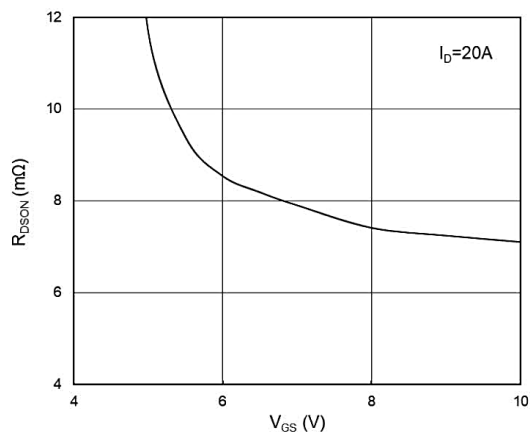


Fig.2 On-Resistance vs G-S Voltage

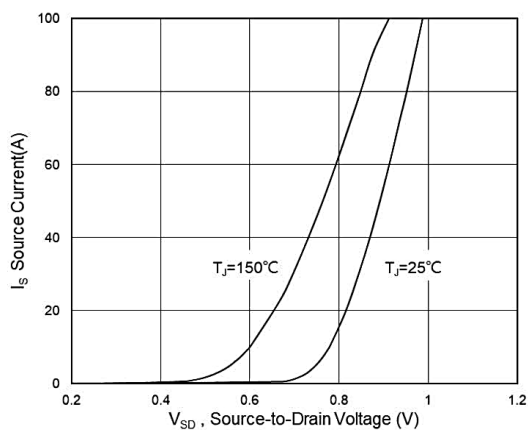


Fig.3 Source Drain Forward Characteristics

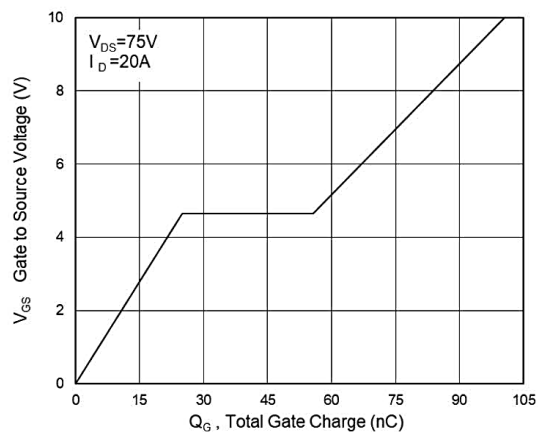


Fig.4 Gate-Charge Characteristics

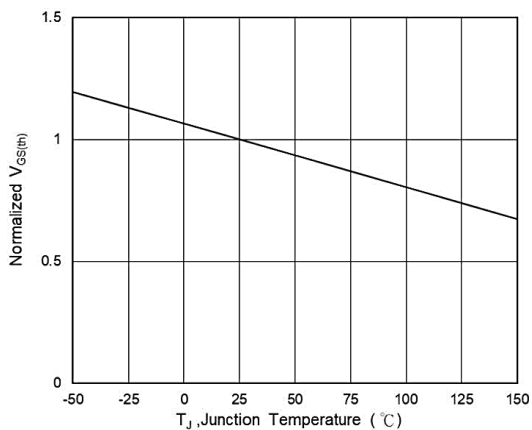


Fig.5 Normalized $V_{GS(th)}$ vs T_J

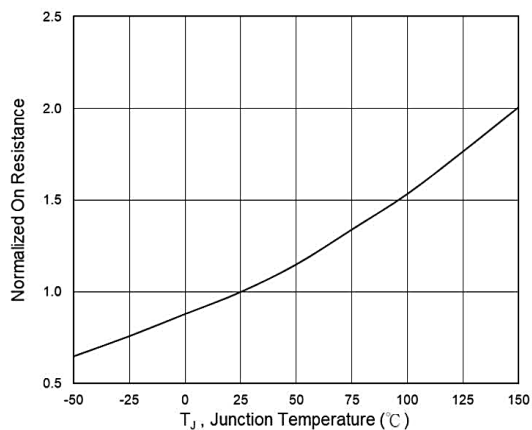


Fig.6 Normalized $R_{DS(on)}$ vs T_J

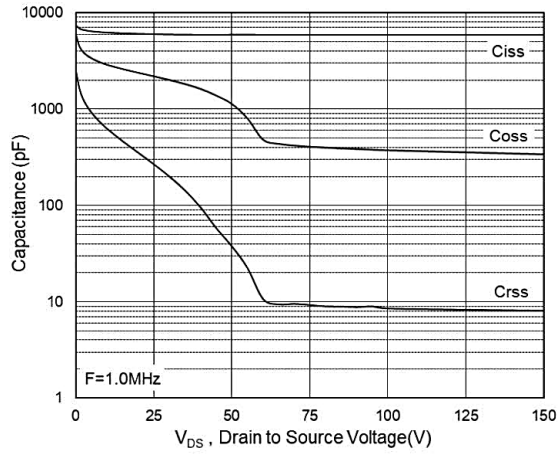


Fig.7 Capacitance

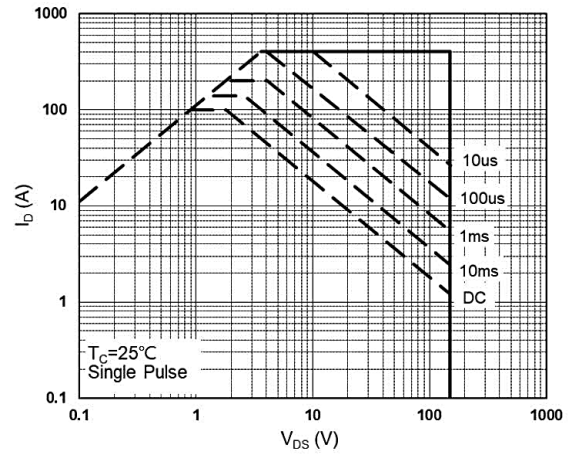


Fig.8 Safe Operating Area

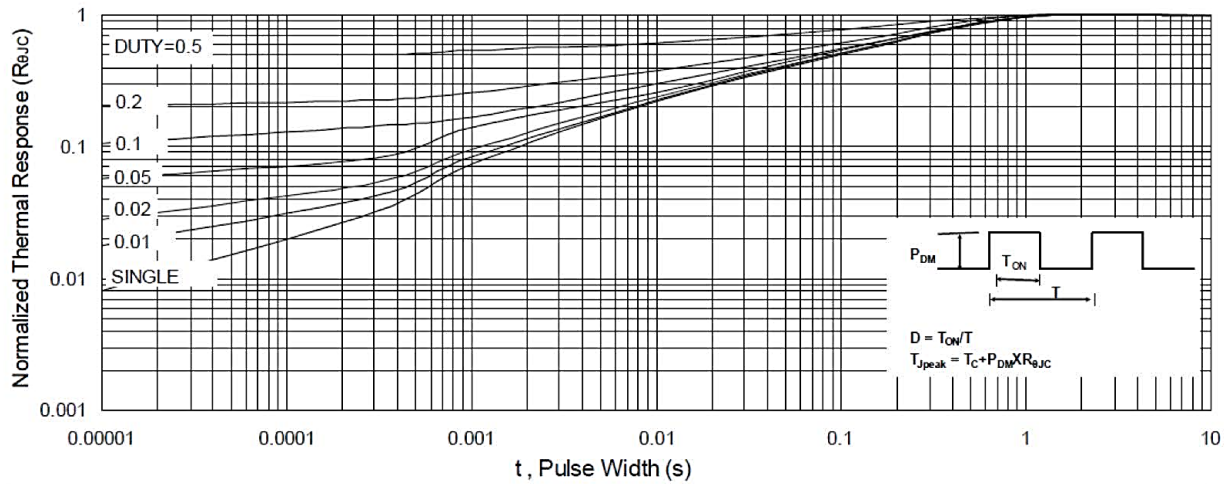


Fig.9 Normalized Maximum Transient Thermal Impedance

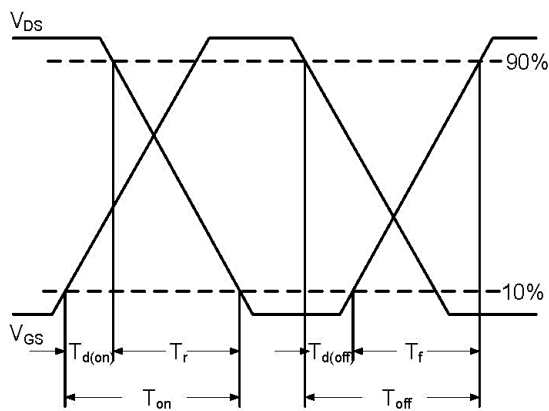


Fig.10 Switching Time Waveform

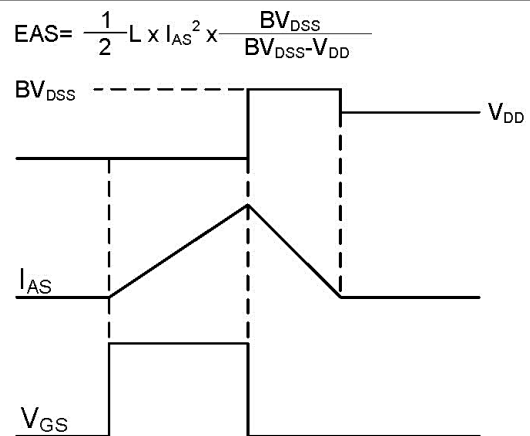


Fig.11 Unclamped Inductive Switching Waveform

■ Package size

Unit: mm.

TO263:

