SP010N07GHTH

100V N-Channel Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	6.9mΩ@10V	80A

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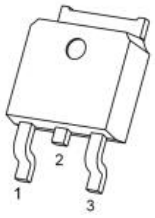
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Applications

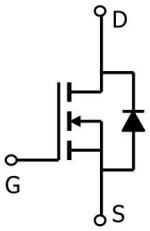
- Power switching application
- PWM Application
- DC-DC Converter

Package

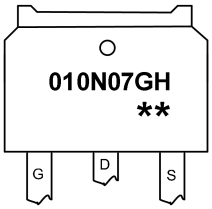


TO-252(1:G 2:D 3:S)

Circuit diagram



Marking



010N07GH =Device Code
** =Week Code

Order Information

Device	Package	Unite/Tape
SP010N07GHTH	TO-252	2500

Absolute maximum ratings (Ta=25℃ unless otherwise noted)

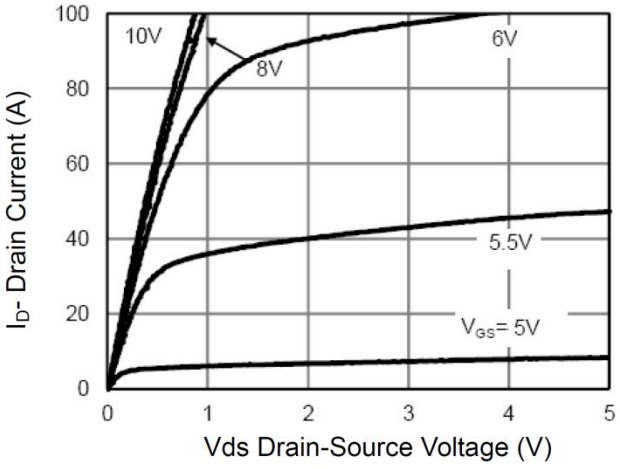
Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current(Tc=25℃)	I_D	80	A
Pulsed Drain Current[2]	I_{DM}	320	A
Single Pulse Avalanche Energy [3]	E_{AS}	306	mJ
Total Power Dissipation [4](Tc=25℃)	P_D	120	W
Thermal Resistance Junction-Case [1]	$R_{\theta JC}$	0.96	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

Electrical characteristics (Ta=25℃, unless otherwise noted)

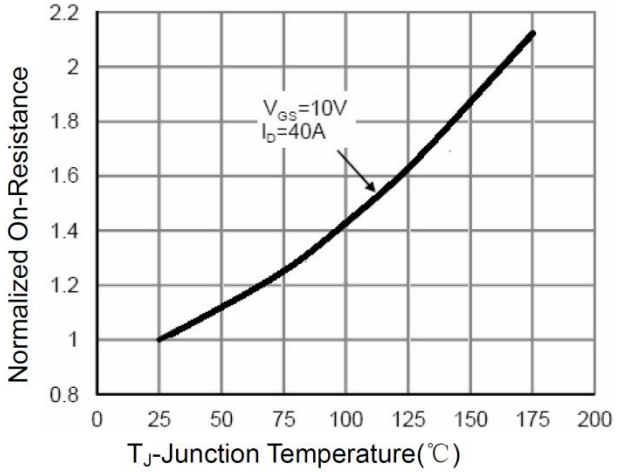
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=250uA	100	---	---	V
Drain-Source Leakage Current	I_{DSS}	VDS=80V , VGS=0V , TJ=25℃	---	---	1	uA
Gate-Source Leakage Current	I_{GSS}	VGS=±20V , VDS=0V	---	---	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =250uA	2	3	4	V
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	VGS=10V , ID=20A	---	6.9	8.7	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	VDS=50V , VGS=0V , f=1MHz	---	2335	---	pF
Output Capacitance	C_{oss}		---	330	---	
Reverse Transfer Capacitance	C_{rss}		---	7	---	
Switching Characteristics						
Total Gate Charge	Q_g	VDS=50V , VGS=10V , ID=20A	---	35	---	nC
Gate-Source Charge	Q_{gs}		---	5.5	---	
Gate-Drain Charge	Q_{gd}		---	6	---	
Turn-On Delay Time	$T_{d(on)}$	VDD=50V, VGS=10V , ID=20A , R_G=6Ω	---	8	---	ns
Rise Time	T_r		---	13	---	
Turn-Off Delay Time	$T_{d(off)}$		---	42	---	
Fall Time	T_f		---	19	---	
Source-Drain Diode Characteristics						
Diode Forward Voltage[2]	V_{SD}	VGS=0V , IS=1A , TJ=25℃	---	---	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 ≦ 300us , duty cycle ≦ 2%
3. The EAS data shows Max. rating . The test condition is VDD=50V,VGS=10V,L=0.5mH,Rg=25Ω
4. The power dissipation is limited by 150℃ junction temperature

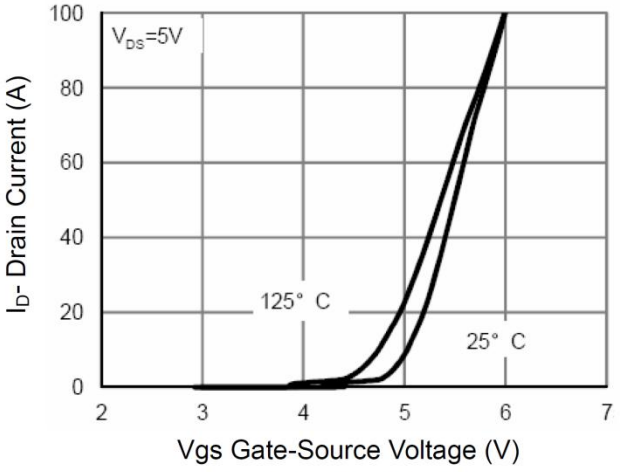
Typical Characteristics



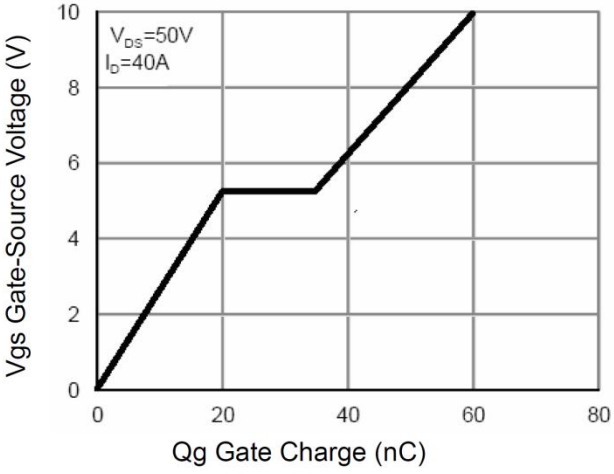
Output Characteristics



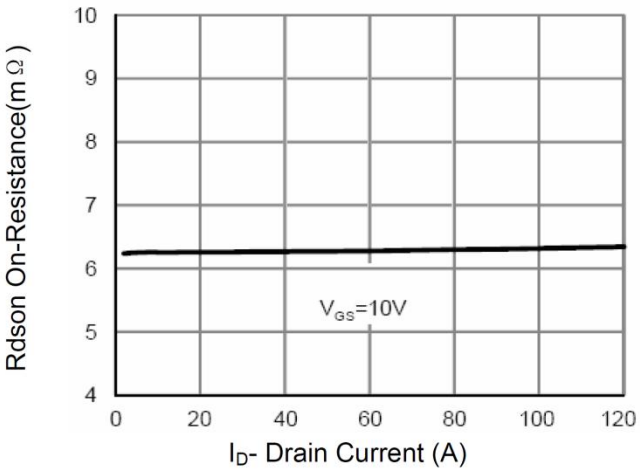
Rdson-Junction Temperature



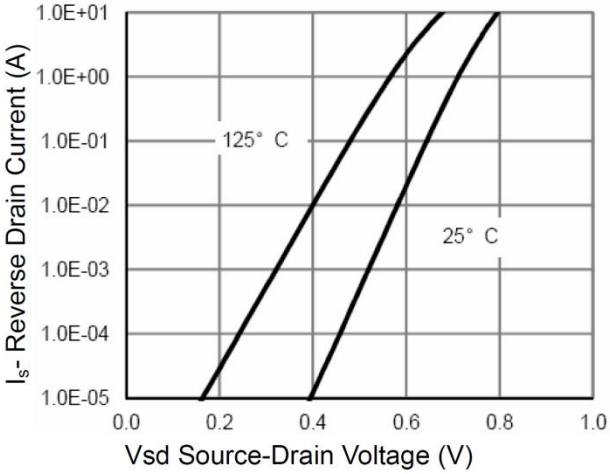
Transfer Characteristics



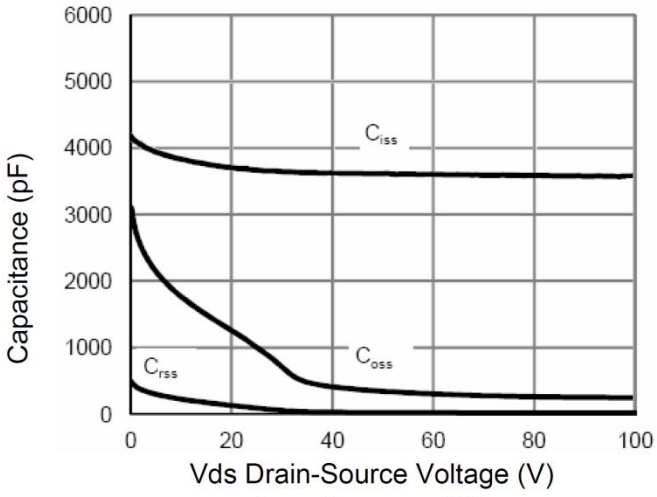
Gate Charge



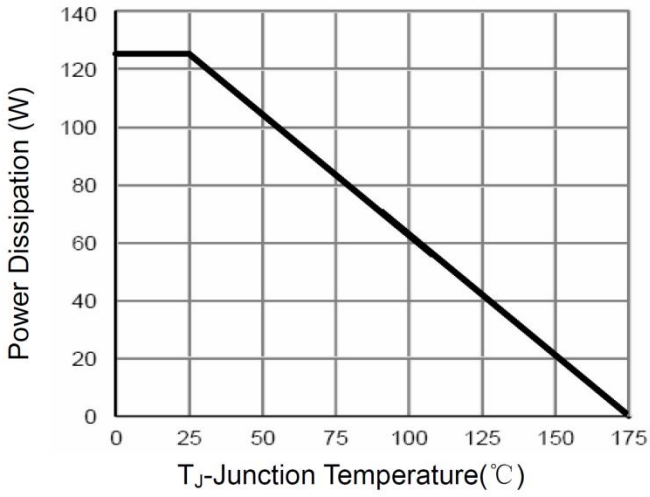
Rdson- Drain Current



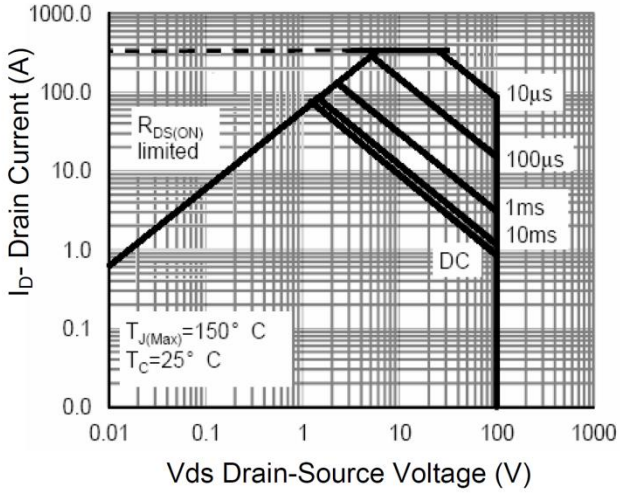
Source- Drain Diode Forward



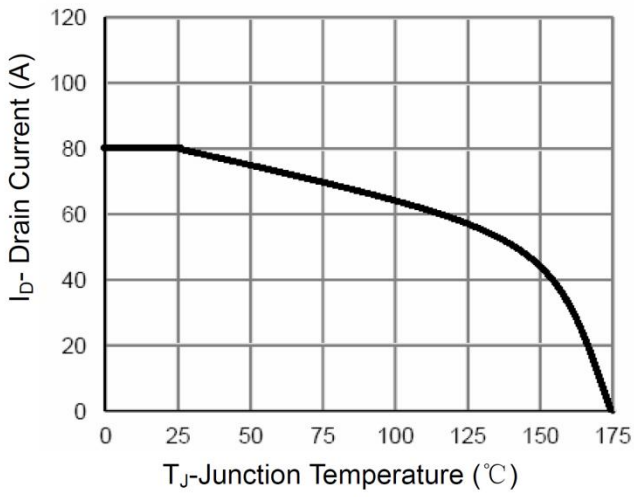
Capacitance vs Vds



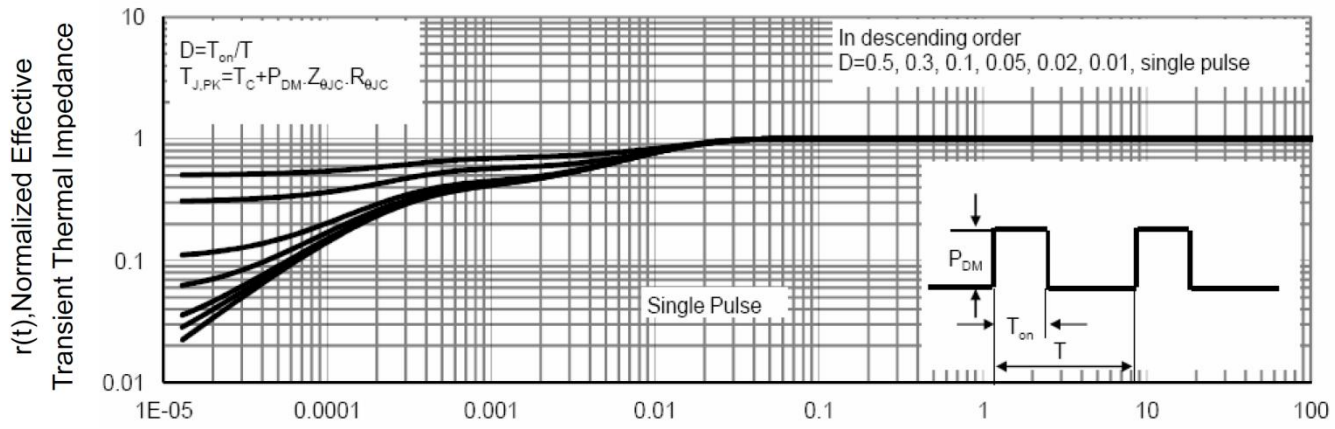
Power De-rating



Safe Operation Area

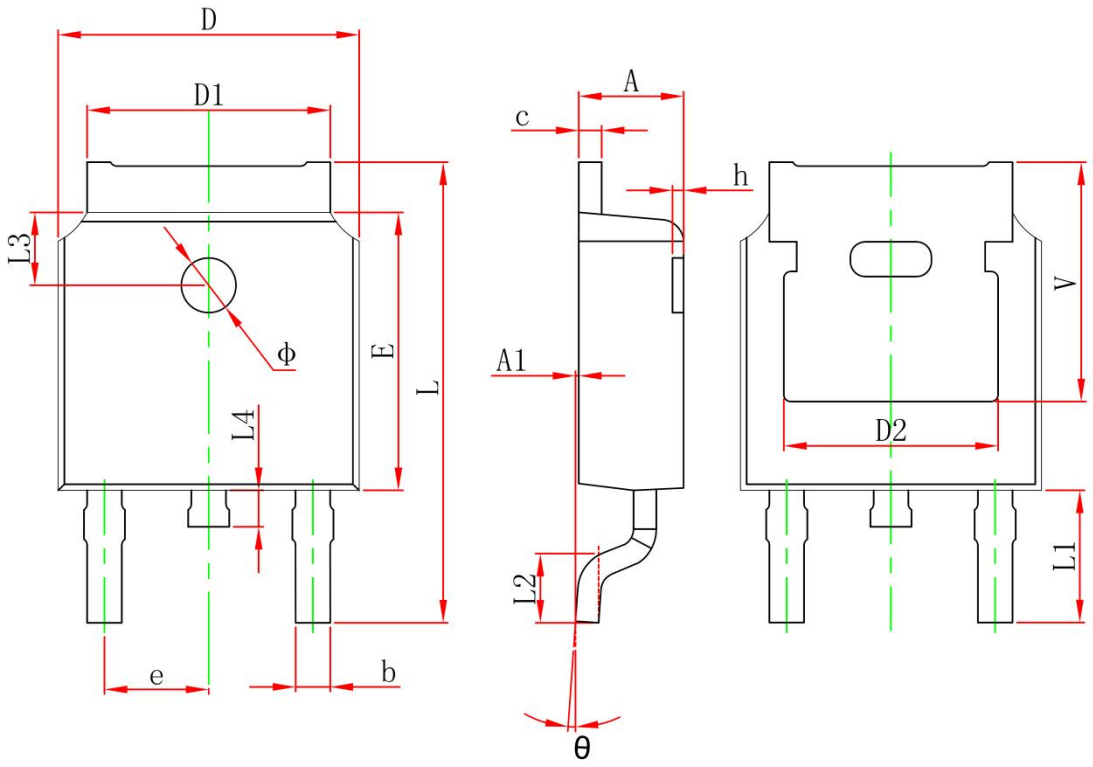


Current De-rating



Normalized Maximum Transient Thermal Impedance

TO-252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	

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