SP010N07AGTH

100V N-Channel Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	6.7mΩ@10V	80A
	8.7mΩ@4.5V	

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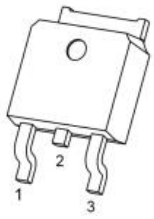
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Applications

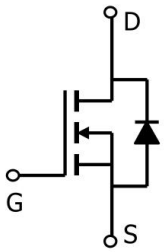
- Power switching application
- DC-DC Converter
- Power Management

Package

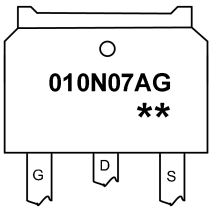


TO-252(G:1 D:2 S:3)

Circuit diagram



Marking



010N07AG : Product code
**** : Week code**

Order Information

Device	Package	Unite/Tape
SP010N07AGTH	TO-252	2500

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

Parameter	Symbol	Rating	Unit
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	I_{DM}	320	A
Power dissipation(Tc=25℃)	P_D	100	W
Single pulsed avalanche energy1)	E_{AS}	358	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	1.25	℃/W
Operation and storage temperature	T_{stg}, T_j	-55 to 150	℃

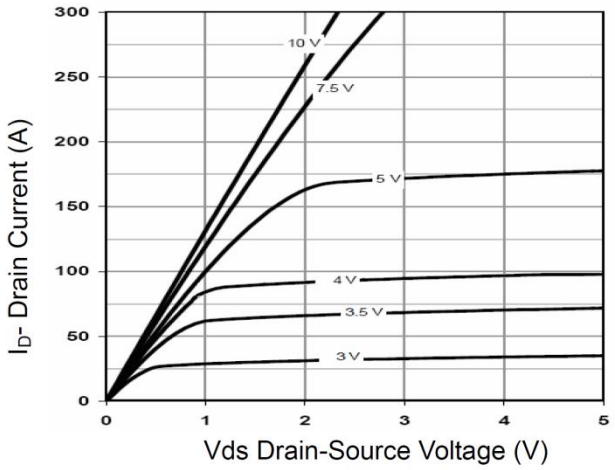
Electrical characteristics (Ta=25℃, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = 250μA, V_{GS} = 0V	100	-	-	V
Drain Cut-Off Current	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V	-	-	1	μA
Gate Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V	-	-	±0.1	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.7	2.5	V
Drain-Source ON Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 30A	-	6.7	8.5	mΩ
		V_{GS} = 4.5V, I_D = 25A	-	8.7	12	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} = 0V, f = 1.0MHz	-	1942	-	pF
Output Capacitance	C_{oss}		-	388	-	
Reverse Transfer Capacitance	C_{rss}		-	12	-	
Switching Characteristics						
Total Gate Charge	Q_g	VDS=50V , VGS=10V , ID=30A	-	67	-	nC
Gate-Source Charge	Q_{gs}		-	12	-	
Gate-Drain Charge	Q_{gd}		-	21	-	
Turn-On Delay Time	$t_{d(on)}$	V_{GS} = 10V, V_{DS} = 50V, RL=2.5Ω , R_G = 6.0Ω	-	12	-	ns
Rise Time	t_r		-	11	-	
Turn-Off Delay Time	$t_{d(off)}$		-	42	-	
Fall Time	t_f		-	6	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	I_S = 1A, V_{GS} = 0V	-	-	1.2	V

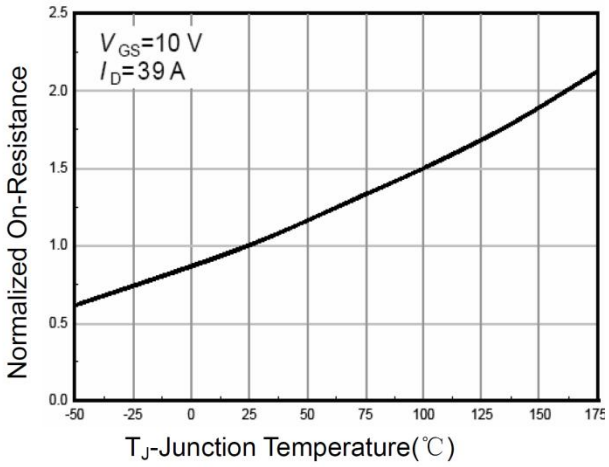
Note:

1. E_{AS} is tested at starting Tj = 25℃, V_{DD}=50V,V_{GS} = 10V,L = 0.5mH, Rg=25mΩ;

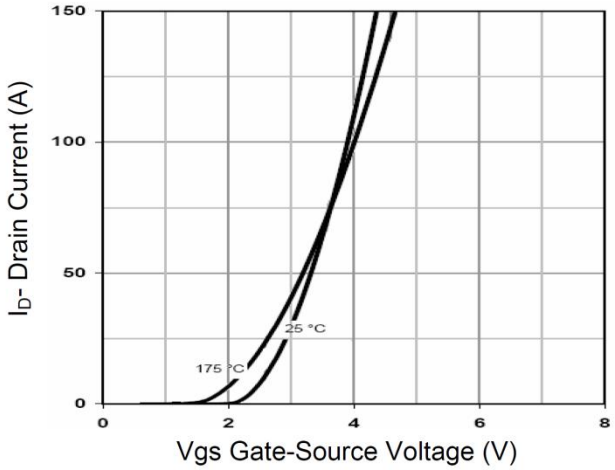
Typical Characteristics



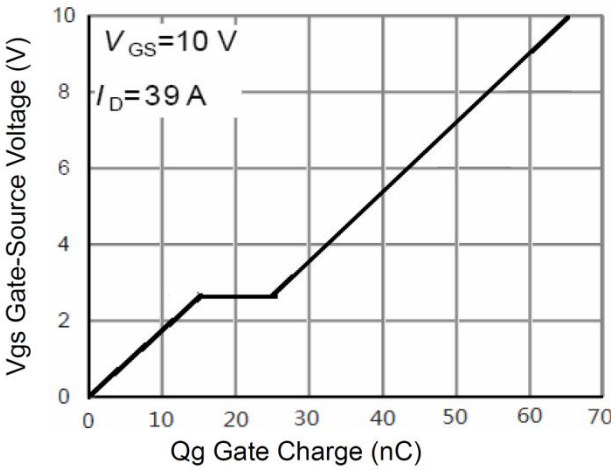
Output Characteristics



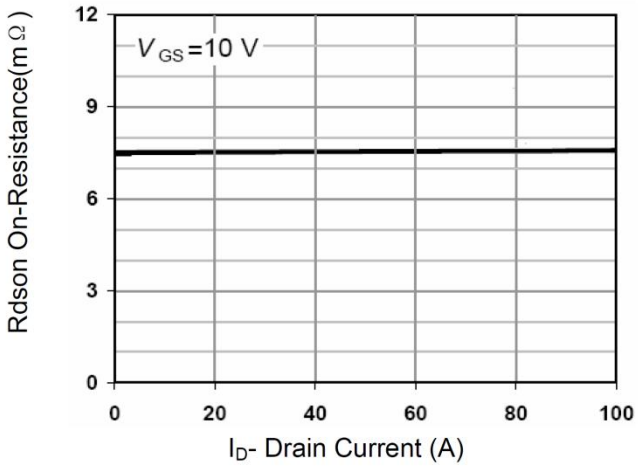
Rdson-JunctionTemperature



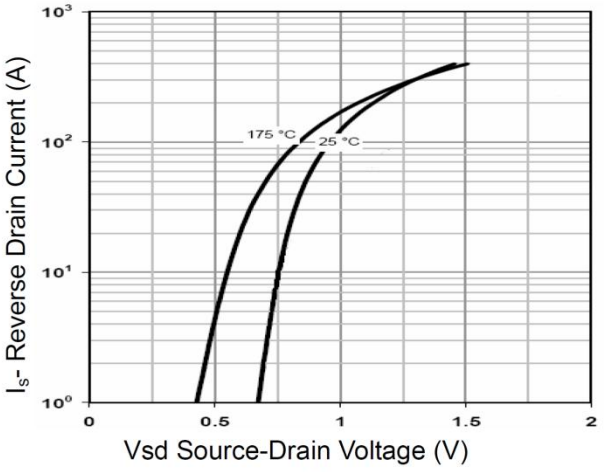
Transfer Characteristics



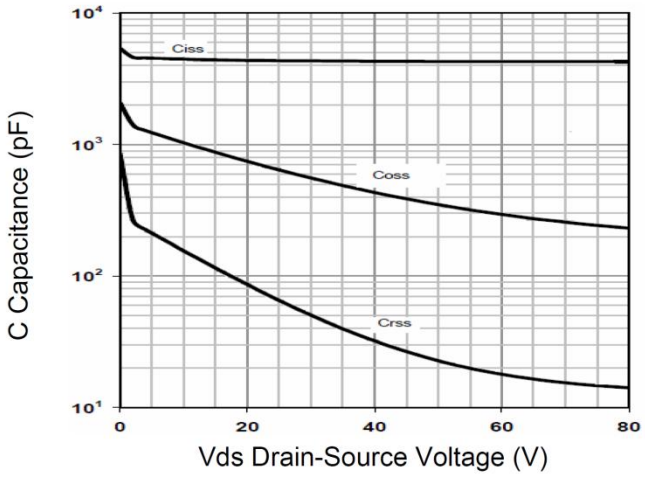
Gate Charge



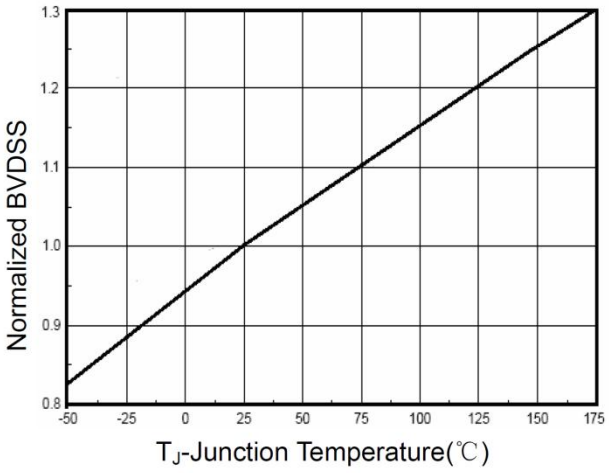
Rdson- Drain Current



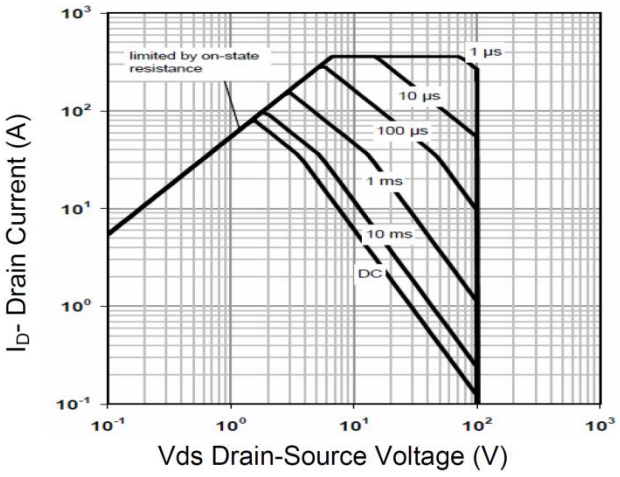
Source- Drain Diode Forward



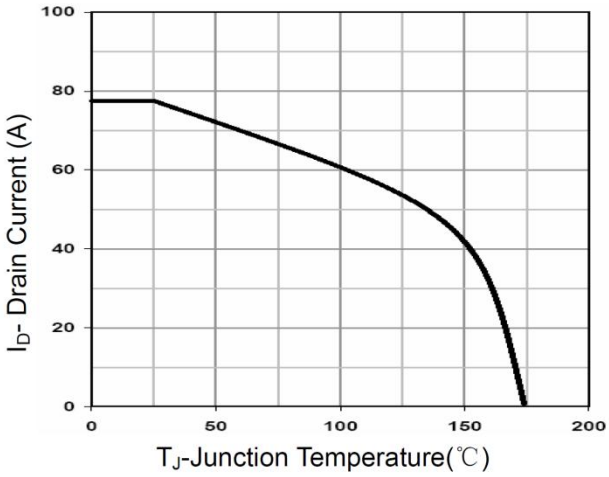
Capacitance vs Vds



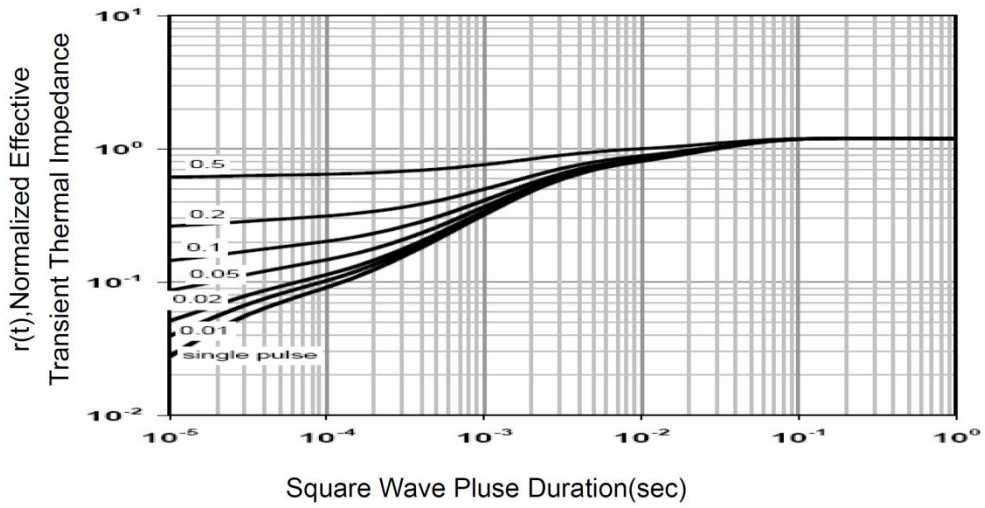
BV_{DSS} vs Junction Temperature



Safe Operation Area

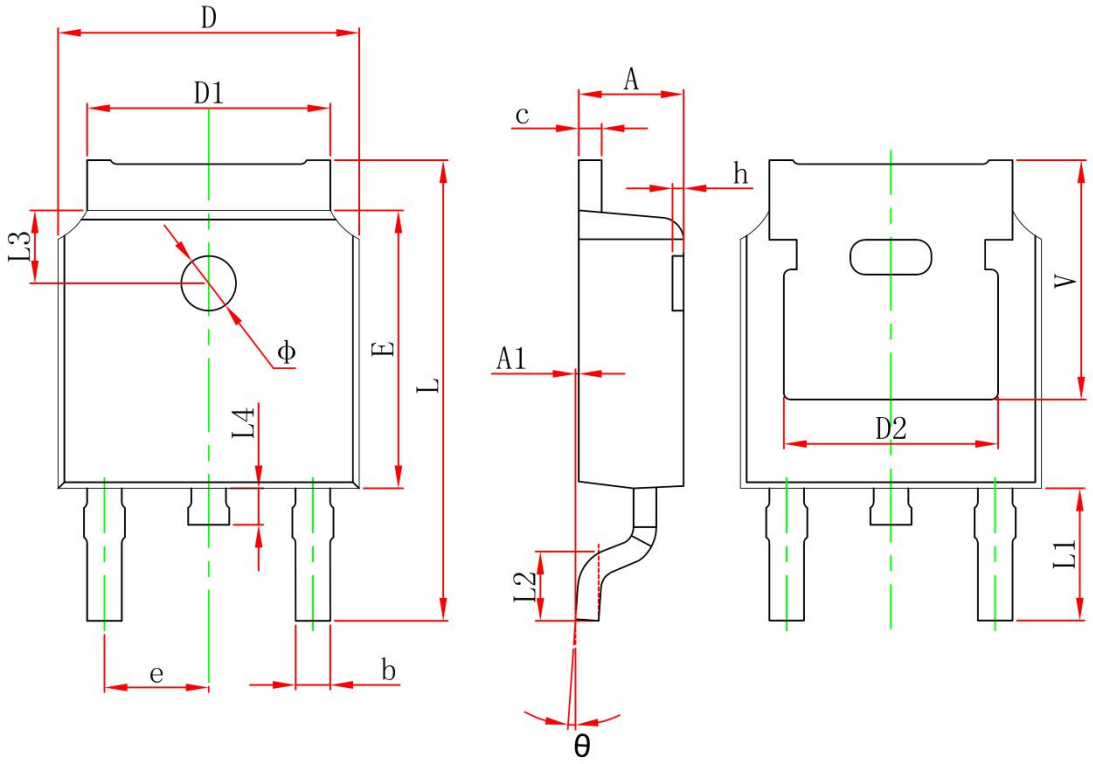


Current De-rating



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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