

REASUNOS

RS100N15D

N Channel MOSFET



Lead Free Package and Finish

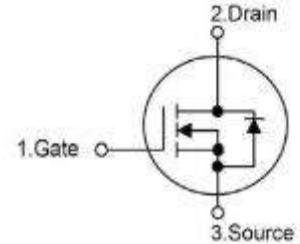
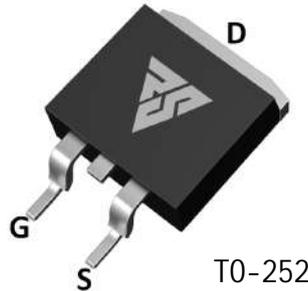
Applications:

- PWM applications
- Load switch
- Power management

I_D	$R_{DS(ON)}(Max.)$	V_{DSS}
15A	115m Ω	100V

Features:

- $V_{DS}=100V$; $I_D=15A$
 $R_{DS(ON)} < 115m\Omega @ V_{GS} = 10V$
 $R_{ds(on)} < 130m\Omega @ V_{GS} = 4.5V$
- Ultra Low On-Resistance
- RoHS Compliant



NottoScale

Ordering Information

Part Number	Package	Marking
RS100N15D	TO-252	RS100N15D

Absolute Maximum Ratings $T_c=25^\circ C$ unless otherwise specified

Symbol	Parameter	RS100N15D	Units
V_{DSS}	Drain-to-Source Voltage	100	V
I_D	Continuous Drain Current ($T_c=25^\circ C$)	15	A
I_{DM}	Pulsed Drain Current (Note*1)	60	
PD	Power Dissipation ($T_c=25^\circ C$)	50	W
VGS	Gate-to-Source Voltage	± 20	V
EAS	Single Pulse Avalanche Energy	18	mJ
TL TPKG	Maximum Temperature for Soldering	300 260	$^\circ C$
	Leads at 0.063in(1.6mm)from Case for 10 seconds Package Body for 10 seconds		
T_J and T_{STG}	Operating Junction and Storage Temperature Range	-55 to 175	

* Drain Current Limited by Maximum Junction Temperature

Caution: Stresses greater than those listed in the "Absolute Maximum Ratings" Table may cause permanent damage to the device .

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RS100N15D

OFF Characteristics $T_J=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain-to-source Breakdown Voltage	100	--	--	V	$V_{GS}=0V, I_D=250\mu A$
IDSS	Drain-to-Source Leakage Current	--	--	1	μA	$V_{DS}=100V, V_{GS}=0V$
IGSS	Gate-to-Source Forward Leakage	--	--	100	nA	$V_{GS}=+20V, V_{DS}=0V$
	Gate-to-Source Reverse Leakage	--	--	-100		$V_{GS}=-20V, V_{DS}=0V$

ON Characteristics $T_J=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain-to-Source On-Resistance (Note*3)	--	85	115	$m\Omega$	$V_{GS}=10V, I_D=10A$
		--	100	130	$m\Omega$	$V_{GS}=4.5V, I_D=8A$
VGS(TH)	Gate Threshold Voltage	1	2	3	V	$V_{GS}=V_{DS}, I_D=250\mu A$

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
td(ON)	Turn-on Delay Time	--	25	--	nS	$V_{DS}=50V$ $V_{GS}=10V$ $R_L=6.4\Omega$ $R_G=3\Omega$
trise	Rise Time	--	430	--		
td(OFF)	Turn-OFF Delay Time	--	45	--		
tfall	Fall Time	--	92	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	830	--	PF	$V_{GS}=0V$ $V_{DS}=50$ $V_f=1.0MHz$
Coss	Output Capacitance	--	44	--		
Crss	Reverse Transfer Capacitance	--	30	--		
Qg	Total Gate Charge	--	22	--	nC	$V_{DS}=50V$ $I_D=10A$ $V_{GS}=10V$
Qgs	Gate-to-Source Charge	--	2.9	--		
Qgd	Gate-to-Drain("Miller") Charge	--	6.2	--		

Source-Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
ISD	Source-Drain Current(Body Diode)	--	--	15	A	
ISDM	Pulsed Source-Drain Current(Body Diode)	--	--	60	A	Maximum Pulsed Drain to Source Diode Forward Current
VSD	Diode Forward Voltage	--	--	1.2	V	IS=15A, VGS=0V

Notes:

*1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

Typical Electrical and Thermal Characteristics (Curves)

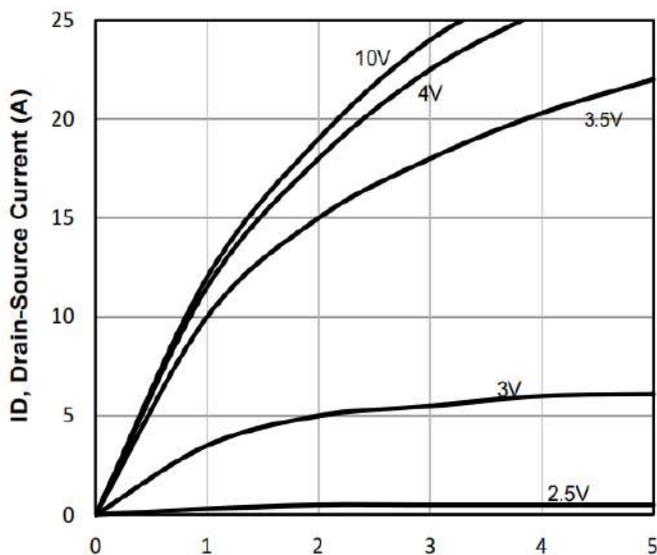


Fig1. Typical Output Characteristics

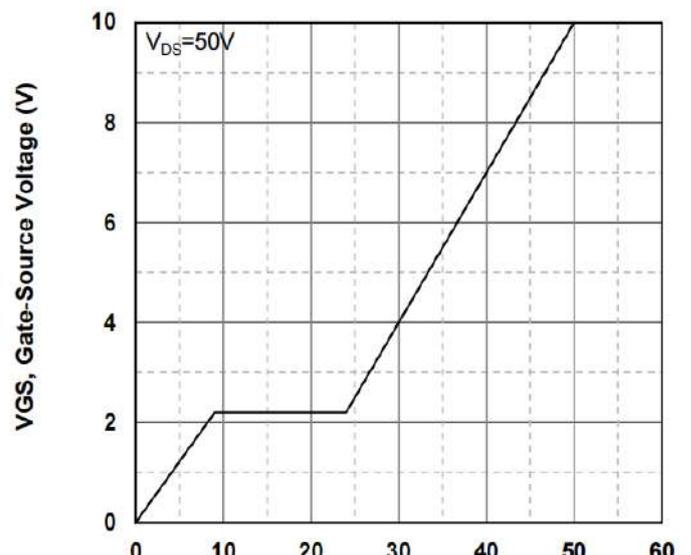
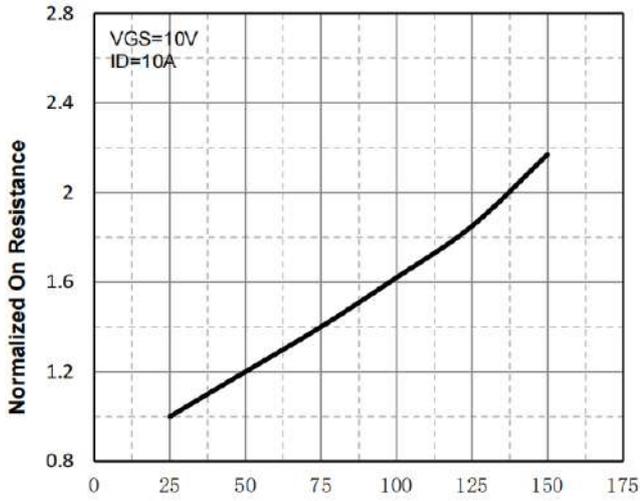
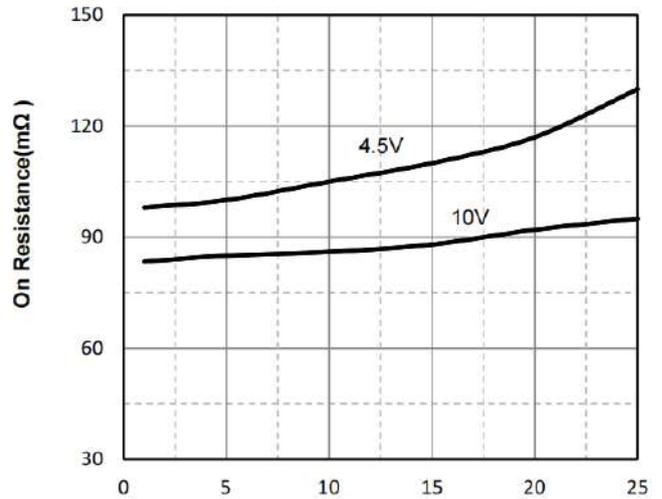


Fig2. Typical Gate Charge Vs. Gate-Source Voltage



Tj - Junction Temperature (°C)
Fig3. Normalized On-Resistance Vs. Temperature



ID, Drain-Source Current (A)
Fig4. On-Resistance Vs. Drain-Source Current

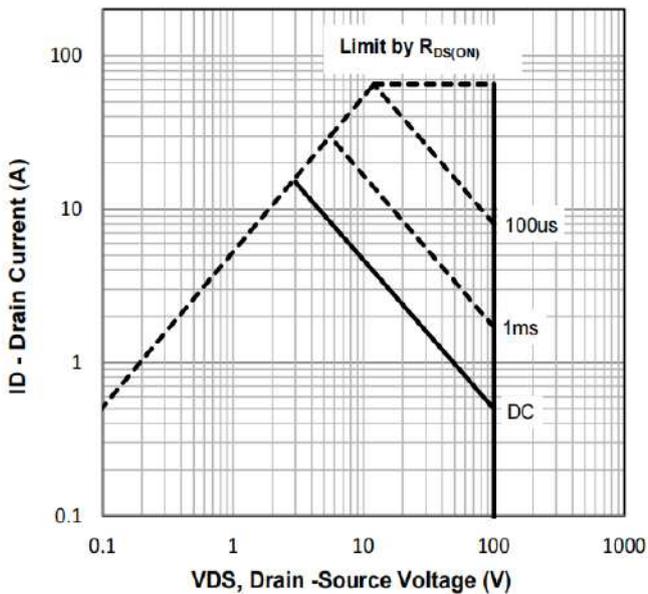


Fig5. Maximum Safe Operating Area

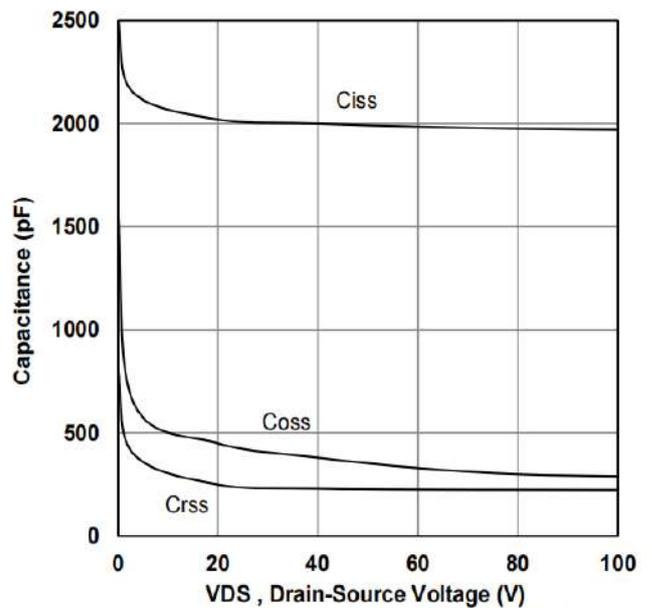
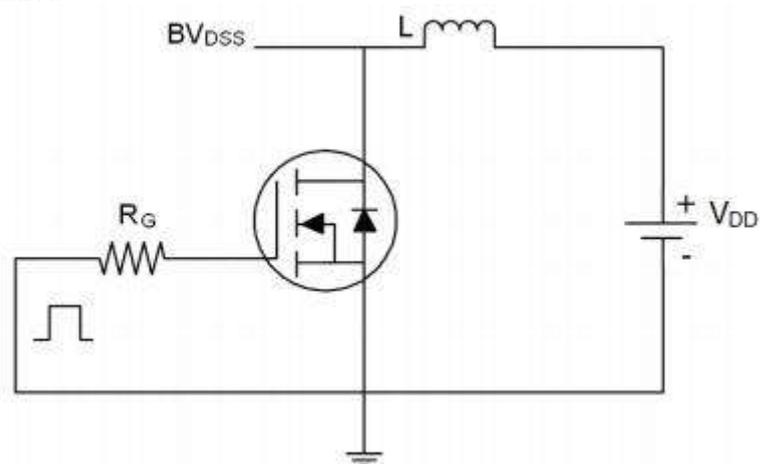


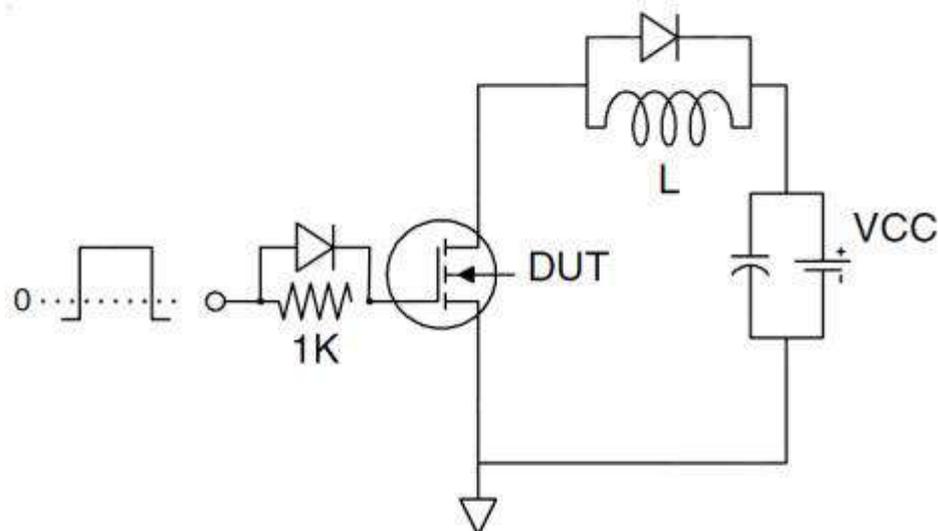
Fig6 Typical Capacitance Vs. Drain-Source Voltage

Test Circuit

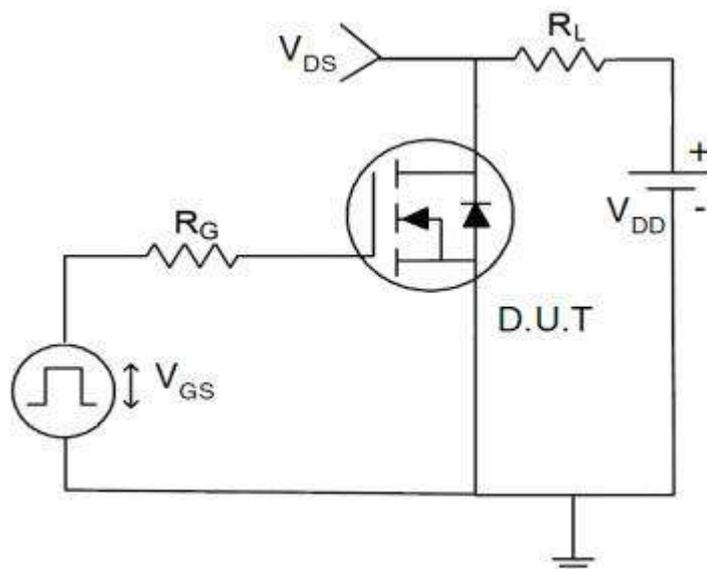
1) EAS test Circuit



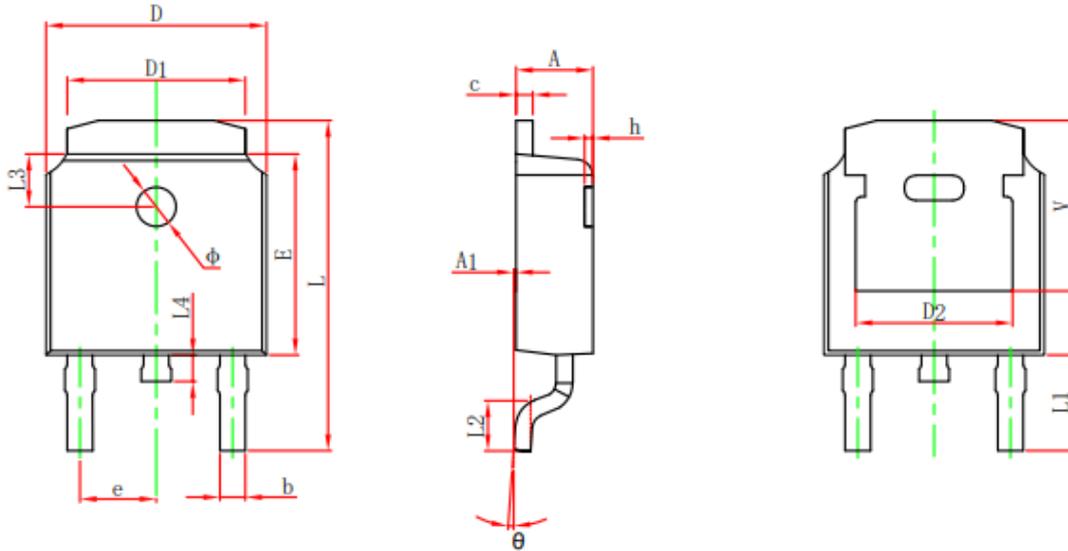
2) Gate charge test Circuit



3) Switch Time Test Circuit



Package outline drawing



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	0.635	0.770	0.025	0.030
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	9.712	10.312	0.382	0.406
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	5.250 REF.		0.207 REF.	

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