REASUNOS

RS100N25D

N Channel MOSFET

Lead Free Package and Finish
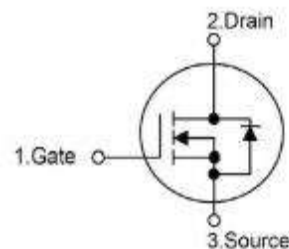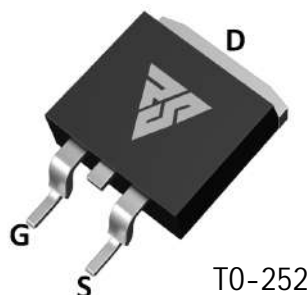
Applications:

• PWM applications

• Load switch

• Power management

ID	RDS(ON)(Max.)	VDSS
25A	40mΩ	100V

Features:

• V_{DS}=100V; I_D=25A
  $R_{DS(ON)}$ < 40mΩ @ V_{GS} =10V

• Ultra Low On-Resistance

• RoHS Compliant

TO-252

NottoScale

Ordering Information

Part Number	Package	Marking
RS100N25D	TO-252	RS100N25D

Absolute Maximun Ratings Tc=25℃ unless otherwise specified

Symbol	Parameter	RS100N25D	Units
VDSS	Drain-to-Source Voltage	100	V
ID	Continuous Drain Current （Tc=25℃）	25	A
IDM	Pulsed Drain Current (Note*1)	70	
PD	Power Dissipation （Tc=25℃）	70	W
VGS	Gate-to-Source Voltage	±20	V
EAS	Single Pulse Avalanche Engergy	29.5	mJ
TL TPKG	Maximum Temperature for Soldering / Leads at 0.063in(1.6mm)from Case for 10 seconds / Package Body for 10 seconds	300 260	℃
TJ and TSTG	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 .

OFF Characteristics TJ=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain-to-source Breakdown Voltage	100	--	--	V	VGS=0V,ID=250µA
IDSS	Drain-to-Source Leakage Current	--	--	1	µA	VDS=100V,VGS=0V
IGSS	Gate-to-Source Forward Leakage	--	--	100	nA	VGS=+20V VDS=0V
	Gate-to-Source Reverse Leakage	--	--	-100		VGS=-20V VDS=0V

ON Characteristics TJ=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain-to-Source On-Resistance (Note*3)	--	33	40	mΩ	VGS=10V,ID=15A
VGS(TH)	Gate Threshold Voltage	1	2	3	V	VGS=VDS,ID=250µA

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
td(ON)	Turn-on Delay Time	--	9	--	nS	VDS=50V VGS=10V RL=5Ω RG=3Ω
trise	Rise Time	--	10	--		
td(OFF)	Turn-OFF Delay Time	--	30	--		
tfall	Fall Time	--	8	--		

Dynamic Characteristics Essentially independent of operating temperature

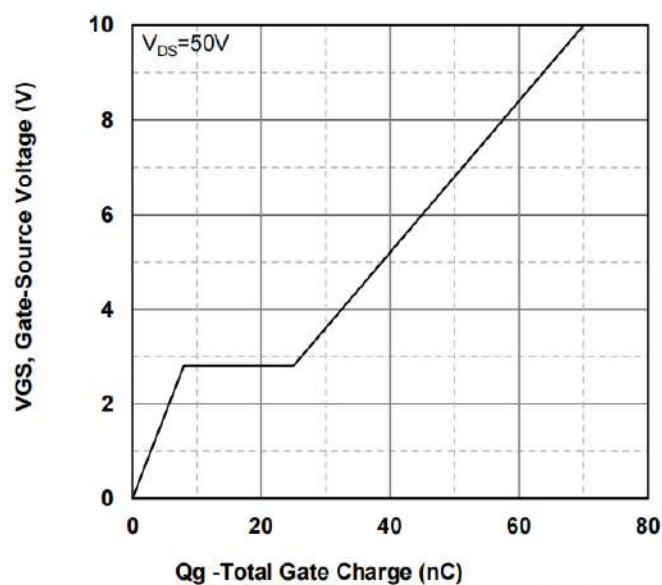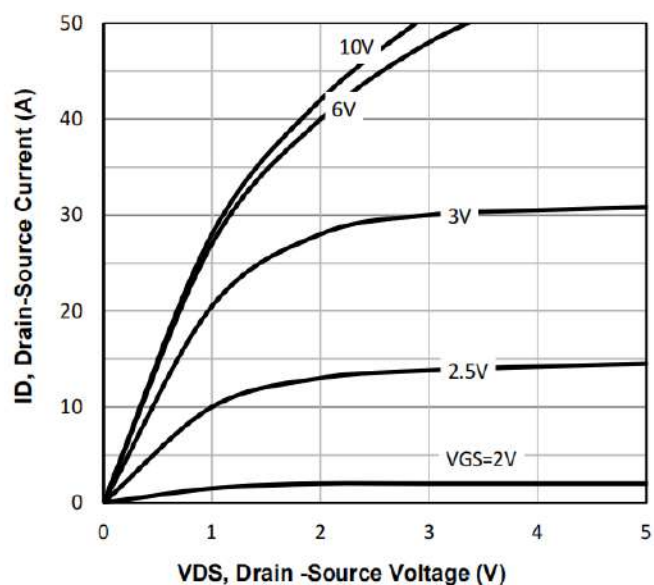| Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	2980	--	pF	VGS=0V VDS=50 Vf=1.0MHz
Coss	Output Capacitance	--	90	--		
Crss	Reverse Transfer Capacitance	--	18.5	--		
Qg	Total Gate Charge	--	70	--	nC	VDS=50V ID=25A VGS=10V
Qgs	Gate-to-Source Charge	--	9	--		
Qgd	Gate-to-Drain("Miller") Charge	--	15	--		

Source-Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
I$_{SD}$	Source-Drain Current(Body Diode)	--	--	25	A	
I$_{SDM}$	Pulsed Source-Drain Current(Body Diode)	--	--	70	A	Maximum Pulsed Drain to Source Diode Forward Current
V$_{SD}$	Diode Forward Voltage	--	--	1.2	V	IS=30A,VGS=0V

Notes:

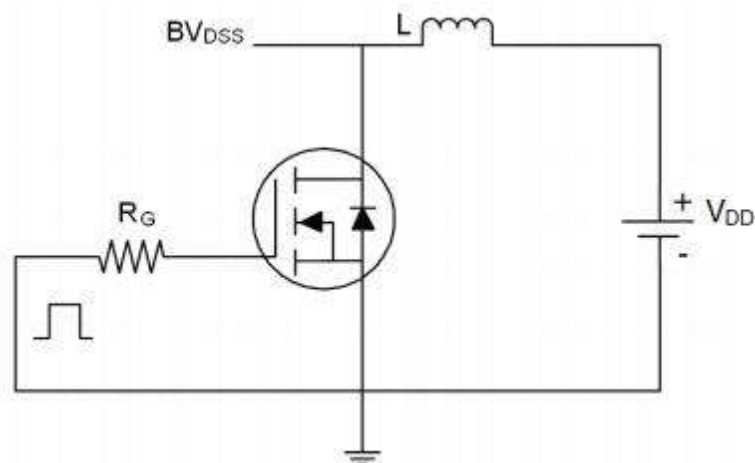*1. Repetitive Rating: Pulse W idth Limited by Maximum Junction Temperature

Typical Electrical and Thermal Characteristics (Curves)

Fig1. Typical Output Characteristics

Fig2. Typical Gate Charge Vs.Gate-Source Voltage

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Fig3. Normalized On-Resistance Vs. Temperature

Fig4. On-Resistance Vs. Drain-Source Current

Fig5. Maximum Safe Operating Area

Fig6 Typical Capacitance Vs.Drain-Source Voltage
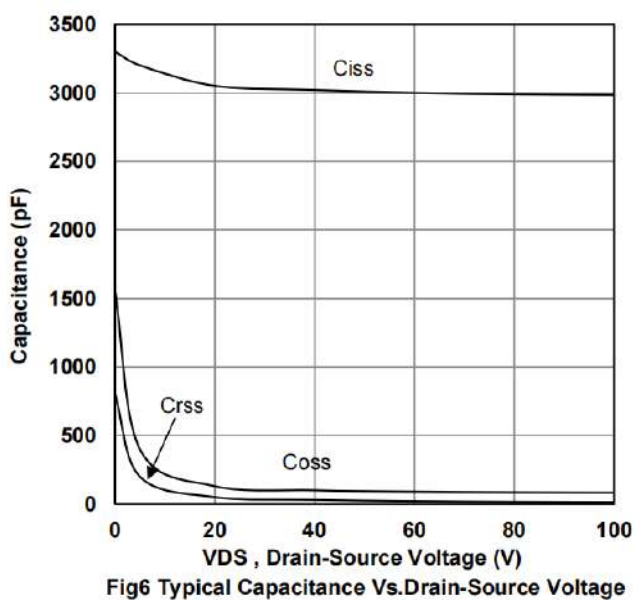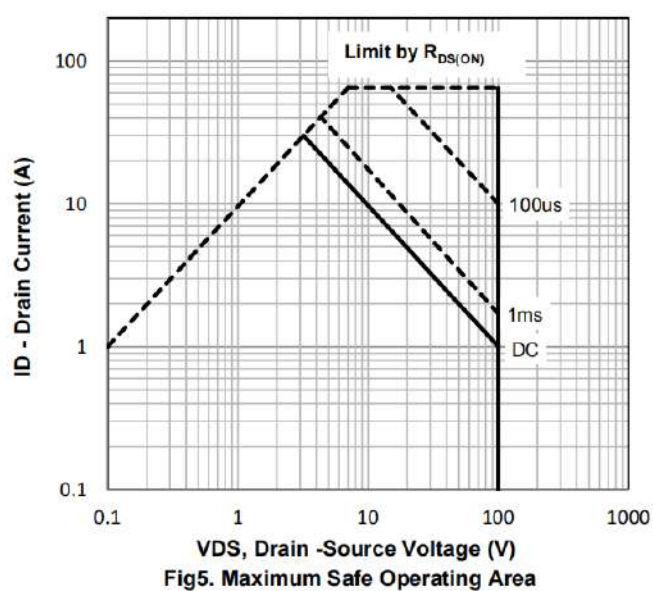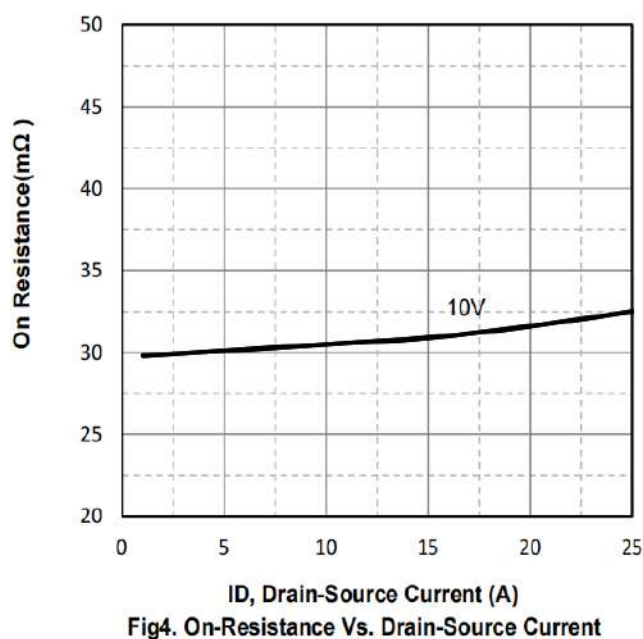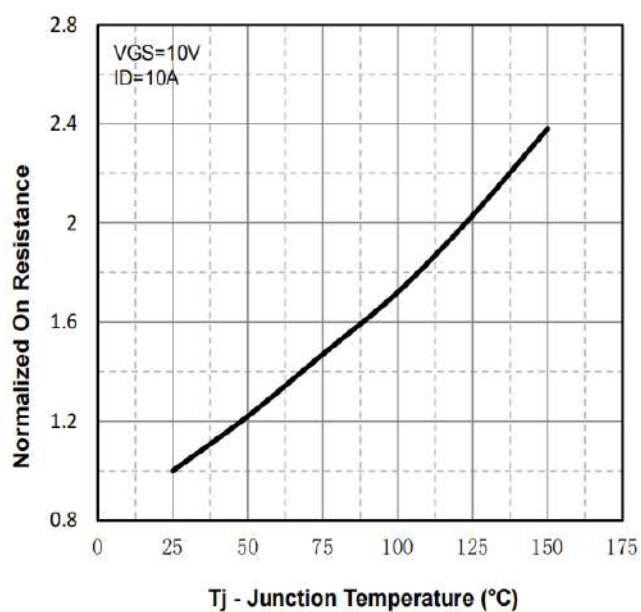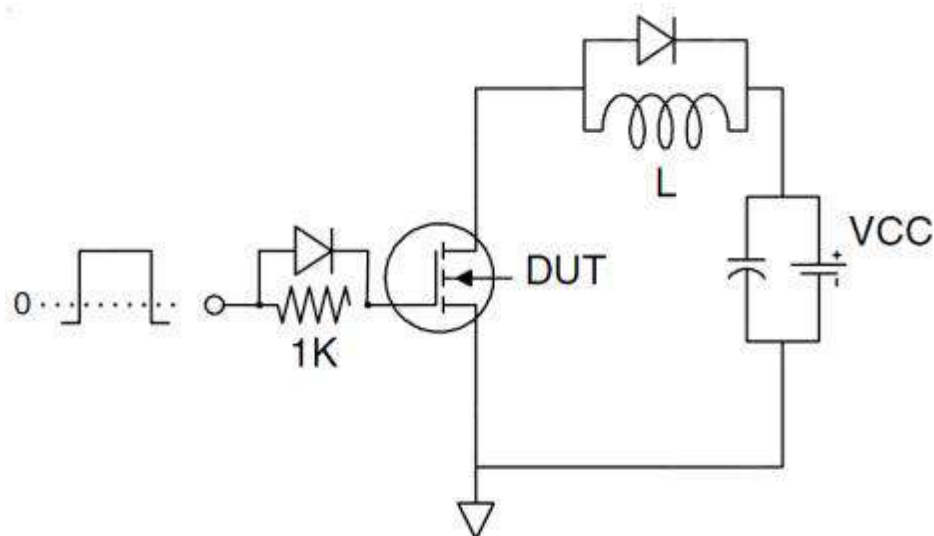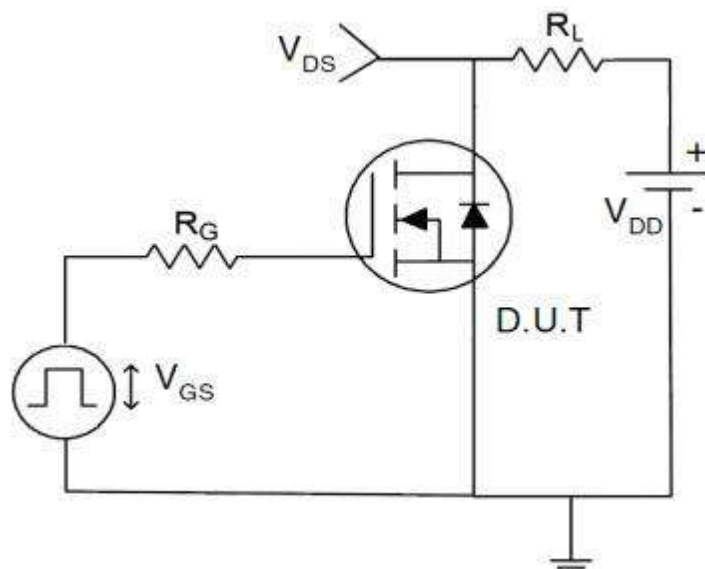
Test Circuit
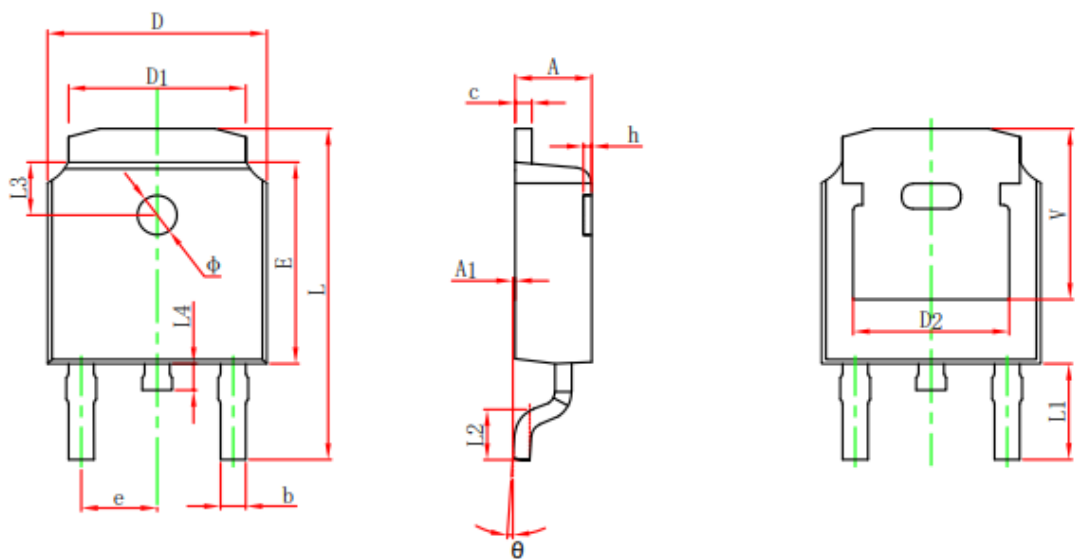
1) EAS test Circuit

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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