Features

- High-Speed Switching
- Low RDS(ON)
- Low Gate Charge
- Capable of 4.5 V Gate Drive
- RoHS and Halogen-Free Compliant
- 100% UIS and RG Tested

Product Summary

V_{DS}	150	V
I_D	18	A
$R_{DS(ON),Typ}$@10V	54	mΩ
$R_{DS(ON),Typ}$@4.5V	62	mΩ
Q_g	8	nC

Applications

- Synchronus Rectification
- Industrial and Motor Drive
- DC/DC and AC/DC Converters

Package

Gate： 1
Drain： 2
Source： 3
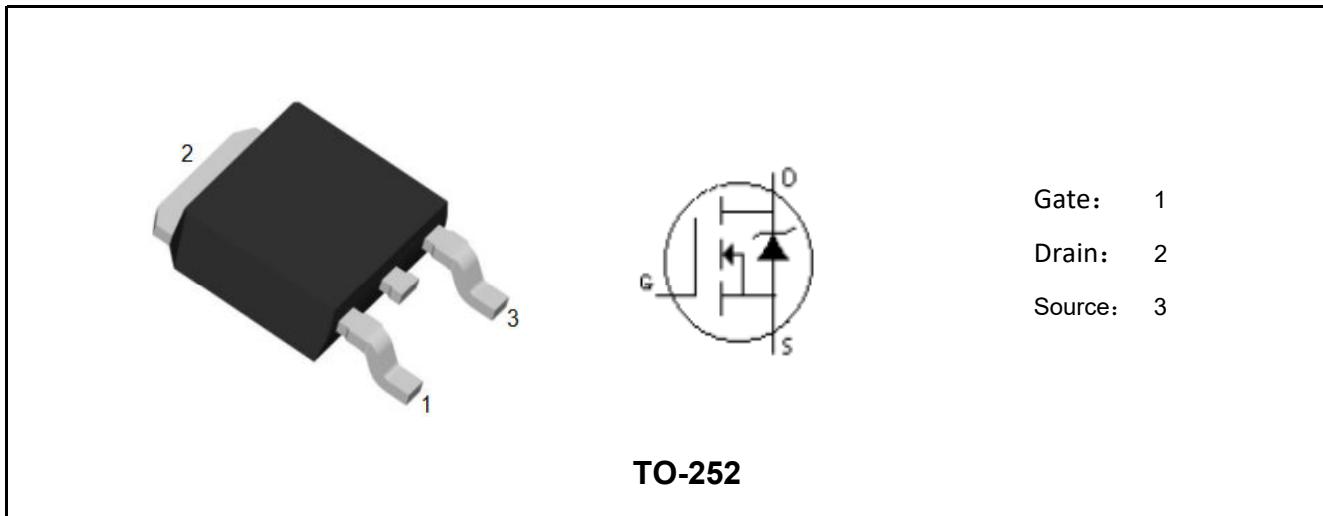
TO-252

Ordering information

Marking	Package	Packaging	Min. package quantity
LX252F18N15	TO-252	Tape & Reel	3000

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Products and Solutions**

Absolute Maximum Ratings(T_C=25℃ unless otherwise noted)

Parameter			Symbol	Ratings	Unit
Drain-Source Voltage			V_{DS}	150	V
Gate-Source Voltage			V_{GS}	±20	V
Continuous Drain Current	T_C=25℃	(Note 1)	I_D	18	A
Continuous Drain Current	T_C=100℃	(Note 1)		12	A
Drain Current-Pulsed		(Note 1)	I_{DM}	60	A
Total Dissipation			P_D	52	W
Junction Temperature			T_j	175	℃
Storage Temperature			T_{stg}	-55-175	℃
Single Pulse Avalanche Energy		(Note 2)	E_{AS}	25	mJ

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Thermal Characteristics

Parameter		Symbol	Max	Unit
Maximum Junction-to-Case		$R_{\theta JC}$	2.9	℃/W
Maximum Junction-to-Ambient	(Note 3)	$R_{\theta JA}$	60	℃/W

Note 1：Ensure that the channel temperature does not exceed 175℃.

Note 2：V_{DD}=50V, T_{ch}= 25℃(initial), L=0.5mH, R_g=25Ω.

Note 3 ：The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25℃. The value in any given application depends on the user's specific board design.

Note:This transistor is sensitive to electrostatic discharge and should be handled with care.

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Electrical Characteristics（T$_C$=25℃ unless otherwise noted)

| Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Static Parameters							
Drain-Source Breakdown Voltage	BV$_{DSS}$	V$_{GS}$=0V,I$_D$=250uA		150	-	-	V
Drain-Source Leakage Current	I$_{DSS}$	V$_{DS}$=150V,V$_{GS}$=0V		-	-	1	uA
Gate-Body Leakage Current	I$_{GSS}$	V$_{GS}$=±20V,V$_{DS}$=0V		-	-	±100	nA
Gate Threshold Voltage	V$_{GS(TH)}$	V$_{GS}$=V$_{DS}$,I$_D$=250uA		1.3	2.1	2.6	V
Drain-Source On Resistance	R$_{DS(ON)}$	V$_{GS}$=4.5V,I$_D$=5A		-	62	80	mΩ
			Tj=125℃	-	122	-	
		V$_{GS}$=10V,I$_D$=10A		-	54	65	
			Tj=125℃	-	105	-	
Dynamic Characteristics							
Input Capacitance	C$_{iss}$	V$_{DS}$=35V,V$_{GS}$=0V, f=1.0MHz		-	630	-	pF
Output Capacitance	C$_{oss}$			-	200	-	pF
Reverse Transfer Capacitance	C$_{rss}$			-	7.5	-	pF
Gate Resistance	R$_g$	V$_{DS}$=0V,V$_{GS}$=0V, f=1.0MHz		-	3.2	-	Ω
Switching Paramters							
Turn-On Delay Time	t$_{d(on)}$	VDD=75V, ID=10A VGS=10V,RG=10Ω		-	8	-	ns
Turn-On Rise Time	t$_r$			-	5	-	ns
Turn-Off Delay Time	t$_{d(off)}$			-	12	-	ns
Turn-Off Rise Time	t$_f$			-	4	-	ns
Total Gate Charge	Q$_g$	VDS=75V , ID=10A, VGS=10V		-	8	-	nC
	Q$_g$ (4.5V)			-	4	-	
Gate-Source Charge	Q$_{gs}$			-	2.5	-	nC
Gate-Drain Charge	Q$_{gd}$			-	0.8	-	nC
Source-Drain Characteristics							
Diode Forward Voltage	V$_{sd}$	V$_{GS}$=0V,I$_S$=10A		-	0.8	1.2	V
Reverse Recovery Time	t$_{rr}$	V$_R$=75V,I$_F$=10A, di/dt=100A/us		-	45	-	ns
Reverse Recovery Charge	Q$_{rr}$			-	55	-	nC

Characteristics Curves
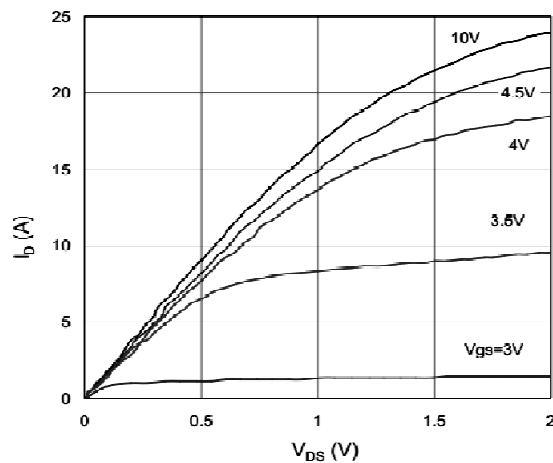

Output Characteritsics
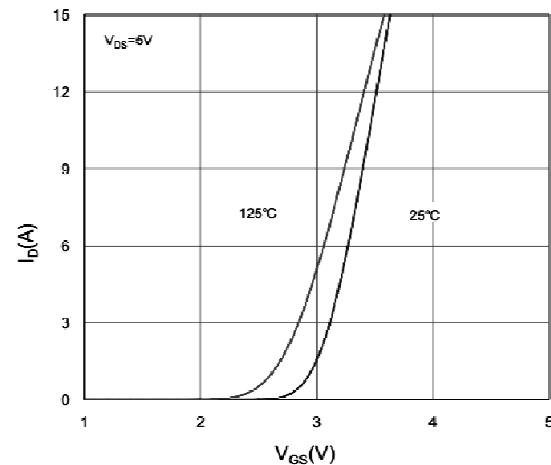

Transfer Characteritsics
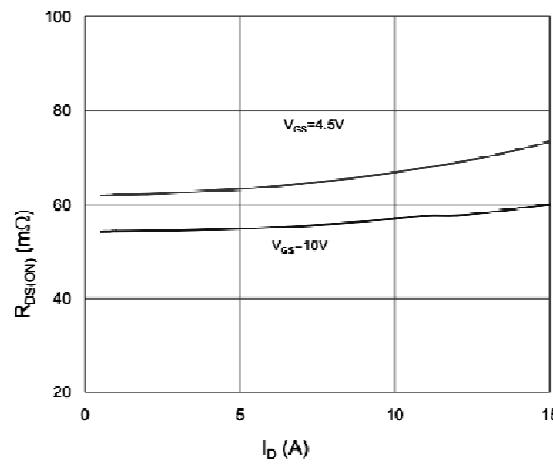
On Resistance Vs Drain Current
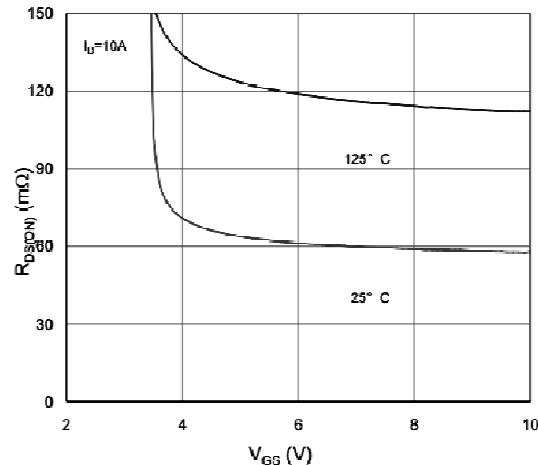
On Resistance Vs Gate Source Voltage
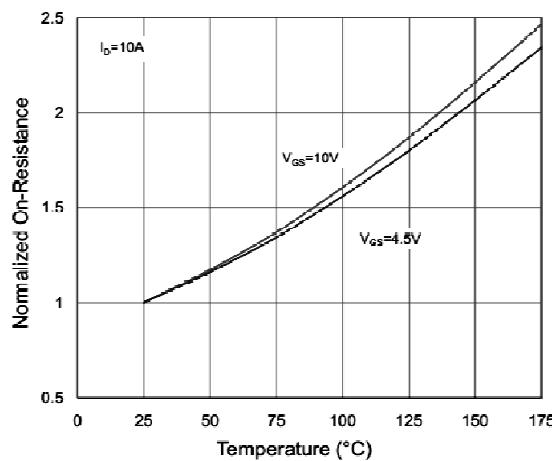
Rdson-JunctionTemperature

Capacitance

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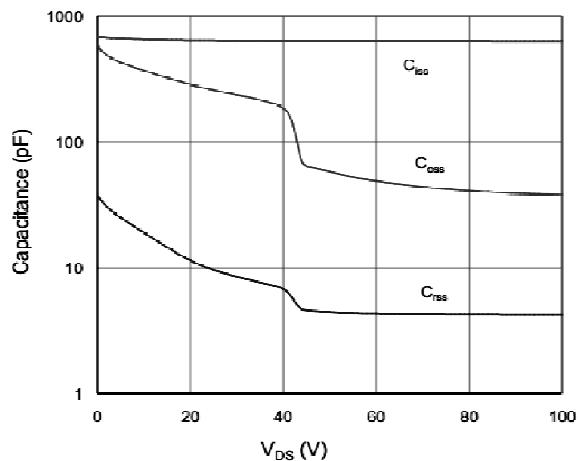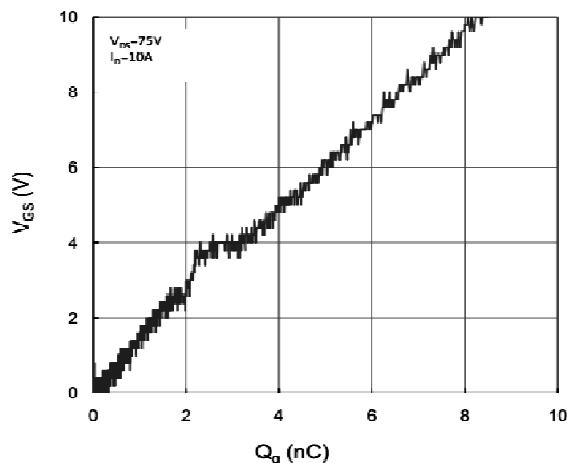
Gate Charge Waveform
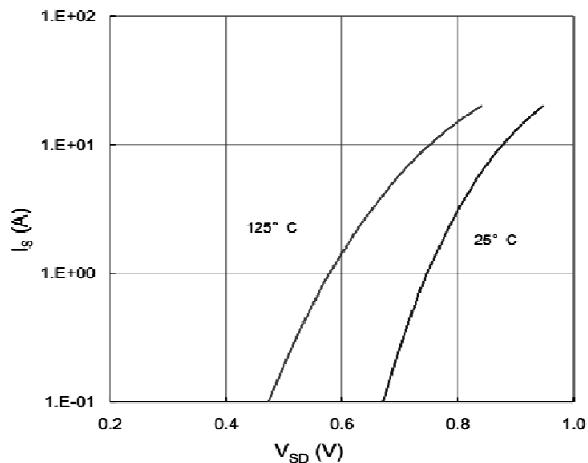

Source-Drain Diode Forward Voltage
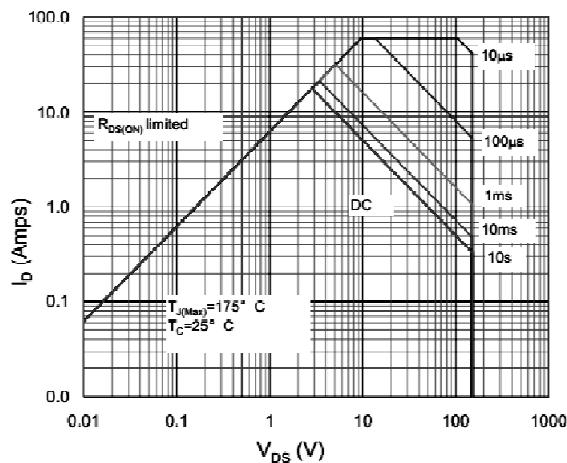

Maximum Safe Operating Area

Note ： The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

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Test Circuit & Waveform

Gate Charge Test Circuit & Waveform
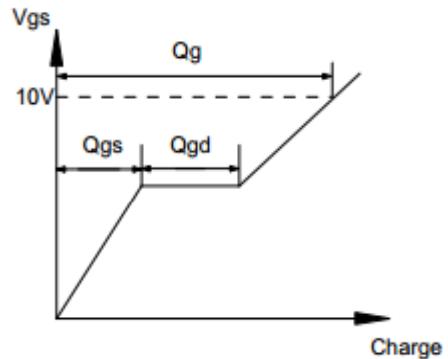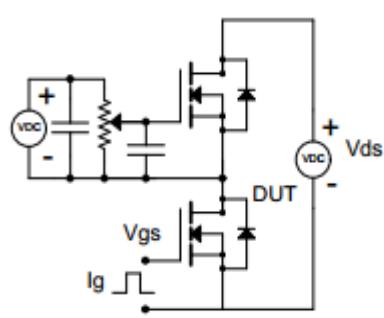
Resistive Switching Test Circuit & Waveform
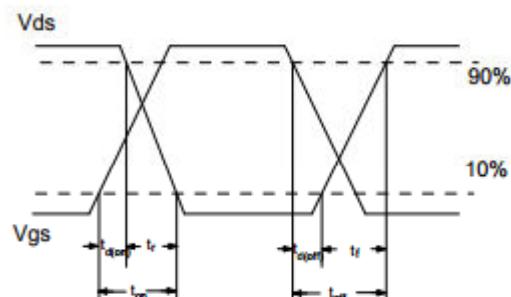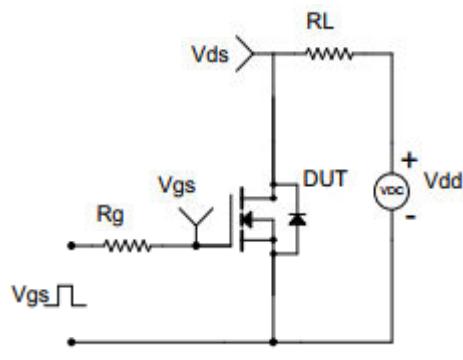
Unclamped Inductive Switching (UIS) Test Circuit & Waveform

$E_{AR} = 1/2\ LI_{AR}^2$

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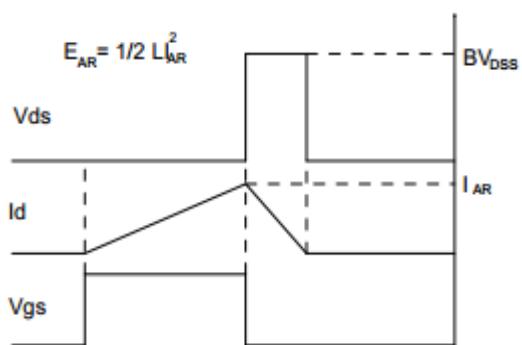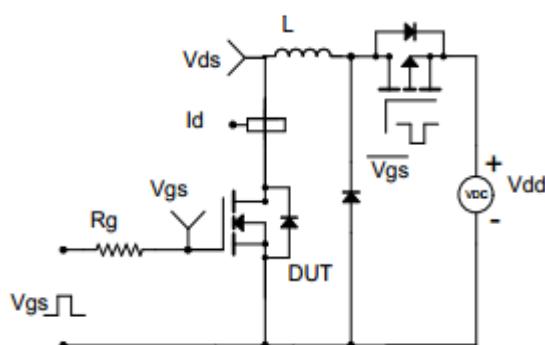
TO-252 Package Dimensions

Unit：mm

Symbol	Min	Nom	Max	Symbol	Min	Nom	Max
A	2.10		2.50	E	5.80		6.30
B	0.80		1.25	e1	2.25	2.30	2.35
b	0.50		0.85	e2	4.45		4.75
b1	0.50		0.90	L1	9.50		10.20
b2	0.45		0.60	L2	0.90		1.45
C	0.45		0.60	L3	0.60		1.10
D	6.35		6.75	K	-0.1		0.10
D1	5.10		5.50				

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