Langxintong

FS2230

N-Channel Enhancement Mode Field Effect Transistor

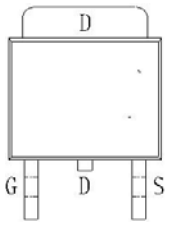
Features

- N-channel, normal leve
- Excellent gate charge x $R_{DS(on)}$ product (FOM)
- Very low on-resistance $R_{DS(on)}$
- 175 °C operating temperature
- Pb-free lead plating; RoHS compliant
- Qualified according to JEDEC for target application
- Ideal for high-frequency switching and synchronous rectification

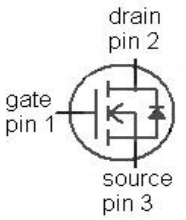
Product Summary

V_{DS}	100	V
$R_{DS(on),max\ (TO252)}$	78	mΩ
$(I_{DM})^b$	52	A

Pin Configurations(TO252)



Top View



Absolute Maximum Ratings TA=25°C unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current(T_J=150°C)[a]	T_A=25°C	I_D	13	A
	T_A=100°C		9	
Pulsed Drain Current [b]		I_{DM}	52	
Avalanche Current [b]	L=0.1mH	I_{AS}	65	
Avalanche energy		E_{AS}	17	mJ
Power Dissipation [a]	T_A=25°C	P_D	31	W
	T_A=70°C		15	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient [a]	t ≤ 5s	$R_{\theta JA}$	78	100	°C/W
	Steady-State		120	150	
Maximum Junction-to-Lead		$R_{\theta JL}$	40	50	

Notes
a、Surface Mounted on 1x1FR4 Board.
b、Pulse width limited maximum junction temperature Pulse test: PW≤300 us duty cycle ≤2%

Electrical Characteristics (T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions		Min	Typ	Max	Units
STATIC PARAMETERS							
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=1mA, V_{GS}=0V		100			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V, V_{GS}=0	T_A=25°C			1	uA
			T_A=70°C			60	
I_{GSS}	Gate-Body leakage current	V_{DS}=0V, V_{GS}=±20V				±0.1	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=250μA		2		4	V
$I_{D(ON)}$	On state drain current [a]	V_{GS}=10V, V_{DS}≥15V		13			A
$R_{DS(ON)}$	Static Drain-Source On-Resistance[a]	V_{GS}=10V, I_D=13A				78	mΩ
		V_{GS}=8V, I_D=13A				100	
g_{FS}	Forward Trans conductance[a]	V_{DS}=15V, I_D=10A		7	13		S
V_{SD}	Diode Forward Voltage	I_S=13A,V_{GS}=0V		0.3		1.2	V
I_S	Maximum Body-Diode Continuous Current					3	A
Dynamic[b]							
C_{iss}	Input capacitance	V_{GS}=0V,V_{DS}=50V,f=1MHz			538	716	pF
C_{oss}	Output capacitance				76	101	
C_{rss}	Reverse transfer capacitance				8	12	
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=50V, I_D=13A,R_G=2.4 Ω			8	11	nC
Q_{gs}	Gate - Source Charge				3	4	
Q_{gd}	Gate - Drain Charge				2	3	
R_g	Gate resistance			0.5		2.5	Ω
Switching							
$t_{D(on)}$	Turn-On Delay Time	V_{GS}=10V, V_{DS}=50V, R_L=30Ω, R_{GEN}=2.4Ω,I_D=13A			9	13	ns
t_r	Turn-On Rise Time				4	6	
$t_{D(off)}$	Turn-Off Delay Time				13	18	
t_f	Turn-Off Fall Time				3	4	
t_{rr}	Body Diode Reverse Recovery Time	I_F=3A, dI/dt=100A/μs			67	90	

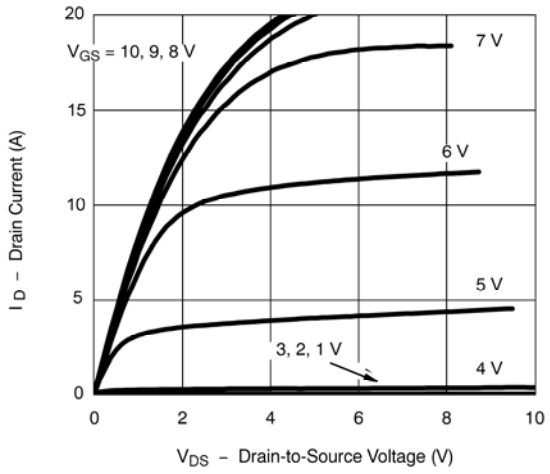
Notes

a. Pulse test: PW≤300 us duty cycle ≤2%

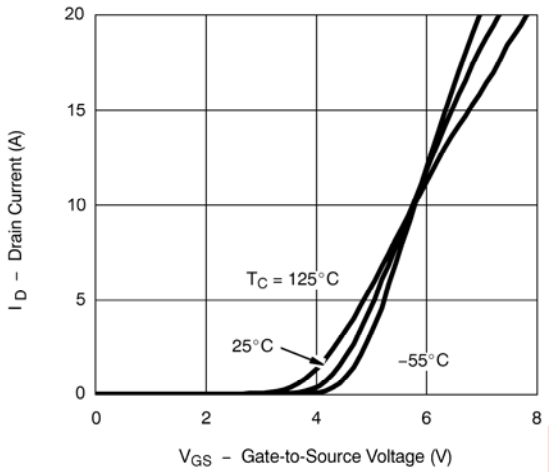
b. Guaranteed by design, not subiect to production testing.

TYPICAL CHARACTERISTICS (25OC UNLESS NOTED)

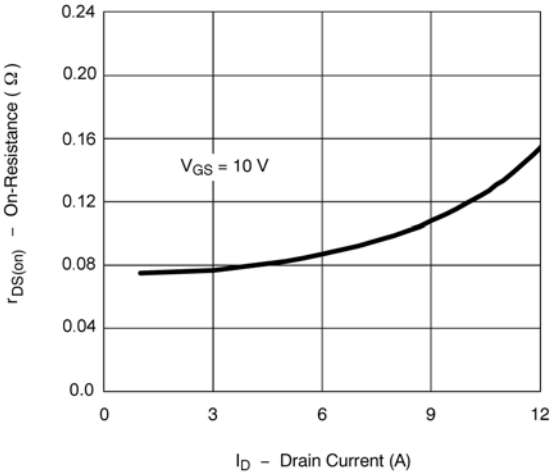
Output Characteristics



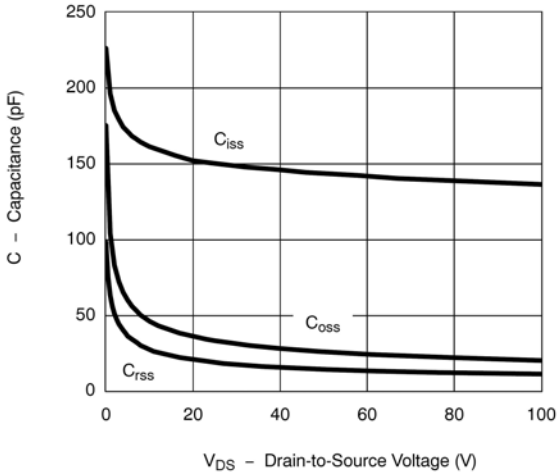
Transfer Characteristics



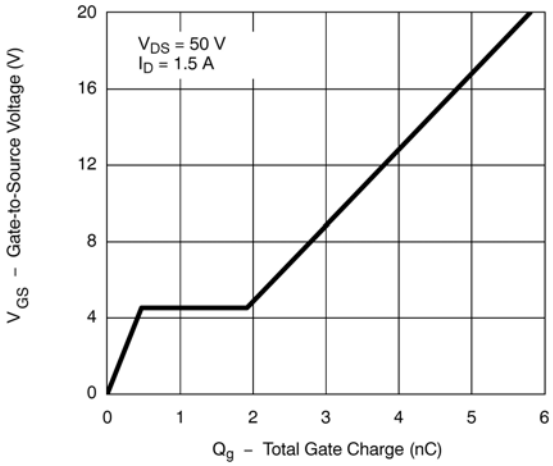
On-Resistance vs. Drain Current



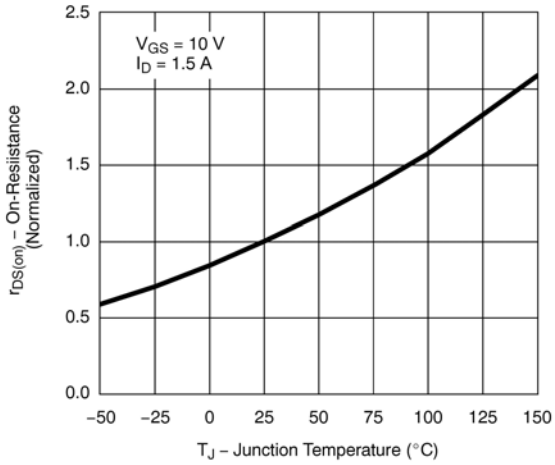
Capacitance



Gate Charge

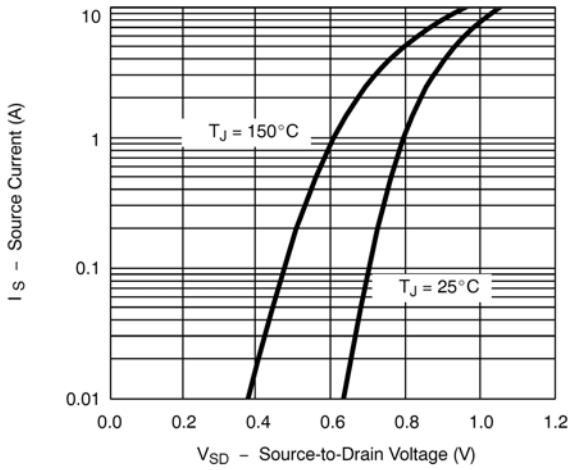


On-Resistance vs. Junction Temperature

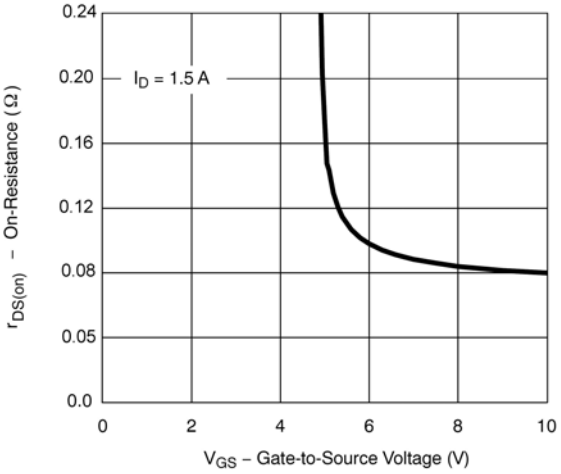


TYPICAL CHARACTERISTICS (25OC UNLESS NOTED)

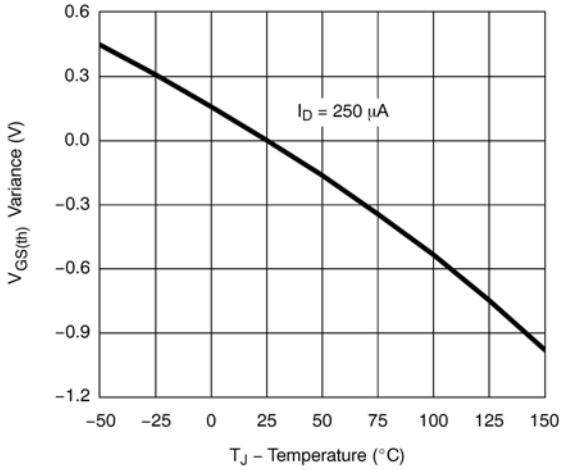
Source-Drain Diode Forward Voltage



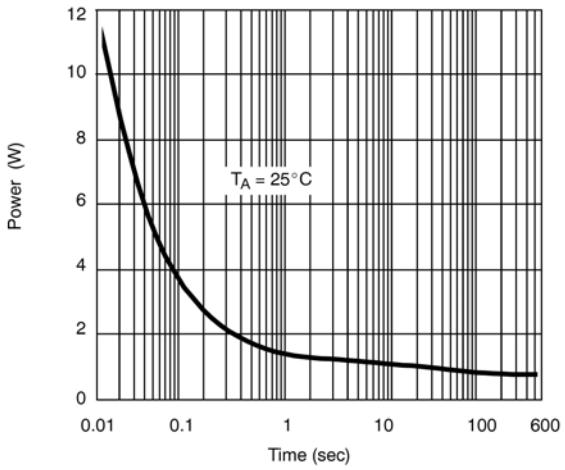
On-Resistance vs. Gate-to-Source Voltage



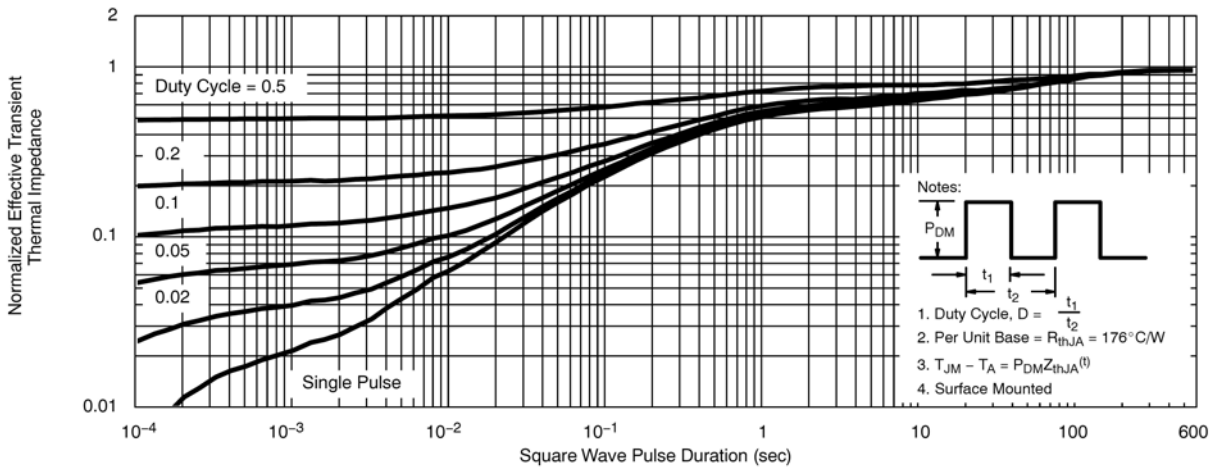
Threshold Voltage



Single Pulse Power

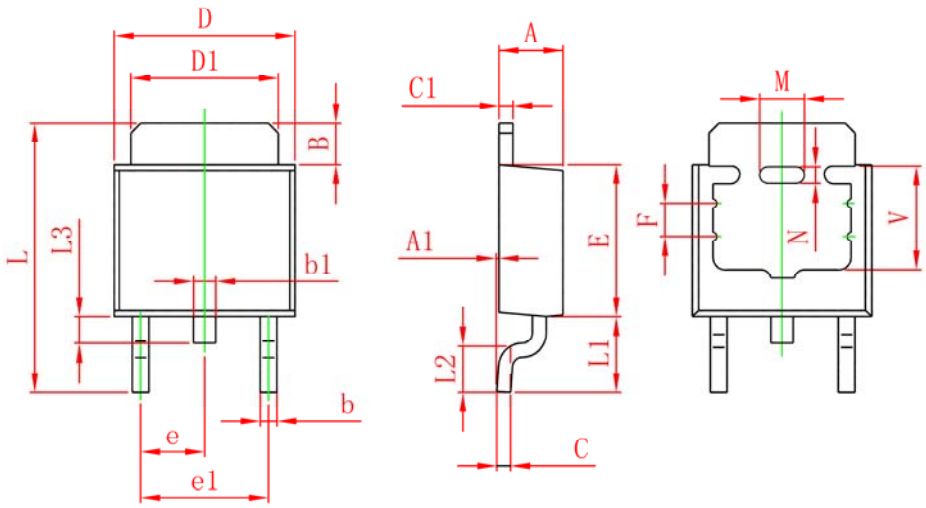


Normalized Thermal Transient Impedance, Junction-to-Ambient



- **Package Information**

TO-252C-2L PACKAGE OUTLINE DIMENSIONS



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	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
F	1.200REF.		0.047REF.	
M	1.600REF.		0.063REF.	
N	0.450REF.		0.018REF.	
L	9.500	9.900	0.374	0.390
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	3.800 REF		0.150 REF	