SOT-23

1. Gate
2. Source
3. Drain

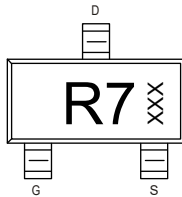| $V_{(BR)DSS}$	$R_{DS(on)}$Typ	I_D Max
-30V	43mΩ@-10V	-4.1A
	66mΩ@-4.5V	

Feature

Low $R_{DS(on)}$ @V_{GS}=-10V

-5V Logic Level Control
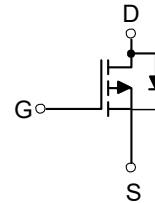
Application

- Load Switch
- Switching circuits
- High-speed line driver
- Power Management Functions

Marking

XXX:Date Code

Equivalent Circuit

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-4.1	A
Pulsed Drain Current (Note 1)	I_{DM}	-16.4	A
Power Dissipation(Note 2)	P_D	1.2	W
Thermal Resistance from Junction to Ambient(Note 2)	$R_{\theta JA}$	80	℃/W
Junction Temperature and Storage Temperature	T_J,T_{stg}	-50 ~150	℃

Notes: Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Ta = 25℃ unless otherwise specified

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-30	--	--	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-30V, V_{GS}=0V	--	--	-1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-1.2	-1.6	-2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance(Note 3)	V_{GS}=-10V, I_D=-4A	--	43	55	mΩ
		V_{GS}=-4.5V, I_D=-3A	--	66	80	mΩ

Dynamic Electrical Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
C_{iss}	Input Capacitance	V_{DS}=-15V	--	493	--	pF
C_{oss}	Output Capacitance	V_{GS}=0V	--	65	--	pF
C_{rss}	Reverse Transfer Capacitance	f=1MHz	--	44	--	pF
Q_g	Total Gate Charge	V_{DS}=-15V	--	8.2	--	nC
Q_{gs}	Gate Source Charge	V_{GS}=-10V	--	0.8	--	nC
Q_{gd}	Gate Drain Charge	I_D=-4A	--	2.7	--	nC

Switching Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$t_{d(on)}$	Turn on Delay Time	V_{DS}=-15V	--	7.2	--	ns
t_r	Turn on Rise Time	V_{GS}=-10V	--	4.8	--	ns
$t_{d(off)}$	Turn Off Delay Time	I_D=-1A	--	25	--	ns
t_f	Turn Off Fall Time	R_G=3.3Ω	--	8.5	--	ns

Source Drain Diode Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
I_{SD}	Source drain current(Body Diode)	T_A=25℃	--	--	-2	A
V_{SD}	Drain-Source Diode Forward Voltage	I_S=-1A, V_{GS}=0V	--	-0.88	-1.2	V

Notes:
1. Pulse width limited by maximum allowable junction temperature
2. The value of P_D&$R_{θJA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz.Copper, double sided, in a still air environment with Ta=25℃.
3. Pulse test ; Pulse width≤300us, duty cycle≤2%
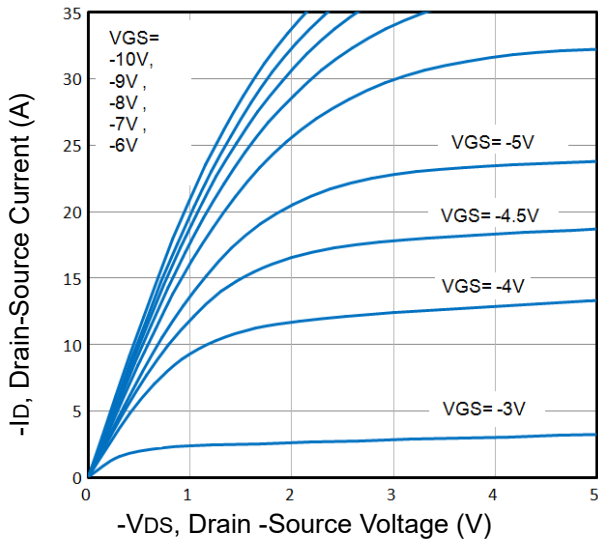
Typical Characteristics

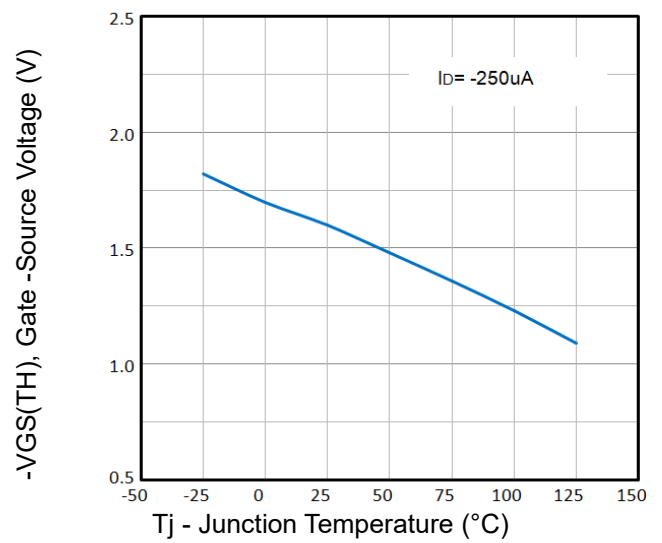**Fig1.** Typical Output Characteristics

Fig2. Normalized Threshold Voltage Vs. Temperature
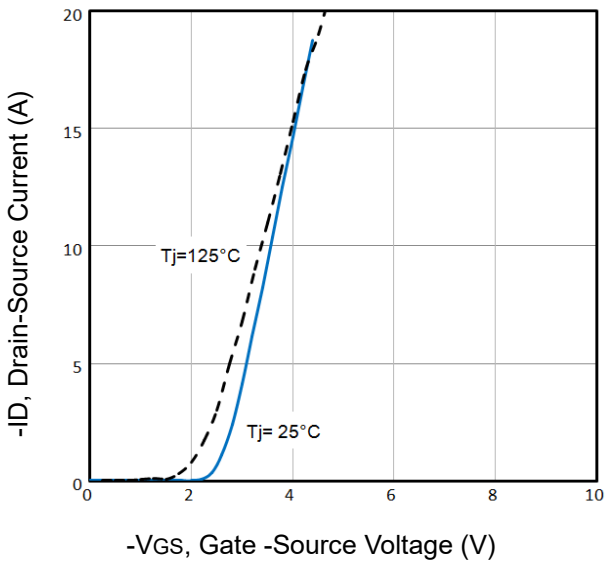

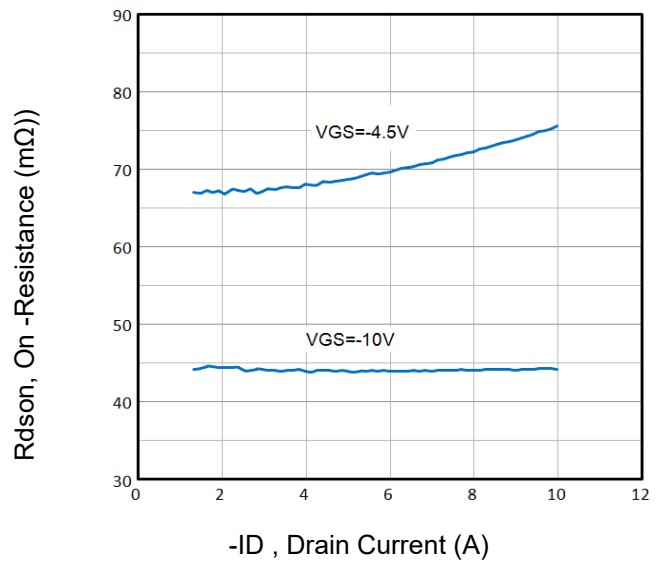**Fig3.** Typical Transfer Characteristics

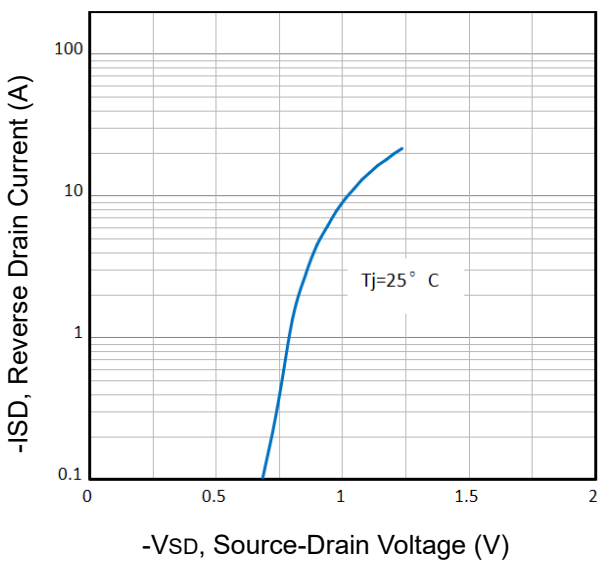**Fig4.** On-Resistance vs. Drain Current and Gate

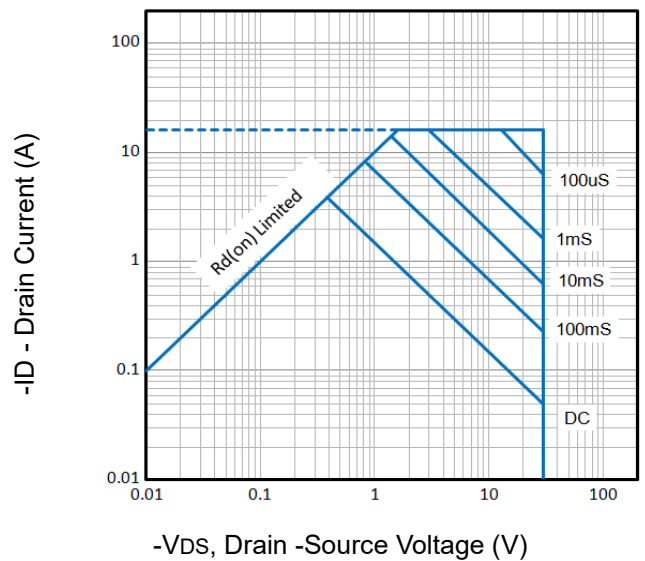**Fig5.** Typical Source-Drain Diode Forward Voltage

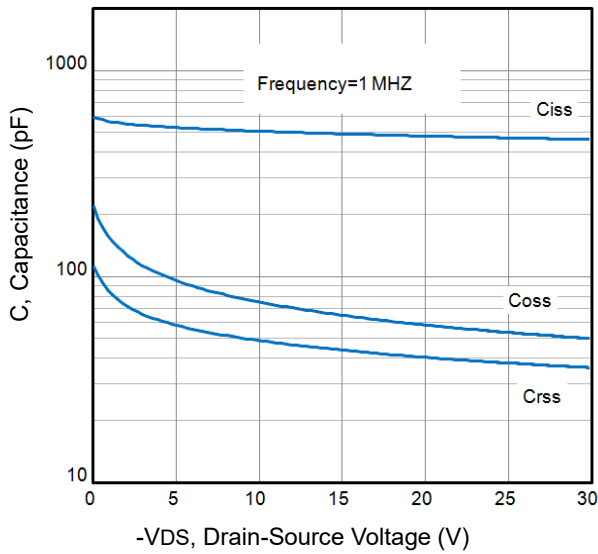**Fig6.** Maximum Safe Operating Area

Typical Characteristics
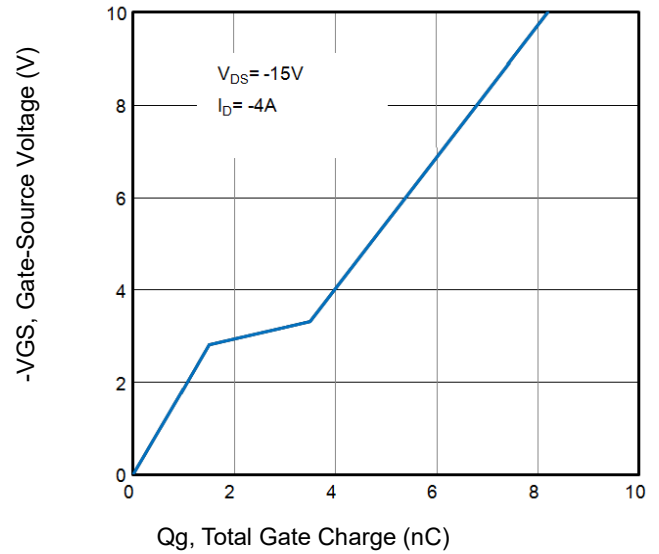

Fig7. Typical Capacitance Vs. Drain-Source Voltage

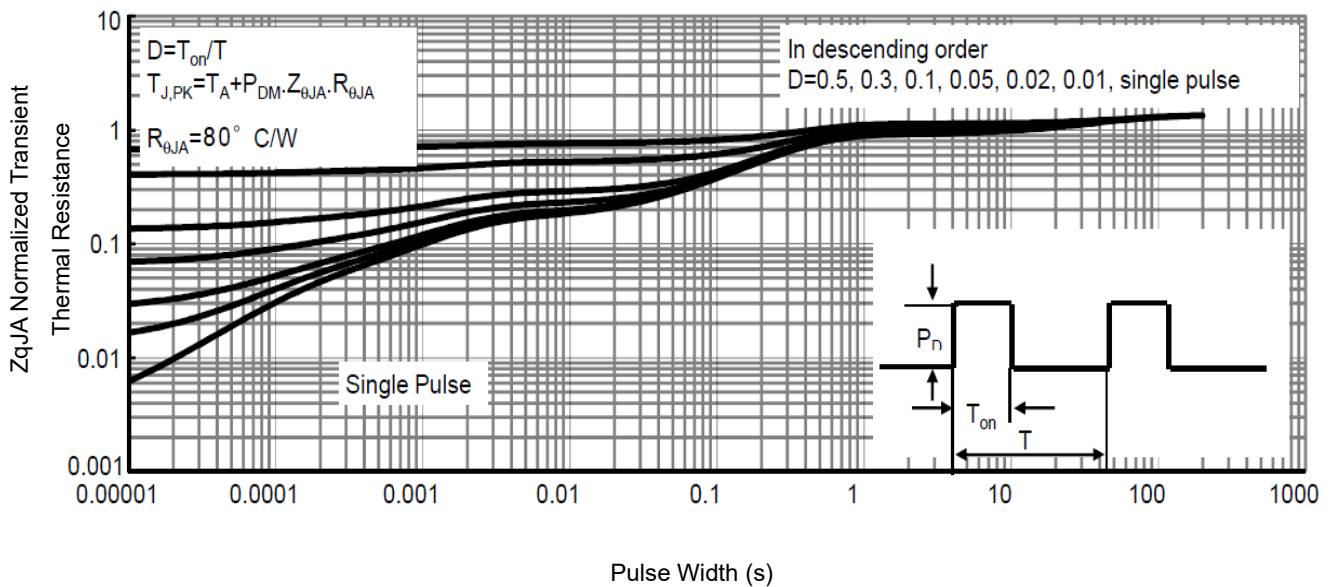**Fig8.** Typical Gate Charge Vs. Gate-Source Voltage

Pulse Width (s)

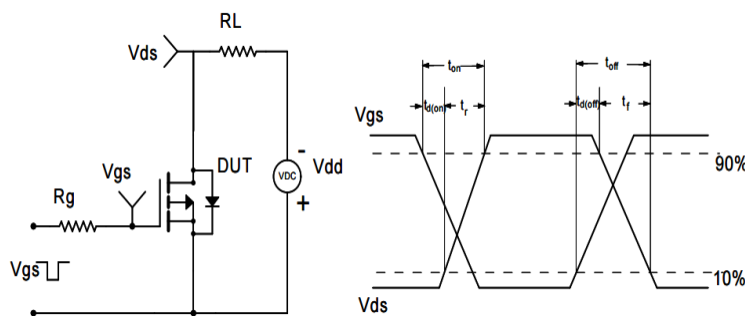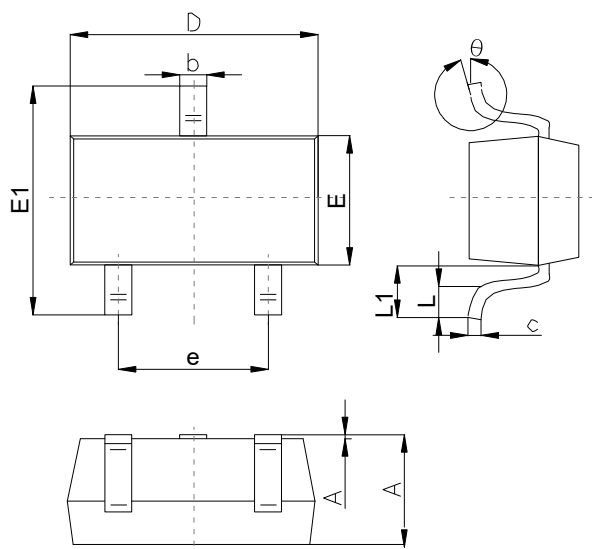**Fig9.** Normalized Maximum Transient Thermal Impedance
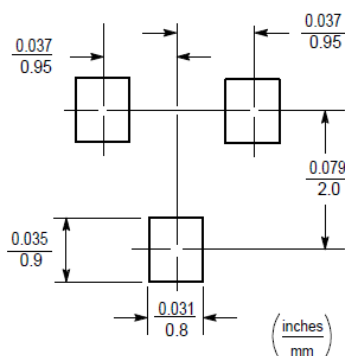

Fig10. Switching Time Test Circuit and waveforms

Outlitne Drawing

SOT-23 Package Outline Dimensions

Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	0.90		1.40
A1	0.00		0.10
b	0.30		0.50
c	0.08		0.20
D	2.80	2.90	3.10
E	1.20		1.60
E1	2.25		2.80
e	1.80	1.90	2.00
L	0.10		0.50
L1	0.4		0.55
θ	0°		10°

Suggested Pad Layout

Note:

1.Controlling dimension:in/millimeters.

2.General tolerance: ±0.05mm.

3.The pad layout is for reference purposes only.

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