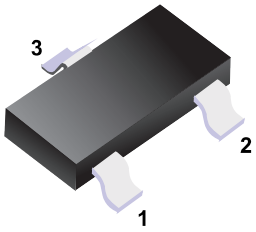
■ N-Channel MOSFET

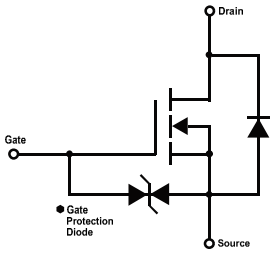


1. Gate
2. Source
3. Drain

■ Features

- $V_{DS\ (V)}$ = 30V
- I_D = 0.1 A
- $R_{DS(ON)}$ < 8Ω (V_{GS} = 4V)
- $R_{DS(ON)}$ < 13Ω (V_{GS} = 2.5V)

■ Simplified outline(SOT-23)



■ Marking

Marking	KN

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	100	mA
Pulsed Drain Current (Note.1)	I_{DM}	400	
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: PW ≤ 10us, Duty Cycle ≤ 1%

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±1	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=3V , I_D=0.1mA	0.8		1.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=4V, I_D=10mA			8	Ω
		V_{GS}=2.5V, I_D=1mA			13	
Forward Transconductance	g_{FS}	V_{DS}=3V, I_D=10mA	20			mS
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=5V, f=1MHz		13		pF
Output Capacitance	C_{oss}			9		
Reverse Transfer Capacitance	C_{rss}			4		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=5V, V_{DS}=5V, I_D=10mA, R_L=500Ω, R_G=10Ω		15		ns
Turn-On Rise Time	t_r			35		
Turn-Off DelayTime	$t_{d(off)}$			80		
Turn-Off Fall Time	t_f			80		

■ Typical Characterisitics

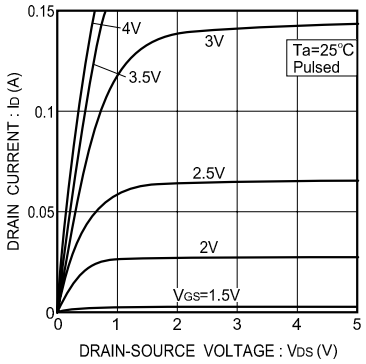


Fig.1 Typical output characteristics

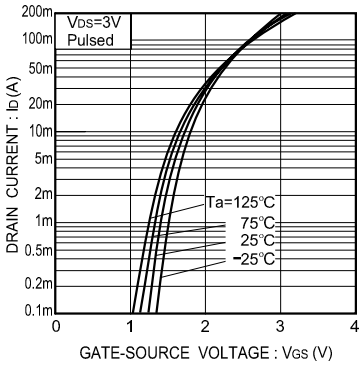


Fig.2 Typical transfer characteristics

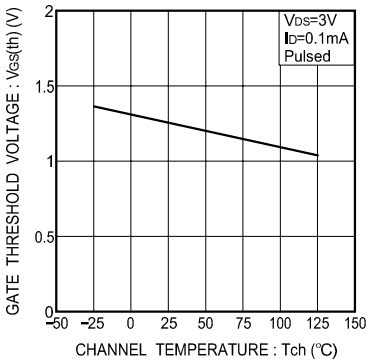


Fig.3 Gate threshold voltage vs. channel temperature

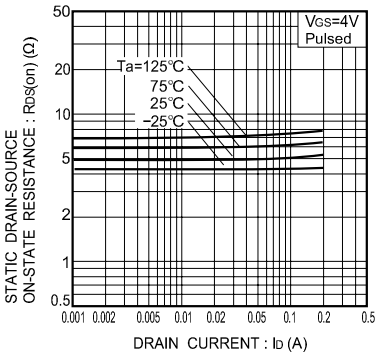


Fig.4 Static drain-source on-state resistance vs. drain current (I)

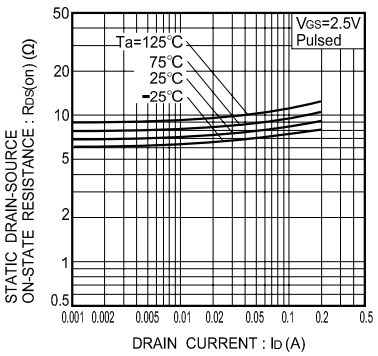


Fig.5 Static drain-source on-state resistance vs. drain current (II)

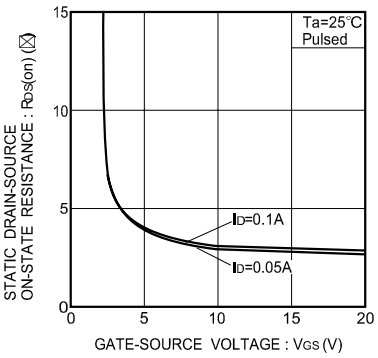


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

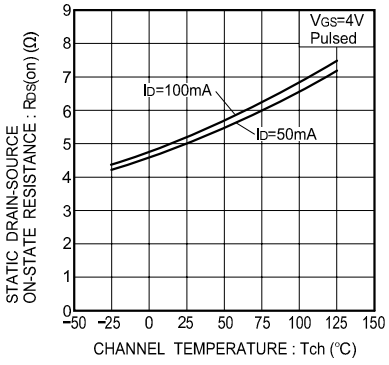


Fig.7 Static drain-source on-state resistance vs. channel temperature

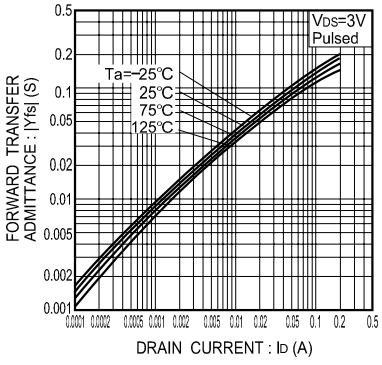


Fig.8 Forward transfer admittance vs. drain current

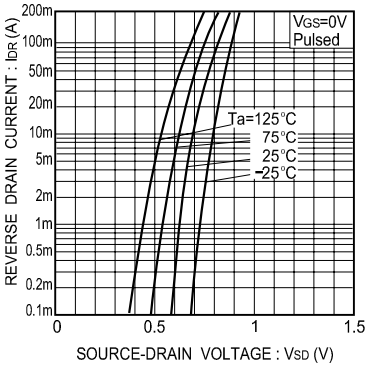


Fig.9 Reverse drain current vs. source-drain voltage (I)

■ Typical Characterisitics

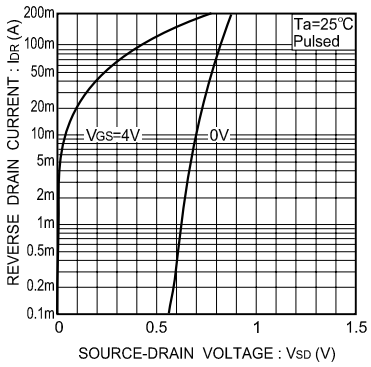


Fig.10 Reverse drain current vs. source-drain voltage (Ⅱ)

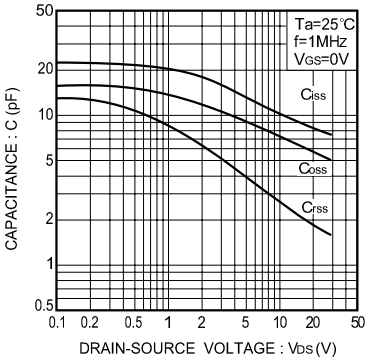


Fig.11 Typical capacitance vs. drain-source voltage

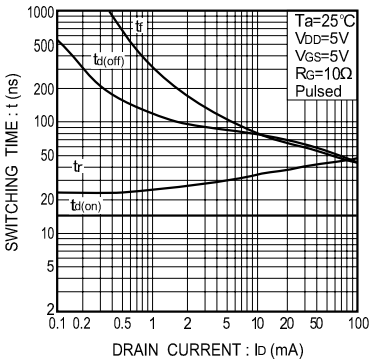


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

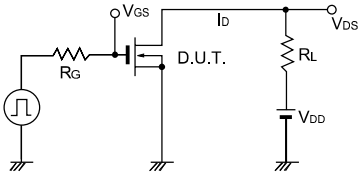


Fig.13 Switching time measurement circuit

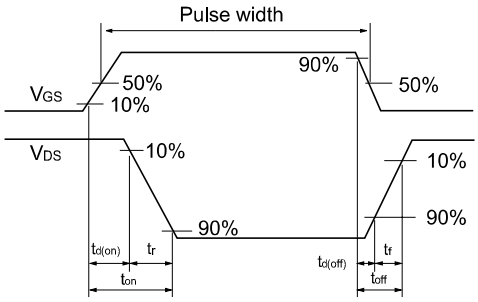
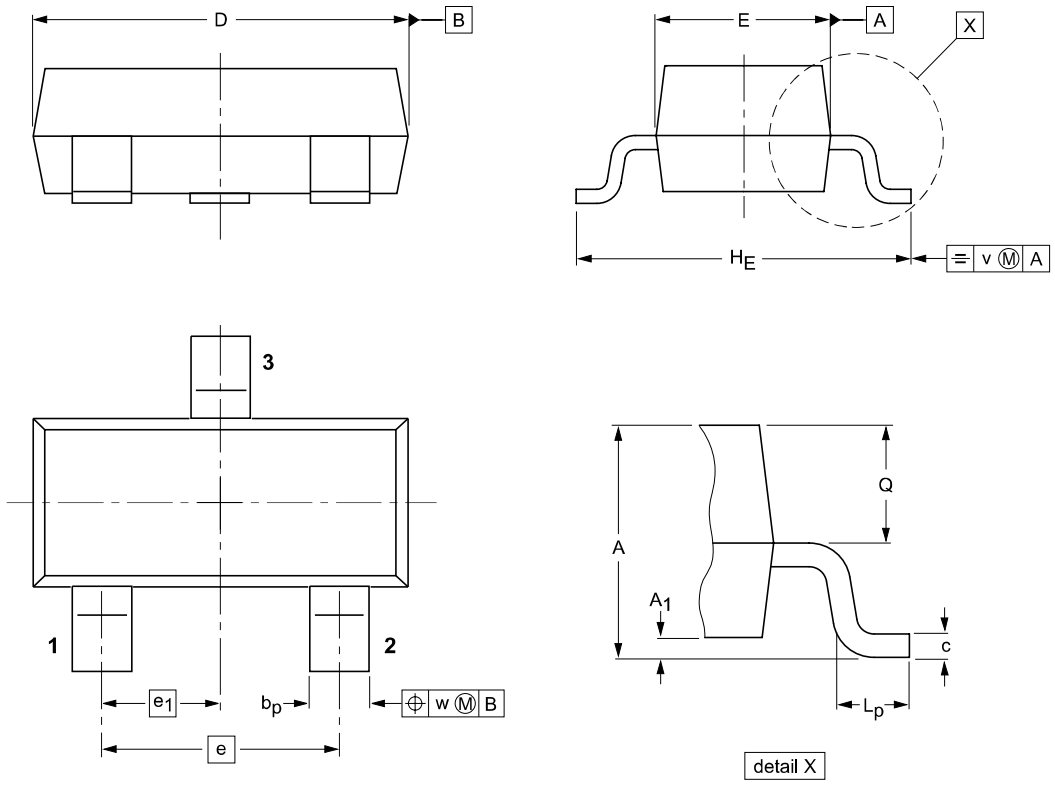


Fig.14 Switching time waveforms

Package Outline SOT-23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max.	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOT-23	Tape/Reel,7"reel	3000	EIA-481-1