N-Channel MOSFET
RUE003N02

SOT-523   Unit: mm

1. Gate
2. Source
3. Drain

■ Features

● $V_{DS\,(V)}$ = 20V

● I_D = 0.3 A

● $R_{DS(ON)} < 1\,\Omega$ (V_{GS} = 4V)

● $R_{DS(ON)} < 1.2\,\Omega$ (V_{GS} = 2.5V)

● $R_{DS(ON)} < 1.4\,\Omega$ (V_{GS} = 1.8V)

● Fast switching speed.

BODY DIODE

ESD PROTECTION DIODE

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	
Continuous Drain Current	I_D	300	mA
Pulsed Drain Current (Note.1)	I_{DM}	600	
Power Dissipation	P_D	150	mW
Thermal Resistance.Junction- to-Ambient	R_{thJA}	833	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=1 mA, V_{GS}=0V	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±8V			±10	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=10V , I_D=1 mA	0.3		1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4 V, I_D=0.3A			1	Ω
		V_{GS}=2.5 V, I_D=0.3A			1.2	
		V_{GS}=1.8 V, I_D=0.3A			1.4	
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=0.3A	400			mS
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, f=1MHz		25		pF
Output Capacitance	C_{oss}			10		
Reverse Transfer Capacitance	C_{rss}			10		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=4V, V_{DS}=10V, R_L=67Ω ,R_G=10Ω I_D=150mA		5		ns
Turn-On Rise Time	t_r			10		
Turn-Off DelayTime	$t_{d(off)}$			15		
Turn-Off Fall Time	t_r			10		
Diode Forward Voltage	V_{SD}	I_S=0.1A,V_{GS}=0V			1.2	V

■ Marking

Marking	TL

N-Channel MOSFET
RUE003N02
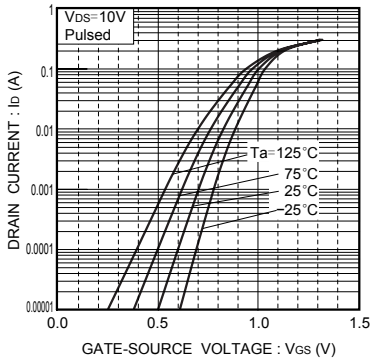
■ Typical Characterisitics
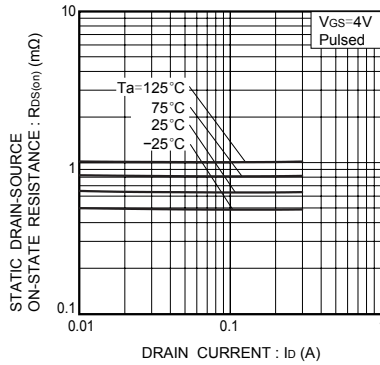

Fig.1 Typical transfer characteristics

Fig.2 Static drain-source on-state resistance vs. drain current (I)
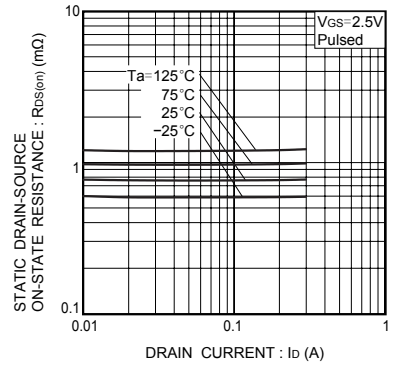

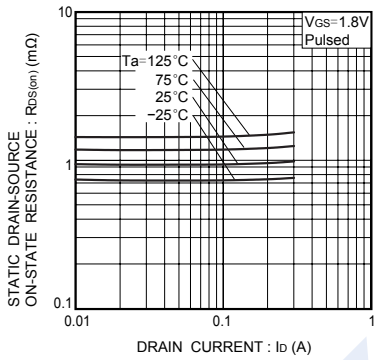Fig.3 Static drain-source on-state resistance vs. drain current (II)

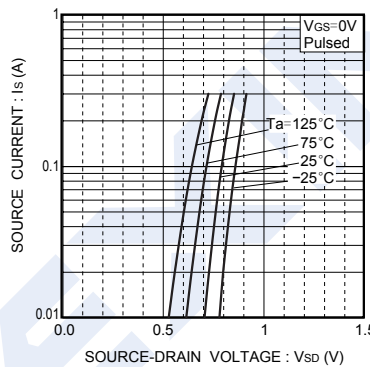Fig.4 Static drain-source on-state resistance vs. drain current (III)

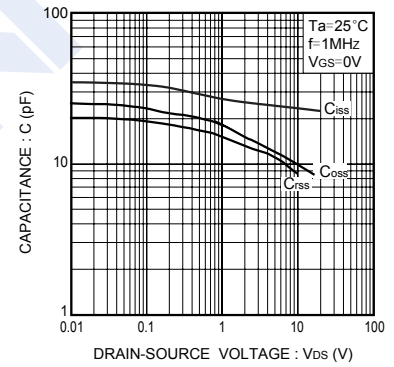Fig.5 Source current vs. source-drain voltage

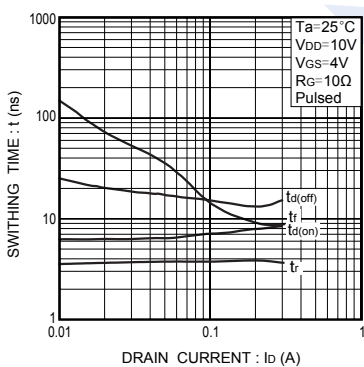Fig.6 Typical capacitance vs. drain-source voltage

Switching characteristics measurement circuit
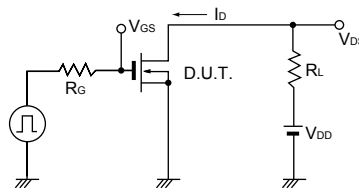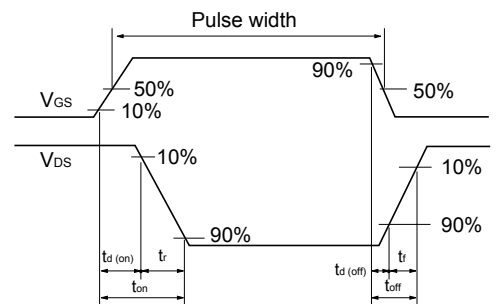

Fig.7 Switching characteristics

Fig.8 Switching time measurement circuit

Fig.9 Switching time waveforms