

Transistors

4V Drive Pch MOSFET

RSR025P03

●Structure

Silicon P-channel MOSFET

●Features

- 1) Low On-resistance
- 2) Space saving–small surface mount package (TSMT3)
- 3) 4V drive

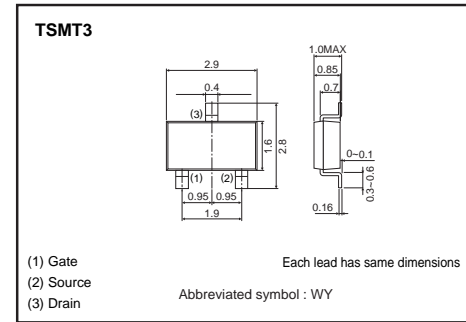
●Applications

Switching

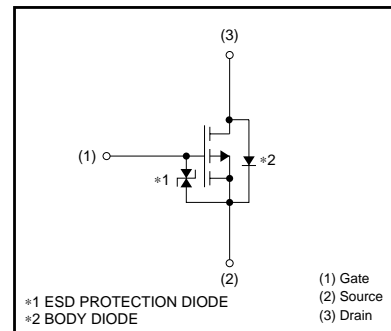
●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RSR025P03		○

●Dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Drain-source voltage	V_{DS}	-30	V	
Gate-source voltage	V_{GS}	± 20	V	
Drain current	Continuous	I_D	± 2.5	A
	Pulsed	I_{DP} *1	± 10	A
Source current (Body diode)	Continuous	I_S	-0.8	A
	Pulsed	I_{SP} *1	-10	A
Total power dissipation	P_D *2	1	W	
Channel temperature	T_{ch}	150	°C	
Range of storage temperature	T_{stg}	-55 to +150	°C	

*1 $P_w \leq 10 \mu s$, Duty cycle $\leq 1\%$

*2 Mounted on a ceramic board

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	$R_{th(ch-a)}$ *	125	°C/W

* Mounted on a ceramic board

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I _{GSS}	-	-	±10	μA	V _{GS} =±20V, V _{DS} =0V
Drain-source breakdown voltage	V _{(BR) DSS}	-30	-	-	V	I _D =-1mA, V _{GS} =0V
Zero gate voltage drain current	I _{DSS}	-	-	-1	μA	V _{DS} =-30V, V _{GS} =0V
Gate threshold voltage	V _{GS(th)}	-1.0	-	-2.5	V	V _{DS} =-10V, I _D =-1mA
Static drain-source on-state resistance	R _{DS(on)*}	-	70	98	mΩ	I _D =-2.5A, V _{GS} =-10V
		-	100	140	mΩ	I _D =-1.2A, V _{GS} =-4.5V
		-	115	160	mΩ	I _D =-1.2A, V _{GS} =-4V
Forward transfer admittance	Y _{fs} *	1.6	-	-	S	V _{DS} =-10V, I _D =-1.2A
Input capacitance	C _{iss}	-	460	-	pF	V _{DS} =-10V
Output capacitance	C _{oss}	-	105	-	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	-	65	-	pF	f=1MHz
Turn-on delay time	t _{d(on)*}	-	10	-	ns	V _{DD} =-15V I _D =-1.2A
Rise time	t _r *	-	10	-	ns	V _{GS} =-10V
Turn-off delay time	t _{d(off)*}	-	42	-	ns	R _L =12.5Ω
Fall time	t _f *	-	10	-	ns	R _{GS} =10Ω
Total gate charge	Q _g *	-	5.4	-	nC	V _{DD} =-15V V _{GS} =-5V
Gate-source charge	Q _{gs} *	-	1.4	-	nC	I _D =-2.5A
Gate-drain charge	Q _{gd} *	-	1.6	-	nC	R _L =6Ω R _G =10Ω

*Pulsed

●Body diode characteristics (Source-drain) (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V _{SD}	-	-	-1.2	V	I _S =-0.8A, V _{GS} =0V

Transistors

●Electrical characteristic circuits

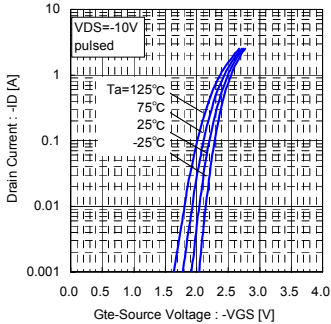


Fig.1 Typical Transfer Characteristics

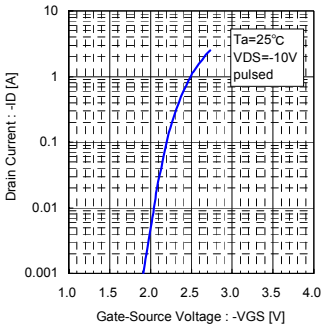


Fig.2 Typical Transfer Characteristics

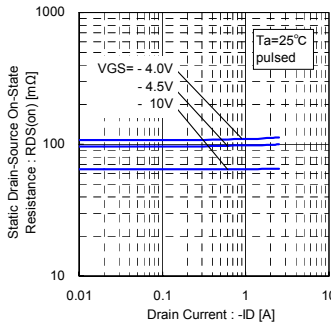


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current

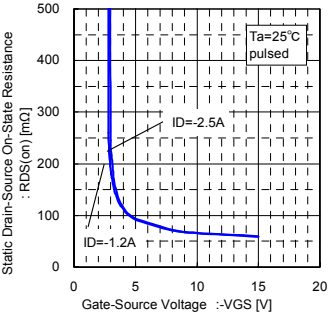


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

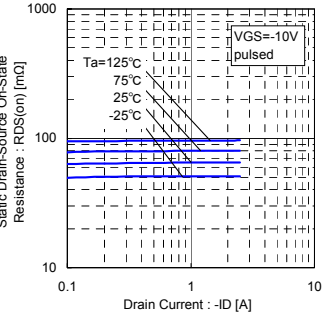


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

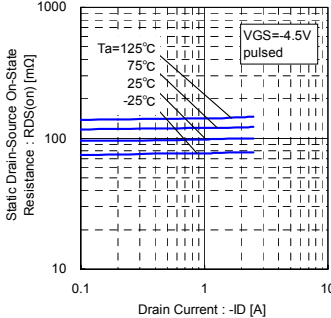


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current

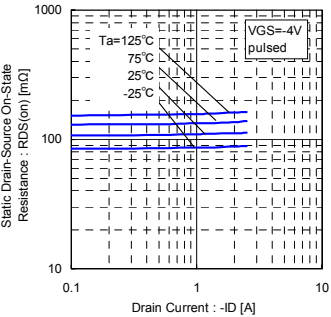


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current

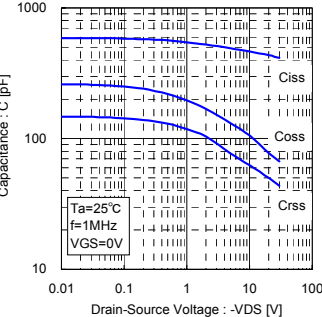


Fig.8 Typical Capacitance vs. Drain-Source Voltage

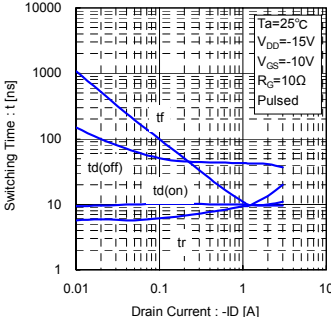


Fig.9 Switching Characteristics

Transistors

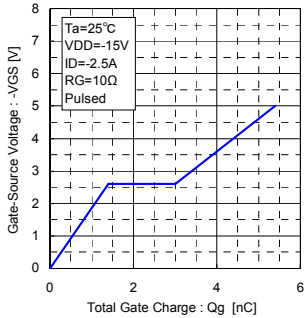


Fig.10 Dynamic Input Characteristics

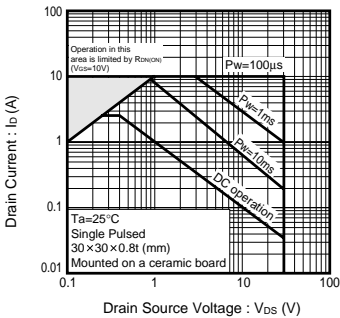


Fig.11 Safe operating area

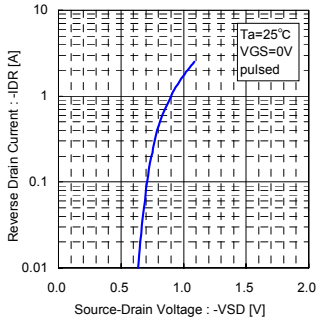


Fig.12 Reverse Drain Current vs. Source-Drain Voltage

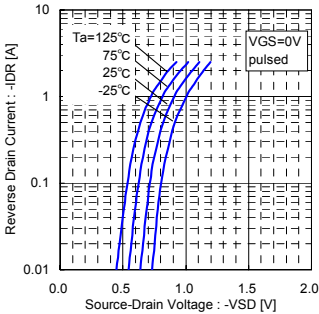


Fig.13 Reverse Drain Current vs. Source-Drain Voltage

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