

●Structure

Silicon N-channel MOSFET

●Features

- 1) Low On-resistance.
- 2) 4V drive.

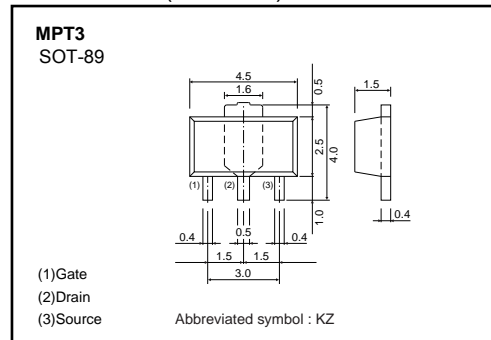
●Applications

Switching

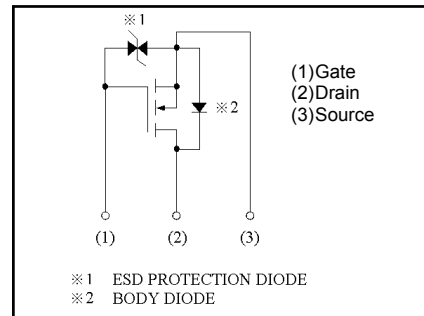
●Packaging specifications

Type	Package	Taping
	Code	T100
	Basic ordering unit (pieces)	1000
RHP030N03		○

●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	3	A
	Pulsed	I_{DP}^{*1}	10	A
Reverse drain current	Continuous	I_{DR}	3	A
	Pulsed	I_{DRP}^{*1}	10	A
Total power dissipation	P_D	500	mW	
		2 ^{*2}	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 When mounted on a 40×40×0.7mm ceramic board

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	$R_{th(ch-a)}$	250	°C/W
		62.5 [*]	°C/W

* When mounted on a 40×40×0.7mm ceramic board

●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)*}	–	90	120	mΩ	I _D = 3A, V _{GS} = 10V
		–	160	210	mΩ	I _D = 3A, V _{GS} = 4V
Forward transfer admittance	Y _{fs} *	2.0	–	–	S	V _{DS} = 10V, I _D = 3A
Input capacitance	C _{iss}	–	160	–	pF	V _{DS} = 10V
Output capacitance	C _{oss}	–	90	–	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	–	27	–	pF	f=1MHz
Turn-on delay time	t _{d(on)*}	–	7	–	ns	V _{DD} ≐ 15V
Rise time	t _r *	–	11	–	ns	I _D = 1.5A
Turn-off delay time	t _{d(off)*}	–	15	–	ns	V _{GS} = 10V
Fall time	t _f *	–	4.5	–	ns	R _L =10Ω R _G =10Ω
Total gate charge	Q _g *	–	6.5	–	nC	V _{DD} ≐ 15V
Gate-source charge	Q _{gs} *	–	1.0	–	nC	V _{GS} = 10V
Gate-drain charge	Q _{gd} *	–	1.5	–	nC	I _D = 3A

*Pulsed

●Electrical characteristics curves

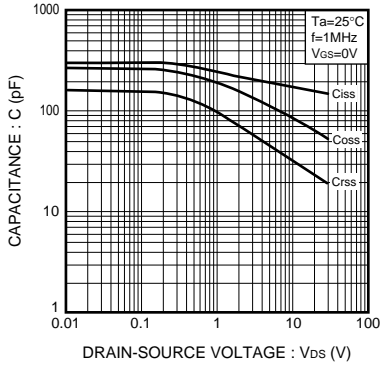


Fig.1 Typical Capacitance vs. Drain-Source Voltage

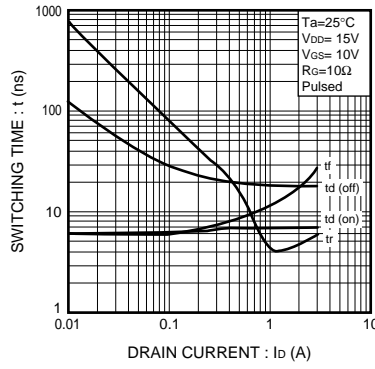


Fig.2 Switching Characteristics

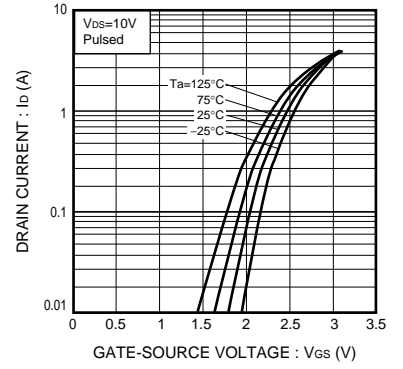


Fig.3 Typical Transfer Characteristics

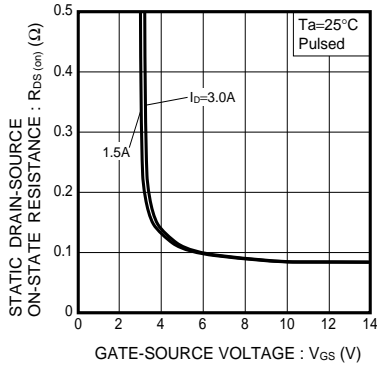


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

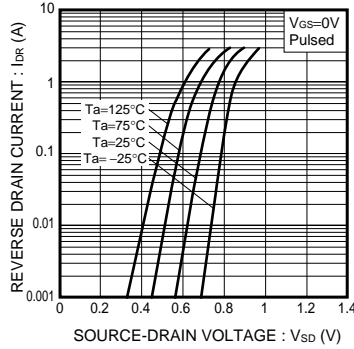


Fig.5 Reverse Drain Current vs. Source-Drain Voltage (I)

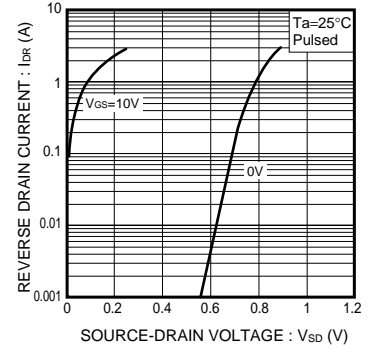


Fig.6 Reverse Drain Current vs. Source-Drain Voltage (II)

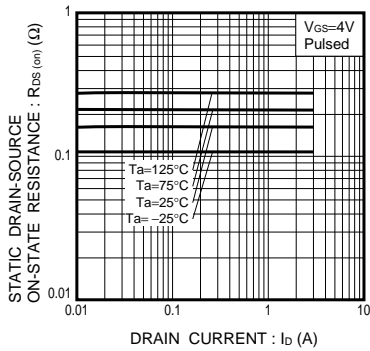


Fig.8 Static Drain-Source On-State Resistance vs. Drain Current (II)

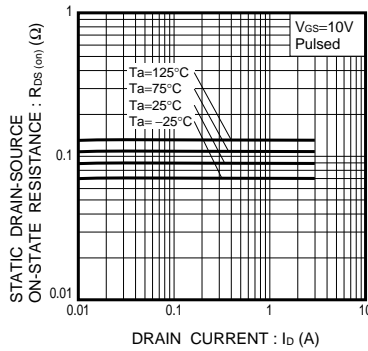


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current (I)

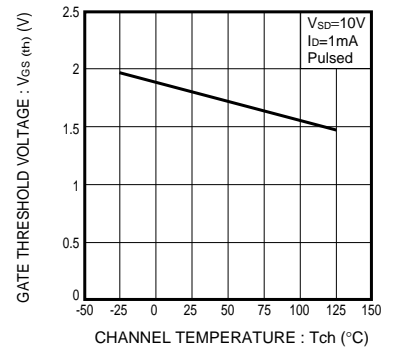


Fig.9 Gate Threshold Voltage vs. Channel Temperature

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