Transistors

Switching (30V, 6.5A)

RSS065N03

●**Features**
1) Low on-resistance.
2) Built-in G-S Protection Diode.
3) Small and Surface Mount Package (SOP8).
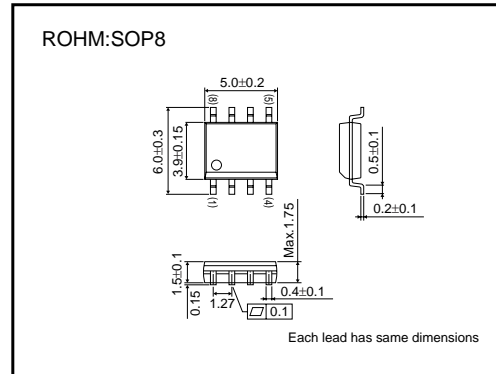
●**Applications**
Power switching, DC / DC converter.

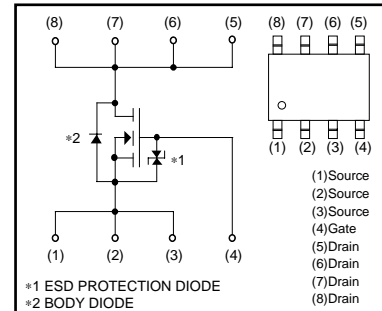●**Structure**
Silicon N-channel
MOS FET

●**External dimensions** (Unit : mm)

ROHM:SOP8

Each lead has same dimensions

●**Absolute maximum ratings** (Ta=25°C)

Parameter		Symbol	Limits	Unit	
Drain-source voltage		V_{DSS}	30	V	
Gate-source voltage		V_{GSS}	±20	V	
Drain current	Continuous	I_D	±6.5	A	
	Pulsed	I_{DP}	±26	A	*1
Source current (Body diode)	Continuous	I_S	1.6	A	
	Pulsed	I_{SP}	6.4	A	*1
Total power dissipatino		P_D	2	W	*2
Channel temperature		Tch	150	°C	
Strage temperature		Tstg	−55 to +150	°C	

*1 Pw≤10μs, Duty cycle≤1%
*2 Mounted on a ceramic board.

●**Equivalent circuit**

(1)Source
(2)Source
(3)Source
(4)Gate
(5)Drain
(6)Drain
(7)Drain
(8)Drain

*1 ESD PROTECTION DIODE
*2 BODY DIODE

*A protection diode is included between the gate and the source terminals to protect the diode against static electricity when the product is in use. Use the protection circuit when the fixed voltages are exceeded.

●**Thermal resistance** (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Channel to ambient	Rth (ch-a)	62.5	°C / W	*

* Mounted on a ceramic board.

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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}	–	–	10	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-starte resistance	$R_{DS\,(on)}$ *	–	19	26	mΩ	I_D=6.5A, V_{GS}=10V
		–	27	37		I_D=6.5A, V_{GS}=4.5V
		–	30	42		I_D=6.5A, V_{GS}=4V
Forward transfer admittance	$\lvert Y_{fs} \rvert$ *	4.0	–	–	S	I_D=6.5A, V_{DS}=10V
Input capacitance	C_{iss}	–	430	–	pF	V_{DS}=10V
Output capacitance	C_{oss}	–	155	–	pF	V_{GS}=0V
Reverse transfer capacitance	C_{rss}	–	80	–	pF	f=1MHz
Tum-on delay time	$t_{d\,(on)}$ *	–	8	–	ns	I_D=3.25A, V_{DD}≒15V
Rise time	t_r *	–	8	–	ns	V_{GS}=10V
Tum-off delay time	$t_{d\,(off)}$ *	–	31	–	ns	R_L=4.62Ω
Fall time	t_f *	–	8	–	ns	R_{GS}=10Ω
Total gate charge	Q_g *	–	6.1	–	nC	V_{DD}≒15V
Gate-source charge	Q_{gs} *	–	1.5	–	nC	V_{GS}=5V
Gate-drain charge	Q_{gd} *	–	2.3	–	nC	I_D=6.5A

＊Pulsed

●**Body diode characteristics** (Source-Drain Characteristics) (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_{SD} *	–	–	1.2	V	I_S=6.4A, V_{GS}=0V

＊Pulsed

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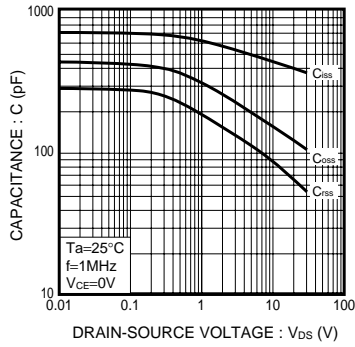
● **Electrical characteristic curves**

Fig.1 Typical Capacitance
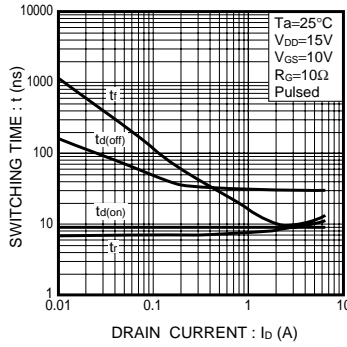vs. Drain-Source Voltage
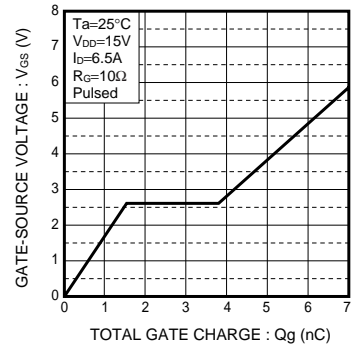

Fig.2 Switching Characteristics
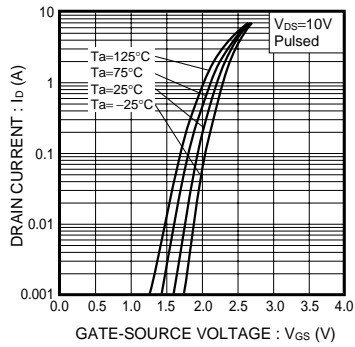

Fig.3 Dynamic Input Characteristics

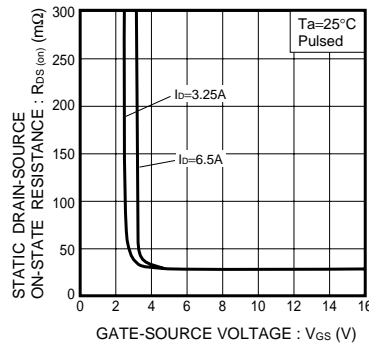Fig.4 Typical Transfer Characteristics

Fig.5 Static Drain-Source
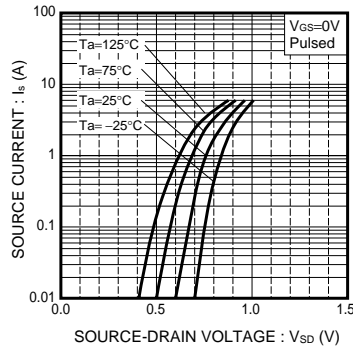On-State Resistance vs.
Gate-Source Voltage

Fig.6 Source Current vs.
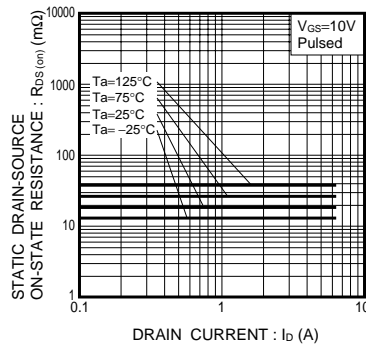Source-Drain Voltage

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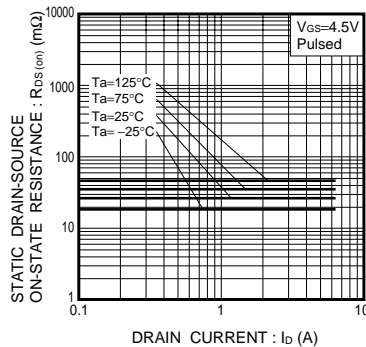On-State Resistance
vs. Drain Current (I)

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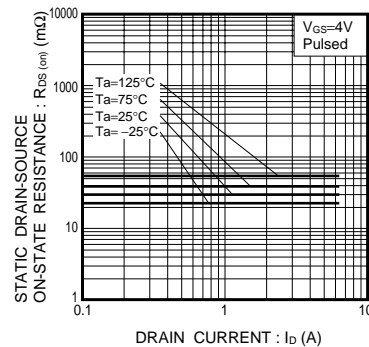On-State Resistance
vs. Drain Current (II)

Fig.9 Static Drain-Source
On-State Resistance
vs. Drain Current (III)

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