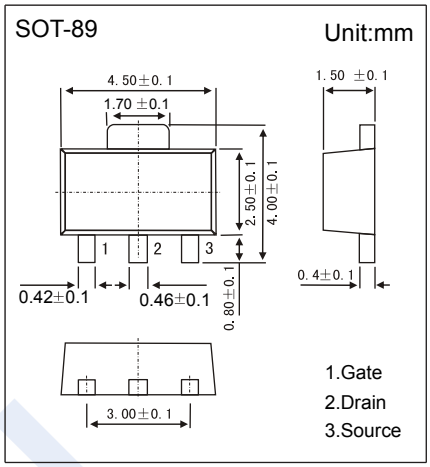
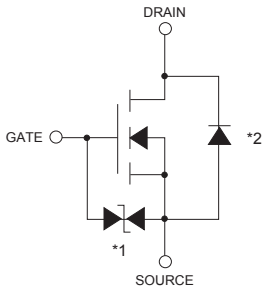
N-Channel MOSFET
RHP020N06 (KHP020N06)



■ Features

- $V_{DS\ (V)}$ = 60V
- I_D = 2 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 200mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 280mΩ (V_{GS} = 4.5V)
- $R_{DS(ON)}$ < 340mΩ (V_{GS} = 4V)
- High speed switching



*1 ESD PROTECTION DIODE
*2 BODY DIODE

■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current		I_D	±2	A
Pulsed Drain Current		I_{DM}	±8	
Power Dissipation		P_D	0.5	W
			2	
Thermal Resistance.Junction- to-Ambient		R_{thJA}	250	℃/W
	(Note.1)		62.5	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

Note.1:When mounted on a 40X40X0.7mm ceramic board

N-Channel MOSFET

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■ 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	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±10	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=10V , I_D=1mA	1		2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=2A			200	mΩ
		V_{GS}=4.5V, I_D=2A			280	
		V_{GS}=4V, I_D=2A			340	
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=2A	2			S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, f=1MHz		140		pF
Output Capacitance	C_{oss}			50		
Reverse Transfer Capacitance	C_{rss}			40		
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=30V, I_D=2A		7	14	nC
Gate Source Charge	Q_{gs}			1		
Gate Drain Charge	Q_{gd}			2		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=30V, R_L=30Ω, R_{GEN}=10Ω,I_D=1A		7		ns
Turn-On Rise Time	t_r			10		
Turn-Off DelayTime	$t_{d(off)}$			22		
Turn-Off Fall Time	t_f			18		
Maximum Body-Diode Continuous Current	I_S				2	A
Source current Pluse	I_{SP}				8	
Diode Forward Voltage	V_{SD}	I_S=2A,V_{GS}=0V			1.2	V

Note. The static characteristics in Figures 1 to 6 are obtained using <300us pulses, duty cycle 0.5% max.

■ Marking

Marking	LR

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■ Typical Characterisitics

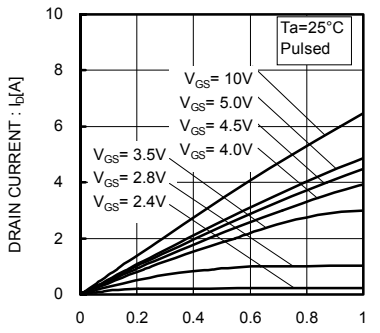

Fig.1 Typical Output Characteristics(Ⅰ)

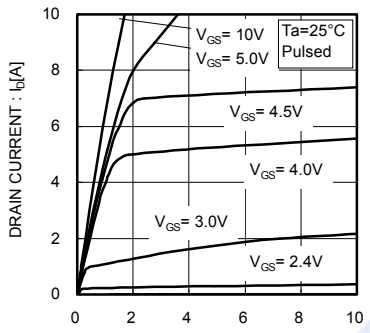

Fig.2 Typical Output Characteristics(Ⅱ)

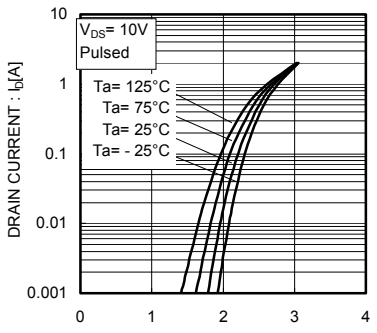

Fig.3 Typical Transfer Characteristics

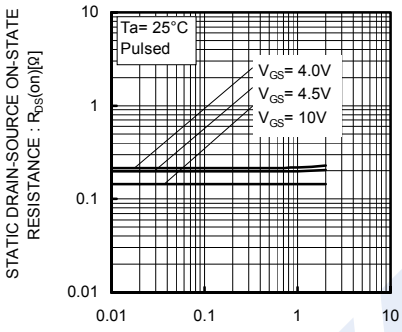

Fig.4 Static Drain-Source On-State Resistance vs. Drain Current(Ⅰ)

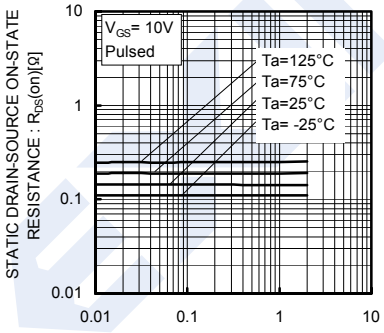

Fig.5 Static Drain-Source On-State Resistance vs. Drain Current(Ⅱ)

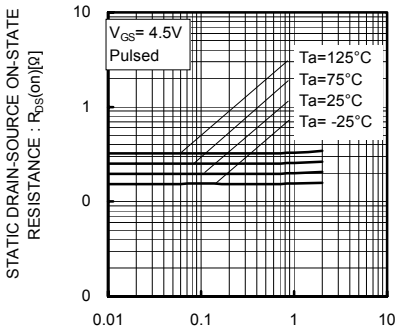

Fig.6 Static Drain-Source On-State Resistance vs. Drain Current(Ⅲ)

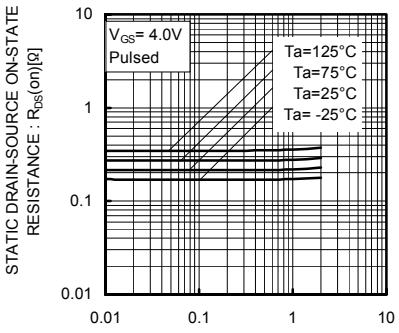

Fig.7 Static Drain-Source On-State Resistance vs. Drain Current(Ⅳ)

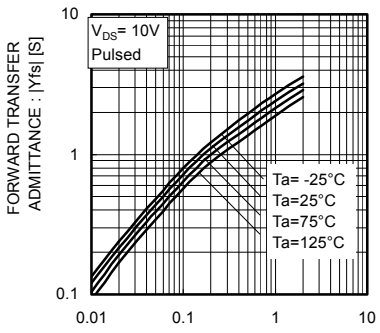

Fig.8 Forward Transfer Admittance vs. Drain Current

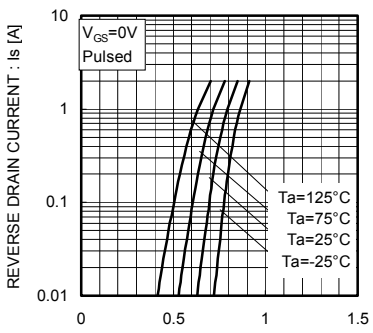

Fig.9 Reverse Drain Current vs. Sourse-Drain Voltage

N-Channel MOSFET
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■ Typical Characterisitics

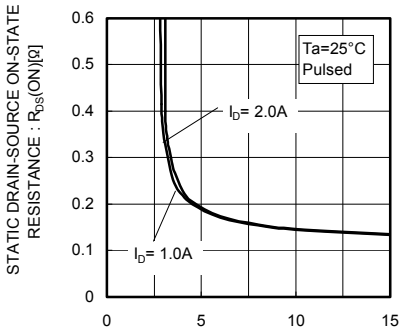

Fig.10 Static Drain-Source On-State Resistance vs. Gate Source Voltage

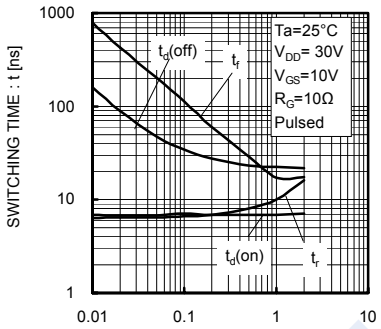

Fig.11 Switching Characteristics

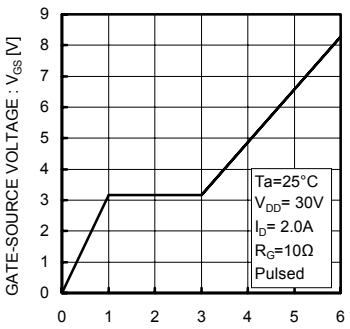

Fig.12 Dynamic Input Characteristics

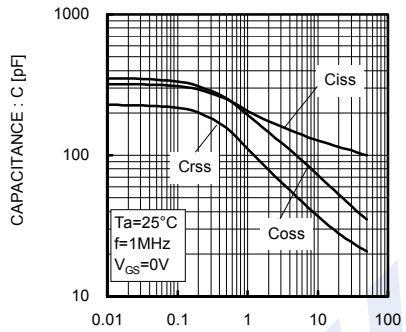

Fig.13 Typical Capacitance vs. Drain-Source Voltage

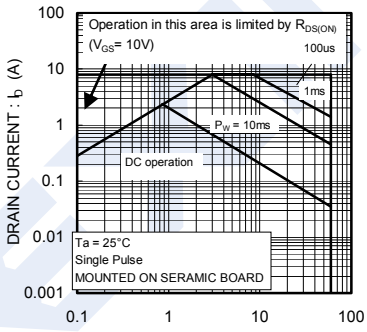

Fig.14 Maximum Safe Operating Aera

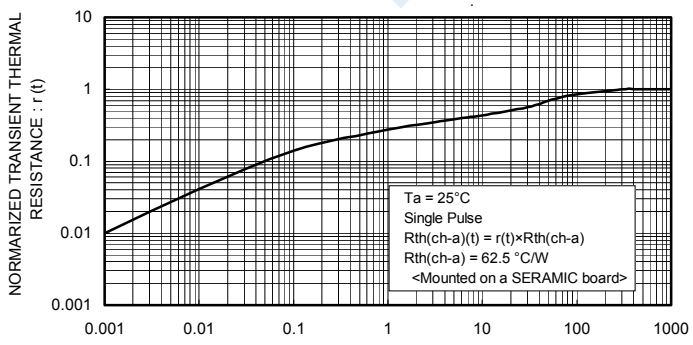

Fig.15 Normalized Transient Thermal Resistance vs. Pulse Width