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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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4V Drive Pch MOSFET

RP1E075RP

● Structure

Silicon P-channel MOSFET

● Features

- 1) Low On-resistance.
- 2) High power package.
- 3) 4V drive.

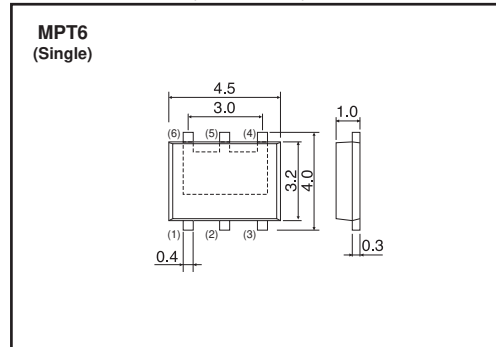
● Application

Switching

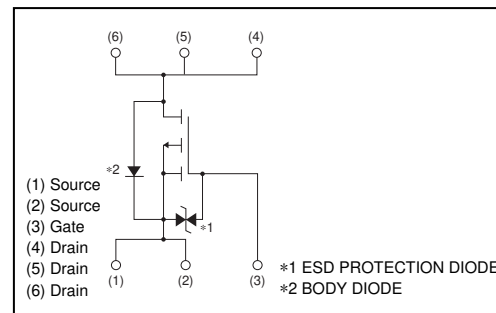
● Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	1000
RP1E075RP		○

● Dimensions (Unit : mm)



● Inner circuit



● 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	± 7.5	A
	Pulsed	I_{DP} *1	± 30	A
Source current (Body Diode)	Continuous	I_S	-1.6	A
	Pulsed	I_{SP} *1	-30	A
Power dissipation		P_D *2	2.0	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	$R_{th}(ch-a)^*$	62.5	°C / W

*Mounted on a ceramic board.

● **Electrical characteristics** (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I_{GSS}	-	-	±10	μA	$V_{GS}=\pm 20V, V_{DS}=0V$
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	$R_{DS(on)}^*$	-	15	21	mΩ	$I_D=-7.5A, V_{GS}=-10V$
		-	22	31		$I_D=-4A, V_{GS}=-4.5V$
		-	25	35		$I_D=-4A, V_{GS}=-4.0V$
Forward transfer admittance	$ Y_{fs} ^*$	9	-	-	S	$I_D=-7.5A, V_{DS}=-10V$
Input capacitance	C_{iss}	-	1900	-	pF	$V_{DS}=-10V$
Output capacitance	C_{oss}	-	250	-	pF	$V_{GS}=0V$
Reverse transfer capacitance	C_{rss}	-	250	-	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}^*$	-	14	-	ns	$I_D=-4A, V_{DD}=-15V$
Rise time	t_r^*	-	25	-	ns	$V_{GS}=-10V$
Turn-off delay time	$t_{d(off)}^*$	-	100	-	ns	$R_L=3.8\Omega$
Fall time	t_f^*	-	70	-	ns	$R_G=10\Omega$
Total gate charge	Q_g^*	-	21	-	nC	$I_D=-7.5A, V_{DD}=-15V$
Gate-source charge	Q_{gs}^*	-	5	-	nC	$V_{GS}=-5V, R_L=2.0\Omega$
Gate-drain charge	Q_{gd}^*	-	7	-	nC	$R_G=10\Omega$

*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward Voltage	V_{SD}^*	-	-	-1.2	V	$I_s=-7.5A, V_{GS}=0V$

*Pulsed

● Electrical characteristic curves

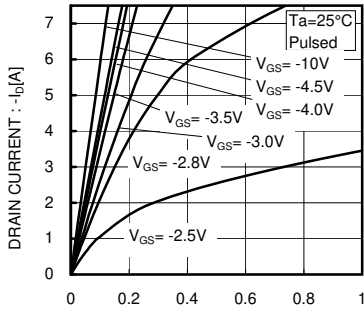


Fig.1 Typical Output Characteristics(I)

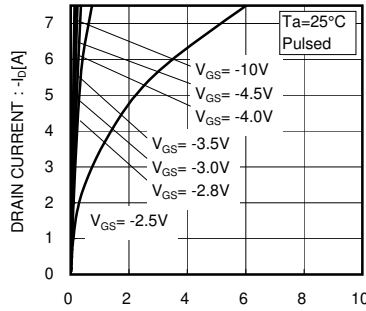


Fig.2 Typical Output Characteristics(II)

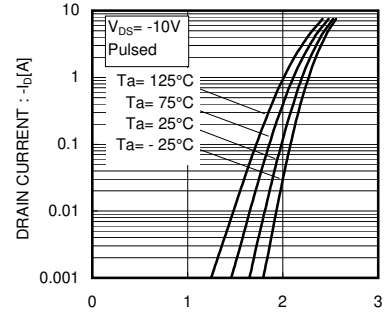


Fig.3 Typical Transfer Characteristics

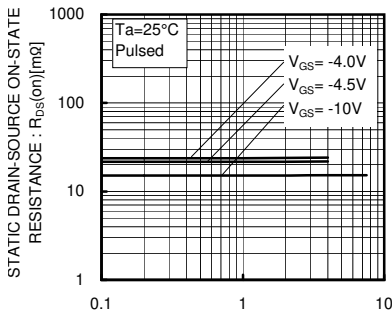


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current(I)

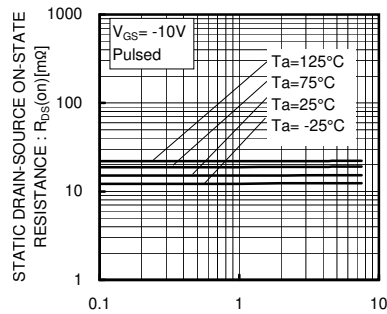


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current(II)

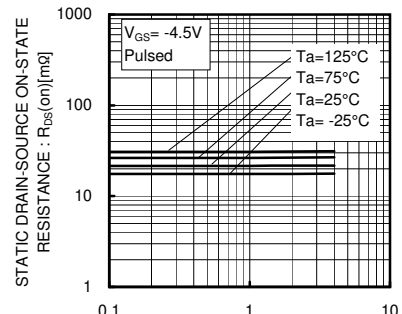


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current(III)

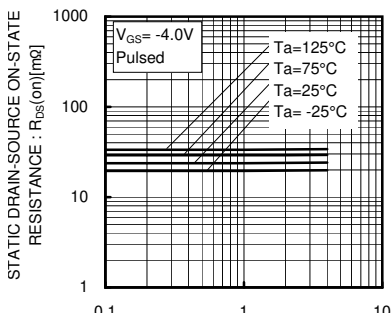


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current(IV)

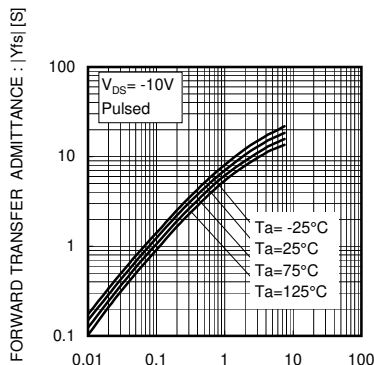


Fig.8 Forward Transfer Admittance vs. Drain Current

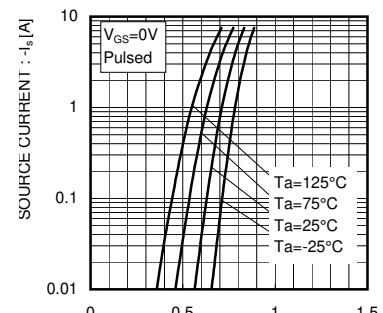


Fig.9 Reverse Drain Current vs. Source-Drain Voltage

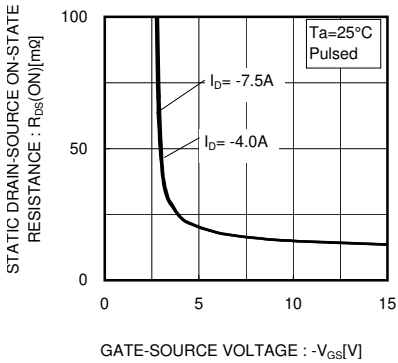


Fig.10 Static Drain-Source On-State Resistance vs. Gate Source

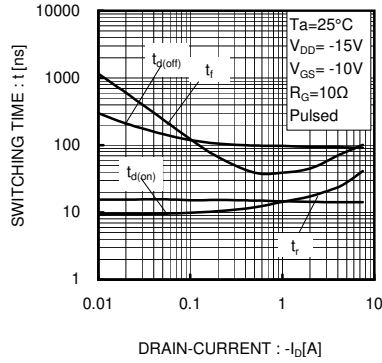


Fig.11 Switching Characteristics

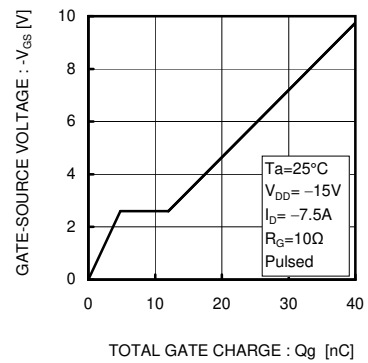


Fig.12 Dynamic Input Characteristics

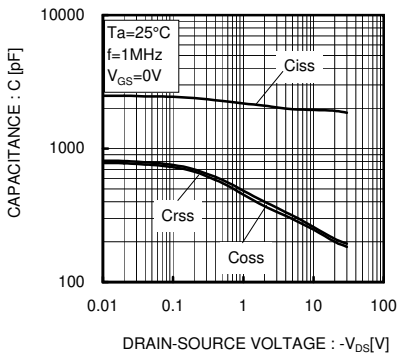


Fig.13 Typical Capacitance vs. Drain-Source Voltage

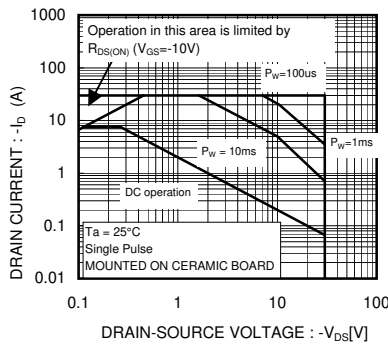


Fig.14 Maximum Safe Operating Area

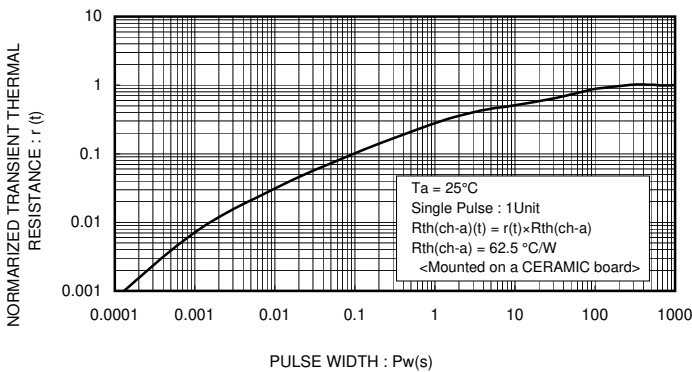


Fig.15 Normalized Transient Thermal Resistance vs. Pulse Width

● Measurement circuits

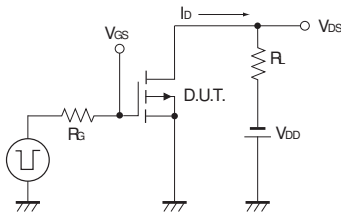


Fig.1-1 Switching Time Measurement Circuit

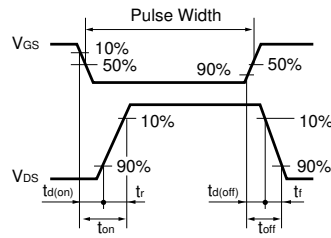


Fig.1-2 Switching Waveforms

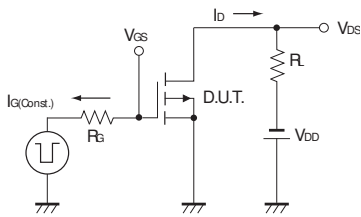


Fig.2-1 Gate Charge Measurement Circuit

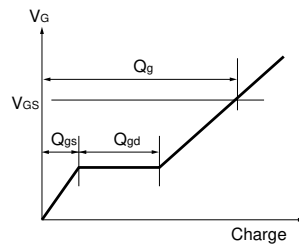


Fig.2-2 Gate Charge Waveform

Notes

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