

μ PA2672T1R

DUAL P-CHANNEL MOSFET -12 V, -4.0 A, $67 \text{ m}\Omega$

R07DS0834EJ0101 Rev.1.01 Apr 15, 2013

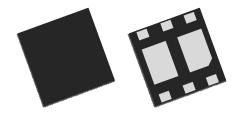
Description

The μ PA2672T1R is Dual P-channel MOS Field Effect Transistors for switching application.

This device features a low on-state resistance and excellent switching characteristics, and is suitable for applications such as power switch of portable machine and so on.

Features

- -1.8V drive available
- Low on-state resistance
 - --- R_{DS (on)1} = 67 mΩ MAX. (V_{GS} = -4.5 V, I_D = -2.0 A)
 - --- $R_{DS (on)2}$ = 92 mΩ MAX. (V_{GS} = -2.5 V, I_D = -2.0 A)
 - --- R_{DS (on)3} = 159 mΩ MAX. (V_{GS} = -1.8 V, I_D = -2.0 A)
- Built-in gate protection diode
- Lead-free and Halogen-free



6pinHUSON2020(Dual)

Ordering Information

Part Number	Package		
μPA2672T1R-E2-AX* ¹	6pinHUSON2020		

Note: *1. Pb-free (This product does not contain Pb in the external electrode and other parts.)

Absolute Maximum Ratings (T_A = 25°C)

Item	Symbol	Ratings	Unit
Drain to Source Voltage (V _{GS} = 0 V)	V_{DSS}	-12	V
Gate to Source Voltage (V _{DS} = 0 V)	V_{GSS}	∓10	V
Drain Current (DC)	I _{D(DC)}	∓4.0	Α
Drain Current (pulse) *1	I _{D(pulse)}	∓16	Α
Total Power Dissipation (1 unit, 5 s) *2	P _{T1}	1.5	W
Total Power Dissipation (2 units, 5 s) *2	P _{T2}	2.3	W
Channel Temperature	T _{ch}	150	°C
Storage Temperature	T _{STG}	-55 to +150	°C

Notes: *1. PW≤10 μs, Duty Cycle≤1%

*2. Mounted on glass epoxy board of 25.4mm x 25.4mm x 0.8mmt

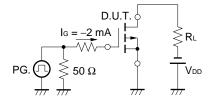
Electrical Characteristics (T_A = 25°C)

Characteristics	Symbol	MIN.	TYP.	MAX.	Unit	Test Conditions
Zero Gate Voltage Drain Current	I _{DSS}			-1.0	μA	V _{DS} = -12 V, V _{GS} = 0 V
Gate Leakage Current	I _{GSS}			∓10	μΑ	$V_{GS} = \mp 8 \text{ V}, V_{DS} = 0 \text{ V}$
Gate Cut-off Voltage	V _{GS(off)}	-0.4		-1.1	V	$V_{DS} = -10 \text{ V}, I_{D} = -1 \text{ mA}$
Forward Transfer Admittance *1	y _{fs}	4.5			S	$V_{DS} = -5 \text{ V}, I_{D} = -2.0 \text{ A}$
Drain to Source On-state	R _{DS(on)1}		52	67	mΩ	$V_{GS} = -4.5 \text{ V}, I_D = -2.0 \text{ A}$
Resistance *1	R _{DS(on)2}		68	92	mΩ	$V_{GS} = -2.5 \text{ V}, I_D = -2.0 \text{ A}$
	R _{DS(on)3}		95	159	mΩ	$V_{GS} = -1.8 \text{ V}, I_D = -2.0 \text{ A}$
Input Capacitance	C _{iss}		486		pF	$V_{DS} = -10 \text{ V}, V_{GS} = 0 \text{ V},$
Output Capacitance	C _{oss}		108		pF	f = 1.0 MHz
Reverse Transfer Capacitance	C _{rss}		82		pF	
Turn-on Delay Time	t _{d (on)}		11.5		ns	$I_D = -2.0 \text{ A}, V_{DD} = -6 \text{ V},$
Rise Time	t _r		3.5		ns	$V_{GS} = -4.0 \text{ V}, R_G = 6 \Omega$
Turn-off Delay Time	t _{d (off)}		24.0		ns	
Fall Time	t _f		20.0		ns	
Total Gate Charge	Q_G		5.0		nC	$I_D = -4.0 \text{ A}$, $V_{DD} = -9.6 \text{ V}$,
Gate to Source Charge	Q_{GS}		1.0		nC	$V_{GS} = -4.5 \text{ V}$
Gate to Drain Charge	Q _{GD}		1.3		nC	
Body Diode Forward Voltage *1	V _{F(S-D)}			1.5	V	I _F = 4.0 A, V _{GS} = 0 V

Note: *1. Pulsed

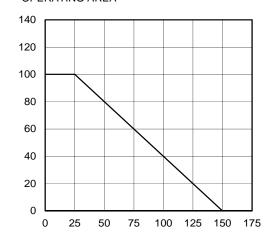
TEST CIRCUIT 1 SWITCHING TIME

TEST CIRCUIT 2 GATE CHARGE



Typical Characteristics $(T_A = 25^{\circ}C)$

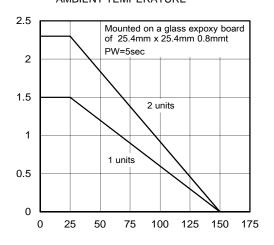
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



 T_{A} -Ambient Temperature - $^{\circ}\text{C}$

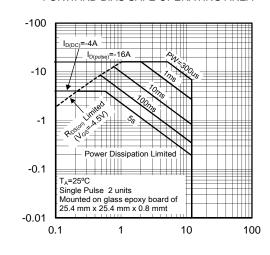
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE





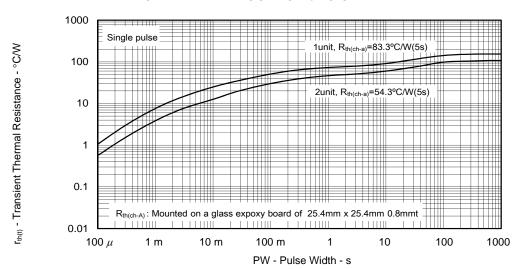
T_A -Ambient Temperature - °C

FORWARD BIAS SAFE OPERATING AREA



 $V_{\text{\scriptsize DS}}$ - Drain to Source Voltage - V

TRANSIENT THERMAL RESISTANCE vs. PULSE WIDTH



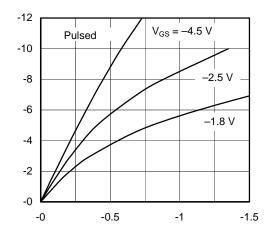
dT - Percentage of Rated Power - %

I_D -Drain Current - A

V_{GS(off)} – Gate to Source Cut-off Voltage - V

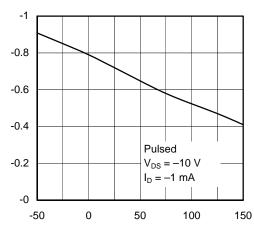
R_{DS(on)} - Drain to Source On-state Resistance - mΩ

DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



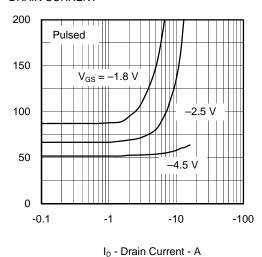
 $V_{\text{\scriptsize DS}}$ - Drain to Source Voltage - V

GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE

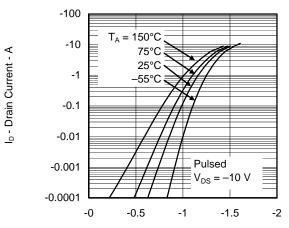


T_{ch} - Channel Temperature - °C

DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT

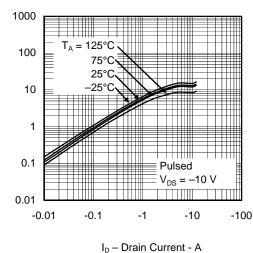


FORWARD TRANSFER CHARACTERISTICS

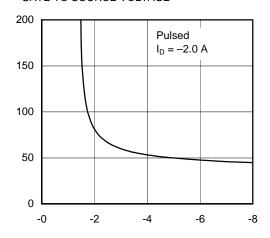


V_{GS} - Gate to Source Voltage - V

FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



V_{GS} - Gate to Source Voltage - V

| y_{fs} | - Forward Transfer Admittance - S

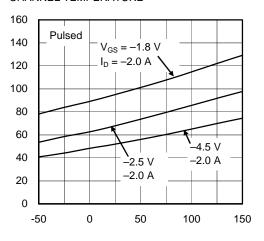
 $R_{DS(on)}$ – Drain to Source On-state Resistance - $m\Omega$



t_{d(on)}, t_f, t_{d(off)}, t_r - Switching Time - Lts

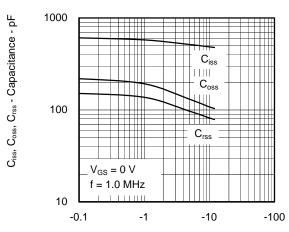
IF - Diode Forward Current - A

DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



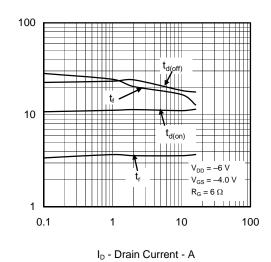
T_{ch} - Channel Temperature - °C

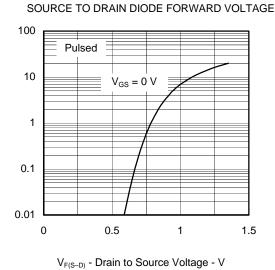
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



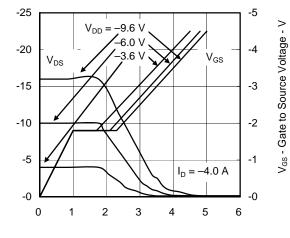
V_{DS} - Drain to Source Voltage - V

SWITCHING CHARACTERISTICS





DYNAMIC INPUT/OUTPUT CHARACTERISTICS

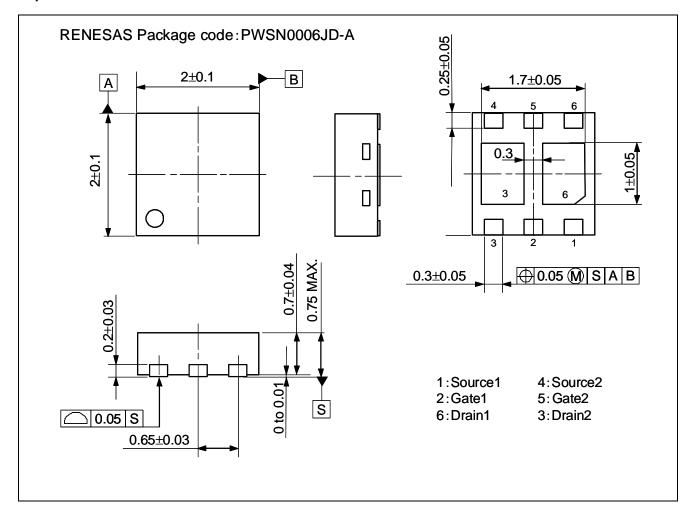


Q_G - Gate Charge - nC

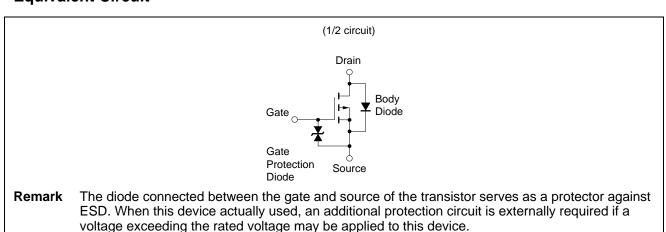
V_{DS} - Drain to Source Voltage - V

Package Drawings (Unit: mm)

6pinHUSON2020



Equivalent Circuit



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