XP162A02D5PR

Power MOS FET

- ◆ **P-Channel Power MOS FET**
- ◆ **DMOS Structure**
- ◆ **Low On-State Resistance: 0.45Ω MAX**
- ◆ **Ultra High-Speed Switching**
- ◆ **SOT-89 Package**

■ Applications

- ● Notebook PCs
- ● Cellular and portable phones
- ● On-board power supplies
- ● Li-ion battery systems

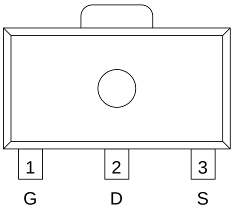
■ General Description

The XP162A02D5PR is a P-Channel Power MOS FET with low on-state resistance and ultra high-speed switching characteristics.
Because high-speed switching is possible, the IC can be efficiently set thereby saving energy.
The small SOT-89 package makes high density mounting possible.

■ Features

Low on-state resistance: Rds(on)=0.45Ω(Vgs=-4.5V)
Rds(on)=0.8Ω(Vgs=-2.5V)
Ultra high-speed switching
Operational Voltage: -2.5V
High density mounting: SOT-89

■ Pin Configuration

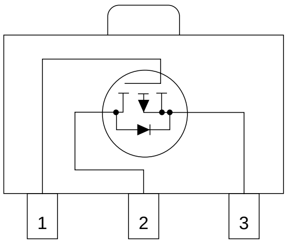


SOT-89
(TOP VIEW)

■ Pin Assignment

PIN NUMBER	PIN NAME	FUNCTION
1	G	Gate
2	D	Drain
3	S	Source

■ Equivalent Circuit



P-Channel MOS FET
(1 device built-in)

■ Absolute Maximum Ratings

Ta=25℃

PARAMETER	SYMBOL	RATINGS	UNITS
Drain-Source Voltage	Vdss	-20	V
Gate-Source Voltage	Vgss	±12	V
Drain Current (DC)	Id	-1.5	A
Drain Current (Pulse)	Idp	-4.5	A
Reverse Drain Current	Idr	-1.5	A
Continuous Channel Power Dissipation (note)	Pd	2	W
Channel Temperature	Tch	150	℃
Storage Temperature	Tstg	-55~150	℃

Note: When implemented on a glass epoxy PCB

Electrical Characteristics

DC characteristics

Ta=25℃

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Drain Cut-off Current	Idss	Vds=-20V, Vgs=0V			-10	μA
Gate-Source Leakage Current	Igss	Vgs=±12V, Vds=0V			±1	μA
Gate-Source Cut-off Voltage	Vgs(off)	Id=-1mA, Vds=-10V	-0.5		-1.2	V
Drain-Source On-state Resistance (note)	Rds(on)	Id=-0.8A, Vgs=-4.5V		0.35	0.45	Ω
		Id=-0.8A, Vgs=-2.5V		0.6	0.8	Ω
Forward Transfer Admittance (note)	|Yfs|	Id=-0.8A, Vds=-10V		1.5		S
Body Drain Diode Forward Voltage	Vf	If=-1.5A, Vgs=0V			-1.1	V

Note: Effective during pulse test.

Dynamic characteristics

Ta=25℃

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Input Capacitance	Ciss	Vds=-10V, Vgs=0V f=1MHz		180		pF
Output Capacitance	Coss			100		pF
Feedback Capacitance	Crss			35		pF

Switching characteristics

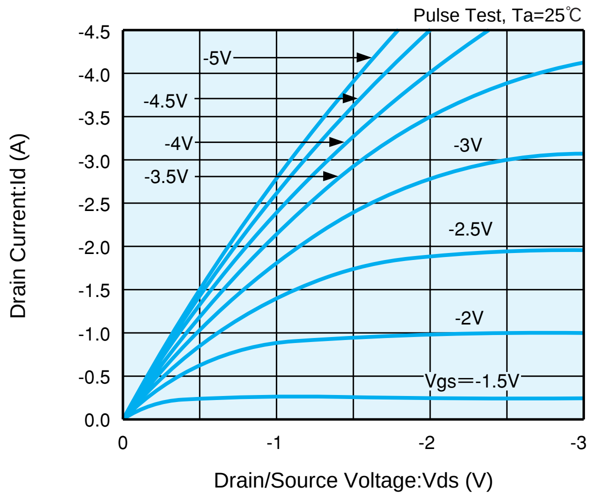
Ta=25℃

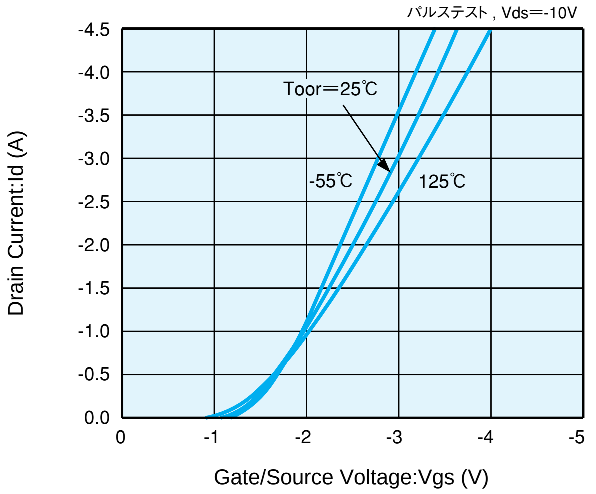
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Turn-on Delay Time	td (on)	Vgs=-5V, Id=-0.8A Vdd=-10V		10		ns
Rise Time	tr			15		ns
Turn-off Delay Time	td (off)			20		ns
Fall Time	tf			30		ns

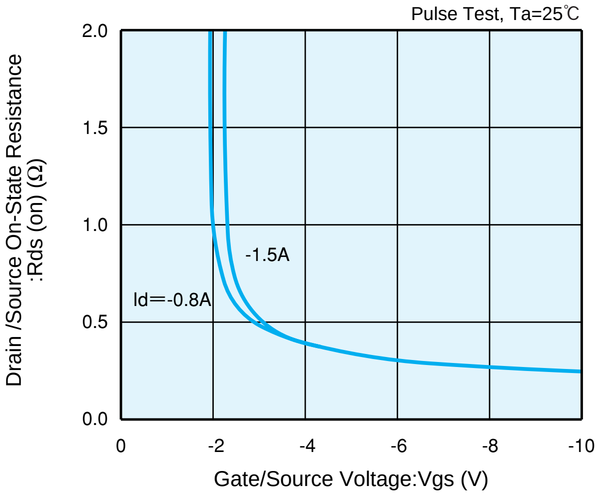
Thermal characteristics

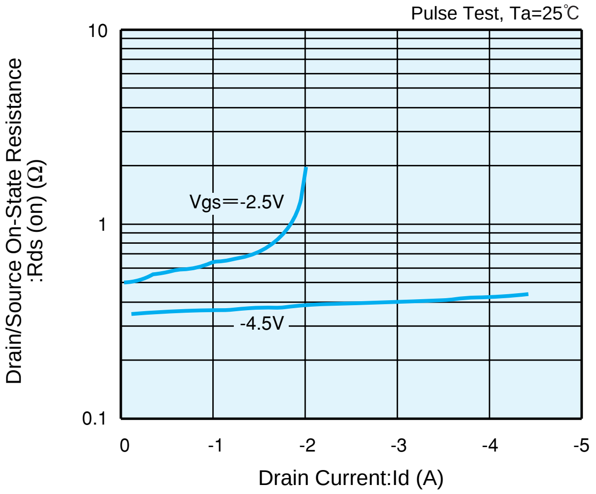
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance (channel-surroundings)	Rth (ch-a)	Implement on a glass epoxy resin PCB		62.5		˚C/W

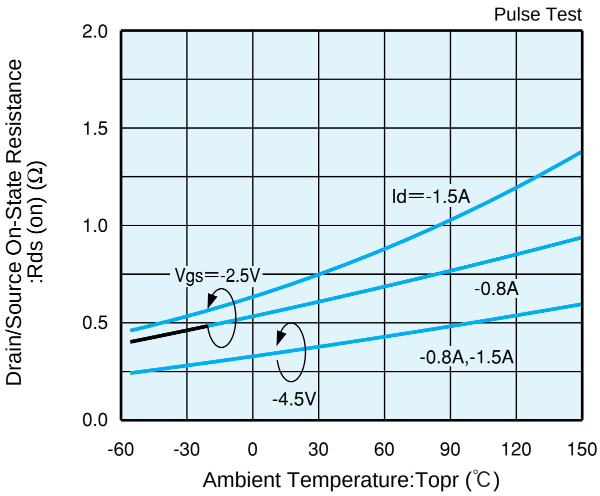
■ Electrical Characteristics

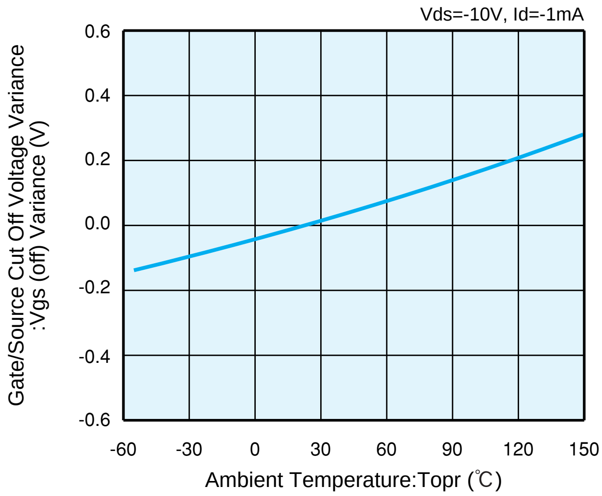

Drain Current vs. Drain /Source Voltage


Drain Current vs. Gate/Source Voltage


Drain/Source On-State Resistance vs. Gate/Source Voltage

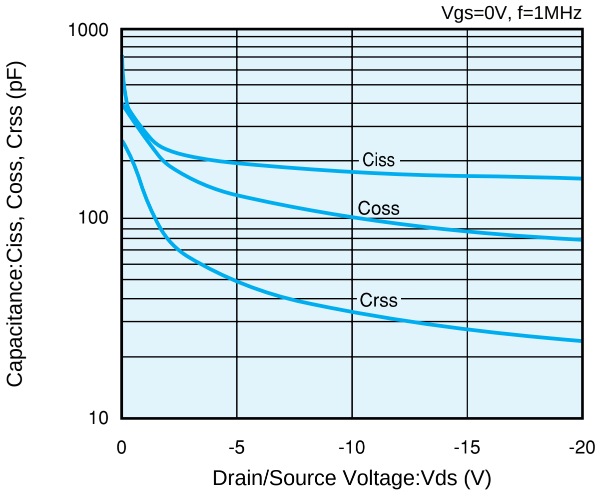

Drain/Source On-State Resistance vs. Drain Current


Drain/Source On-State Resistance vs. Ambient Temp.

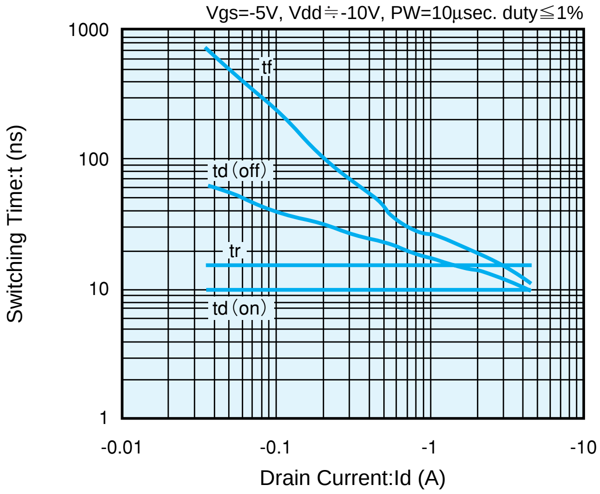

Gate/Source Cut Off Voltage Variance vs. Ambient Temp.

■ Electrical Characteristics

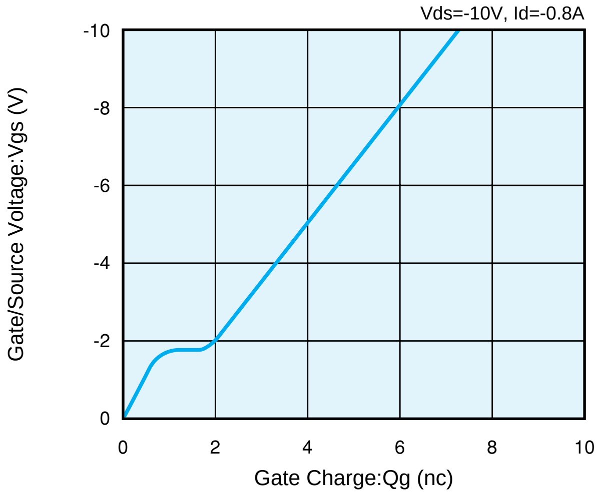
Drain/Source Voltage vs. Capacitance



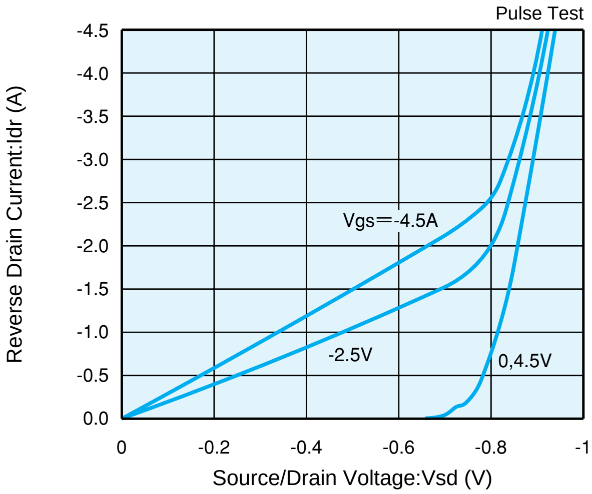
Switching Time vs. Drain Current



Gate/Source Voltage vs. Gate Charge



Reverse Drain Current vs. Source/Drain Voltage



Standardized Transition Thermal Resistance vs. Pulse Width