

- ◆ 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

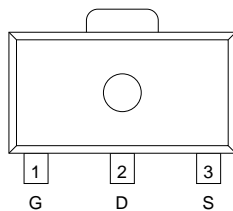
The XP162A02D5PR is a P-Channel Power MOS FET with low on-state resistance and ultra high-speed switching characteristics. Because high-speed switching is possible, the IC can be efficiently set thereby saving energy. The small SOT-89 package makes high density mounting possible.

Features

Low on-state resistance: $R_{ds(on)}=0.45\Omega(V_{gs}=-4.5V)$
 $R_{ds(on)}=0.8\Omega(V_{gs}=-2.5V)$
Ultra high-speed switching
Operational Voltage: -2.5V
High density mounting: SOT-89

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Pin Configuration

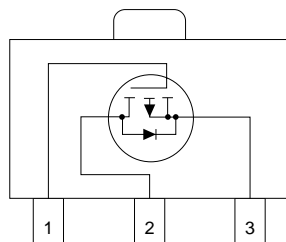


SOT-89
(TOP VIEW)

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°C

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	°C
Storage Temperature	Tstg	-55~150	°C

Note: When implemented on a glass epoxy PCB

Electrical Characteristics

DC characteristics

Ta=25°C

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°C

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°C

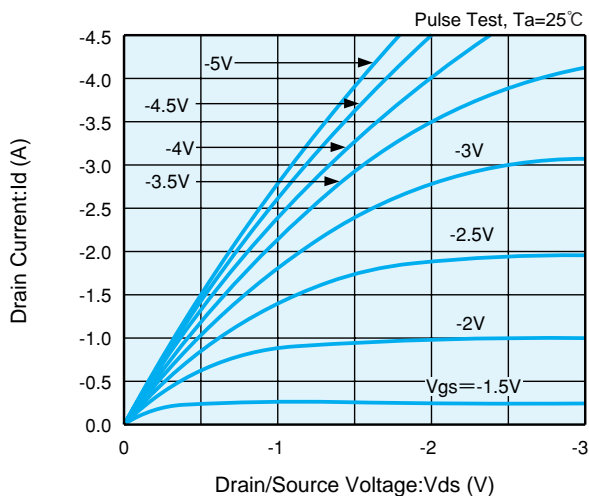
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Turn-on Delay Time	td (on)	Vgs=-5V, Id=-0.8A Vdd=-10V		10		ns
Rise Time	tr			15		ns
Turn-off Delay Time	td (off)			20		ns
Fall Time	tf			30		ns

Thermal characteristics

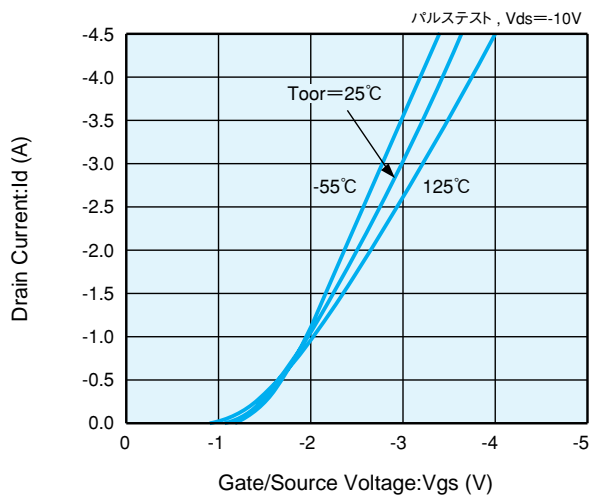
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance (channel-surroundings)	Rth (ch-a)	Implement on a glass epoxy resin PCB		62.5		°C/W

Electrical Characteristics

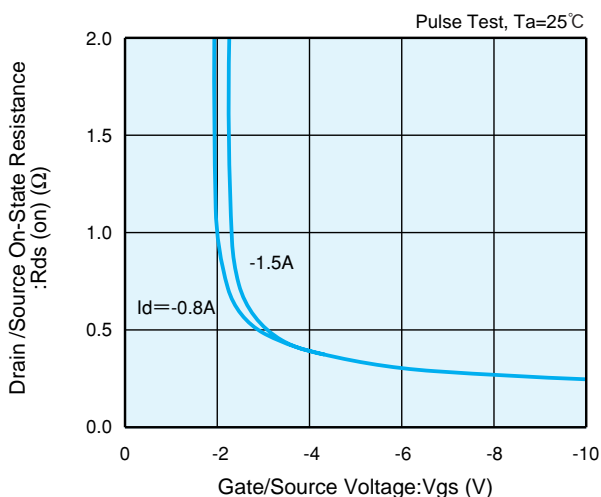
Drain Current vs. Drain /Source Voltage



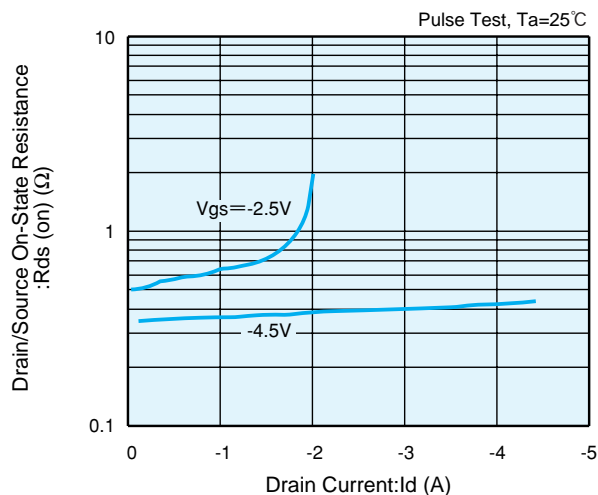
Drain Current vs. Gate/Source Voltage



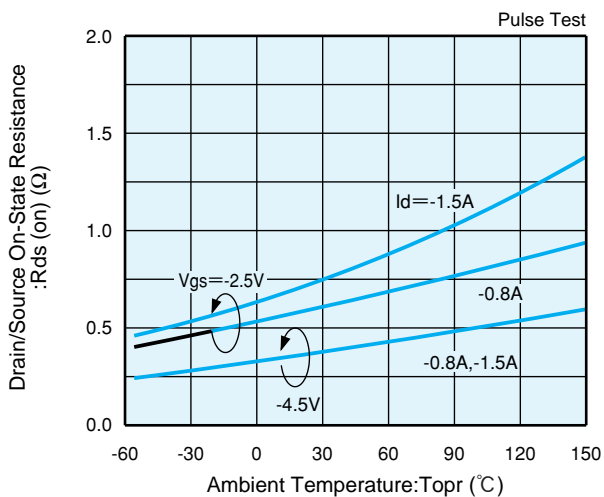
Drain/Source On-State Resistance vs. Gate/Source Voltage



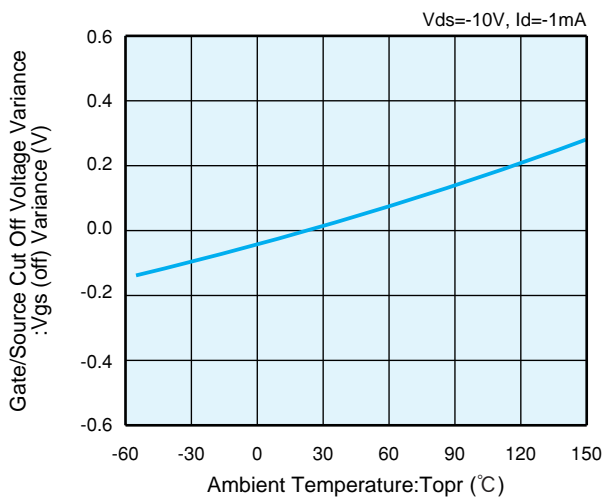
Drain/Source On-State Resistance vs. Drain Current



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



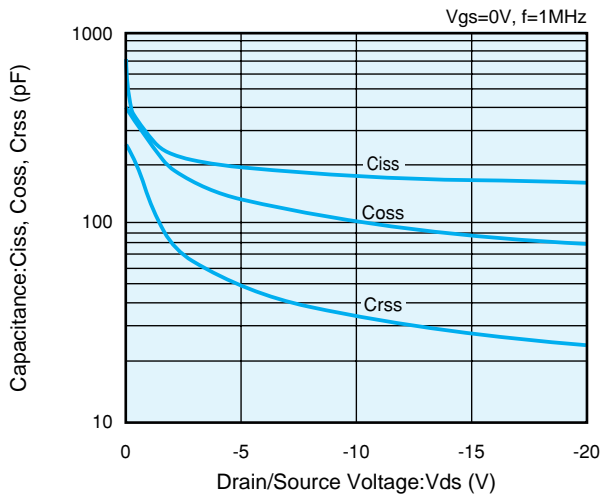
Gate/Source Cut Off Voltage Variance vs. Ambient Temp.



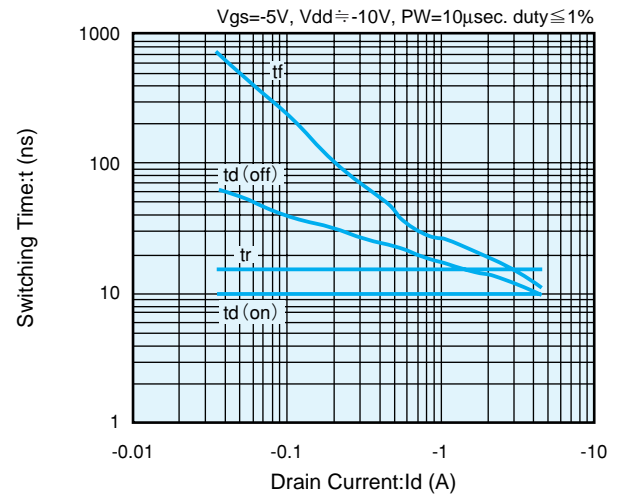
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Electrical Characteristics

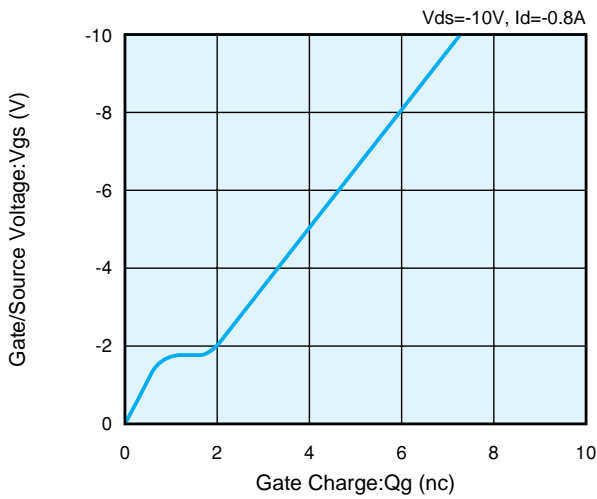
Drain/Source Voltage vs. Capacitance



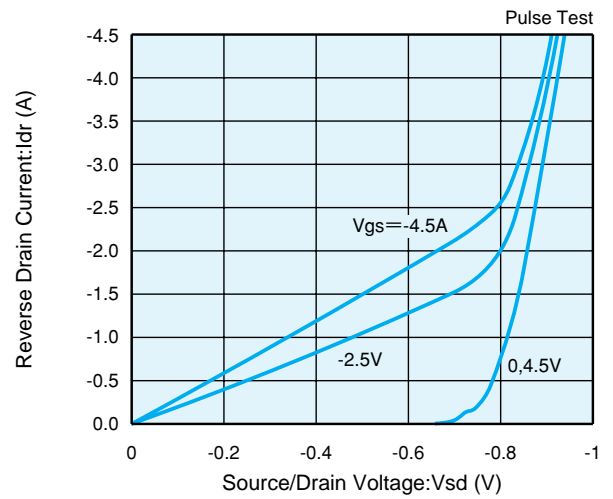
Switching Time vs. Drain Current



Gate/Source Voltage vs. Gate Charge



Reverse Drain Current vs. Source/Drain Voltage



Standardized Transition Thermal Resistance vs. Pulse Width

